

# Acquired and transmitted resistance to antiretroviral drugs in Mozambique

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## Background

Since 2013, MSF has supported viral load (VL) testing scale-up in rural and urban Mozambique where programmatic data showed a high rate of HIV-1 virological failure (VF, VL $\geq$ 1 000 HIV-1 RNA copies/ml). This study estimates the proportion of VF and acquired drug resistance (ADR) among patients receiving first-line ART for more than 6 months, as well as the level of pre-treatment drug resistance (PDR) among HIV patients initiating/re-initiating ART in both settings.

## Methods

Two cross-sectional studies were conducted between October 2017 and October 2018 in MSF-supported health centres (HC) among patients aged  $\geq$  18 years (ADR survey: 1 HC in Maputo, 2 in Tete District; PDR survey: 1 HC in Maputo, 7 in Tete). VL was quantified and drug resistance testing (DRT) performed if VL  $\geq$ 1 000. HIV-DR was defined by low, intermediate or high levels of resistance (StanfordHIVdb). PDR was reported as the proportion of non-nucleoside reverse transcriptase inhibitor (NNRTI) resistance.

## Results

Among 1 113 participants on ART for at least 6 months (57.5% in Maputo, median age 42 years, 67.7% female), 11% (95CI% 9.4-13.2) had VF. Among these, 91.2% (N=114, CI95% 84.7-95.5) had any HIV-DR,

73.6% (95CI% 65.0-81.0) had any nucleoside reverse transcriptase inhibitors (NRTI) resistance and 89.6% (95CI% 82.8-94.3) had any NNRTI DR. Among 735 ART initiators/re-initiators (39% in Maputo, median age 34 years, 55% female, 12.7% ART-pre-exposed), 525 (71.4%) had VL $>$ 1 000 and DRT available. Of these patients, 25.9% (95CI% 22.2-29.9) had NNRTI resistance (vs. 55% among those pre-exposed to ART).

## Conclusion

Among patients on treatment for at least 6 months, VF on first-line was low but most patients with a high VL were on a failing regimen. The level of PDR among ART initiators/re-initiators exceeded the 10% threshold, and about 1/4 of patients initiated ART with an ineffective first-line regimen.

Non-NNRTI first-line ART should be recommended for ART initiation in Mozambique, and HIV-1 drug resistance surveillance should be implemented at a national level.