

**Risk factors for first line antiretroviral treatment failure among adults  
living with HIV at AMPATH clinic, Kitale District Hospital, Kenya**

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## ABSTRACT

As the use of antiretroviral therapy (ART) continues to increase, the emergence of drug resistance that leads to treatment failure is becoming a public health concern. Treatment failure is lack of virological suppression leading to detectable viremia, progressive immunological damage with progressive decline in CD4 counts and development of opportunistic infections after a period of well being. The objective of the study was to determine risk factors associated with first line antiretroviral treatment failure among adults living with HIV at AMPATH clinic of Kitale District Hospital. A randomized sample of 230 respondents participated in the study. Data on social, demographic and adherence patterns was collected in a period of three months using a structured questionnaire. Respondents' medical records were reviewed for retrospective data. Data analysis was done using the SPSS version 11.01 for descriptive, invariate and bivariate parameters. Respondents with non adherence pattern were eighteen times more likely to fail treatment (develop resistance to first line therapy) than those with satisfactory adherence ( $p < 0.001$ ). Those who were introduced on ARVs with low baseline CD4 T-lymphocytes were also at higher risk of treatment failure. The proportion of respondents on first line with baseline CD4 T- lymphocytes  $< 100$  cells/ml was significantly lower compared to second line ( $p < 0.001$ ). The proportion of respondents who experienced adverse drug reactions on first line was significantly lower compared to second line ( $p < 0.0001$ ). A person who experienced adverse drug reactions was 7.0 times at higher risk of treatment failure compared to those who never experienced. Long distance to the clinic was also identified as an important factor for treatment failure as people from

areas >21 kilometers from the clinic were at risk of treatment failure than those close to the clinic within a radius of < 21 kilometers ( $p < 0.05$ ). The proportion of respondents on first line with treatment assistants was significantly higher than for second line ( $p < 0.05$ ). Respondents who did not have a treatment assistant were 3.7 times more likely to fail treatment than those with a treatment assistant, finally, erratic food supplements was related to respondents being either on first line or second line ( $p < 0.05$ ). The odd of a respondent who never accessed food supplement failing treatment was 5.5 times more than the one who accessed food supplements. Based on the findings of this study, health facilities involved in the ART programs should strengthen adherence monitoring plans to effectively deal with the challenge of non adherence among people with HIV. ART Program should be expanded to ensure people access ARVs early enough before their CD4 counts drop to very low levels. People with low CD4 counts should be monitored more closely since they are likely to develop treatment failure. Government initiatives should address the problem of financial and geographical access to treatment in order to deal with the challenges of long distance to health facilities. Finally, the National ART Program should relook at the current ARV regimens with view to moving to less toxic regimens without compromising the potency since ARV adverse effects had a direct association with treatment failure.