

# Understanding virological failure in adolescents living with HIV in Chiradzulu District, Malawi: Evidence from a cross-sectional assessment and a qualitative study

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## Background

The number of adolescents living with HIV is rising in sub-Saharan Africa, with this patient group experiencing poor treatment and health outcomes. We assessed virological failure and drug resistance to first-line antiretroviral therapy (ART), and qualitatively explored issues influencing adherence amongst adolescents living with HIV (ALHIV) in Chiradzulu, Malawi.

## Methods

A mixed-methods study was conducted between May-November 2016.

**Quantitative:** A cross-sectional assessment included 10-19 year olds receiving first-line ART for  $\geq 6$  months. Plasma viral load (VL) was assessed and drug resistance-genotyping performed if VL  $\geq 500$  copies/ml. Participants with VL  $> 1000$  copies/ml received counselling and a second VL test.

**Qualitative:** We explored individual and social influences on ART adherence through in-depth interviews with 16 adolescents, 16 caregivers, seven community members, six health workers, and eight group discussions with ALHIV and HIV-negative adolescents.

## Results

**Quantitative:** : 409 adolescents (median age 13 years, 58% female) participated after a median of 6.8 years (IQR: 3, 9) on ART (85% AZT-3TC-NVP, 11% TDF-3TC-EFV). Thirty-two-percent of participants had VL  $\geq 1000$  copies/ml; only 16% suppressed to  $< 1000$  copies/ml after counselling. Resistance testing revealed 87% of virologically failing patients were

on  $\leq 1$  effective drug. Major resistance included 3TC (86%), NVP (93%) and EFV (75%).

**Qualitative:** Most adolescents reported difficulties adhering to ART despite understanding the importance for their health. Adherence was undermined by individual factors such as poor mental health and inadequate HIV status disclosure, family factors including precarious caretaking arrangements, community factors including stigma; and health services factors such as poor patient-provider relations and overly strict treatment-taking instructions.

## Conclusions

Treatment failure and drug resistance were high amongst ALHIV in Chiradzulu. A robust once-per-day first-line regimen and frequent VL monitoring should be considered to support adherence and minimize accumulation of resistance. Family-centred approaches are needed alongside youth-friendly health services with tailored counselling and peer-support clubs to help adolescents thrive on ART.

Treatment failure is high among HIV-positive adolescents in Chiradzulu. Multiple social challenges undermine treatment adherence requiring tailored models of care involving families, peers and communities.