



# Viral load Suppression and Associated Factors among HIV Patients on Antiretroviral Treatment in Bulambuli District, Eastern Uganda: A Retrospective Cohort Study

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## ABSTRACT

**BACKGROUND:** HIV viral load suppression (VLS) is the most important indicator of successful antiretroviral therapy. In 2016, Bulambuli District started monitoring HIV patients on ART using viral load tests in an effort to meet the third 90 of the UNAIDS 90-90-90 strategy which is VLS. The objective of this study was to determine the progress in Bulambuli District towards achievement of VLS among HIV infected patients on ART and associated factors that affect this programme.

**METHODS:** A retrospective cohort study design was used. One thousand, one hundred and one medical records of HIV infected patients on ART who attended HIV clinic at Muyembe Health Centre IV from June 2016 to April 2018 were reviewed. A data abstraction tool was used for data collection. Chi Square was used to determine factors associated with VLS and logistic regression was used to determine the magnitude by which the ART and clinical factors influence VLS. Data were summarized using descriptive statistics for categorical variables and by computing proportions, means and standard deviation for continuous variables.

**RESULTS:** Of the patients (n = 944, 85.7%) had attained VLS. Adjusting for known confounders, only adherence to ART was a significant predictor of VLS. Individuals with fair adherence (80%-95%) had 2.667 times the odds of VLS, CI = 1.122-9.370, *P*-value of <.002 compared to individuals with good (>95%) adherence which was used as the reference while those with poor (<80%) adherence had 4.553 times the odds of attaining VLS, CI = 1.31-13.930, *P*-value of <.001 compared to individuals with good adherence.

**CONCLUSION:** These findings suggest that Bulambuli District, at 85.7% VLS is on track to attaining the third 90 of the 90, 90, 90 global targets by 2020. It further reveals that adherence is the only significant predictor of VLS in the District.

**KEYWORDS:** Viral load suppression, HIV patients, antiretroviral treatment, UNAIDS 90-90-90 strategy, adherence, Bulambuli district

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## Background

HIV/AIDS is the world's fifth greatest health challenge according to the Global Burden of Disease Study.<sup>1</sup> According to UNAIDS (2017) there were approximately 36.7 million people worldwide living with HIV/AIDS at the end of 2016.<sup>2</sup> By 2011, Sub-Saharan Africa alone accounted for an estimated 69% of all people living with HIV and 70% of all AIDS deaths in the world.<sup>3</sup> Roosblad reported that by 2014, Uganda had the third-highest number of new HIV infections in Sub-Saharan Africa, behind South Africa and Nigeria.<sup>4</sup> Uganda AIDS Commission estimated that by the end of 2015, about 1.46 million people in Uganda were living with HIV.

Viral load is recommended as the best monitoring method to making a diagnosis and also confirming ARV treatment failure.<sup>5</sup>

The Global Health Sector Strategy on HIV recommends that 90% of people living with HIV know their HIV status; 90% of people diagnosed with HIV receive ARV treatment; and that 90% of people living with HIV, who get treatment, achieve viral load suppression.<sup>6</sup> HIV viral load suppression is the most important indicator of successful antiretroviral therapy.<sup>6</sup> It was noted that antiretroviral treatment (ART) aims to improve the prognosis and quality of life for patients living with HIV by reducing the rate of disease occurrence, progression and mortality.<sup>7</sup>

There is low viral load suppression among HIV infected individuals on ART in Bulambuli District. According to the Uganda Viral Load dashboard of 2017, Bulambuli District had a viral load suppression level of 74.6%.<sup>8</sup> The Bulambuli district level is significantly below the UNAIDS 90-90-90 target of

