

IMPACT OF EARLY VIRAL SUPPRESSION ON HIV INCIDENCE ASSAYS: HPTN 071 (POPART)

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Introduction

Background:

- Serologic assays are used for cross-sectional HIV incidence estimation.
- Viral suppression from antiretroviral therapy (ART) can impact the performance of these assays in persons with established HIV infection.

Study Objective:

- To evaluate whether initiation of ART in the first year of infection impacts the performance of serologic HIV incidence assays.

Samples used for analysis:

- Samples were obtained from a community-randomized trial that evaluated the impact of universal testing and treatment on HIV incidence in Zambia and South Africa (HPTN 071 [PopART]).
- 219 plasma samples were obtained from participants infected <1 year (seroconverters).
- 62/219 (28.3%) of the samples had viral loads ≤ 400 copies/mL.

Laboratory Methods:

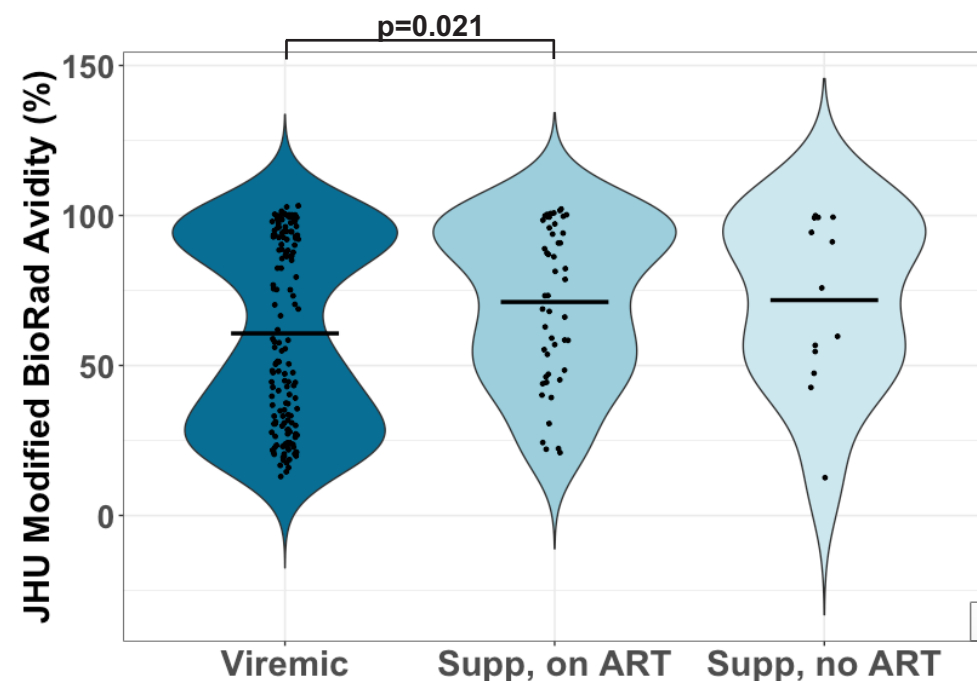
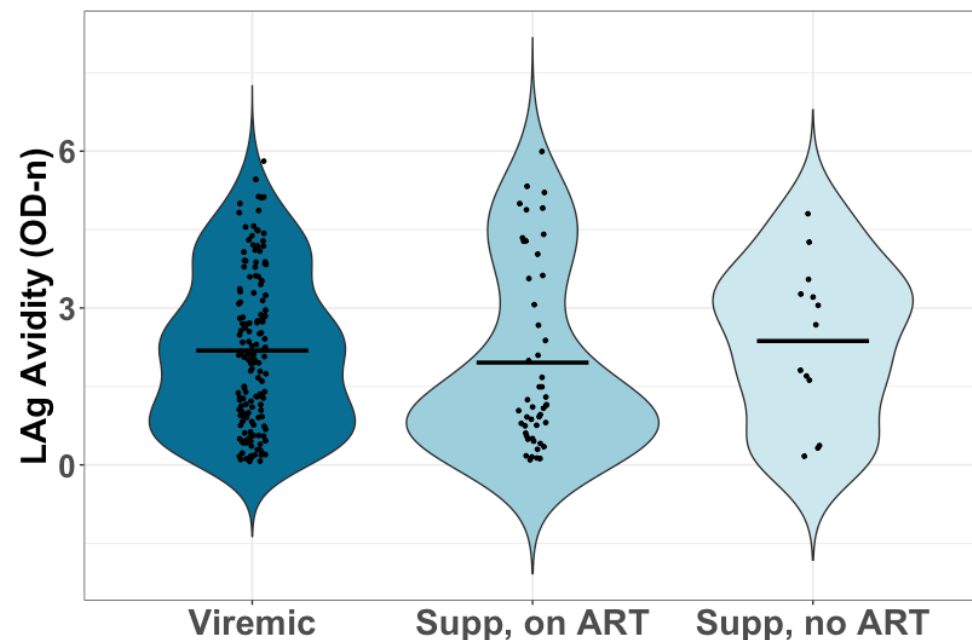
- LAg-Avidity assay
- JHU modified BioRad-Avidity assay
- Assanté HIV-1 Rapid Recency assay
- Qualitative multi-drug assay

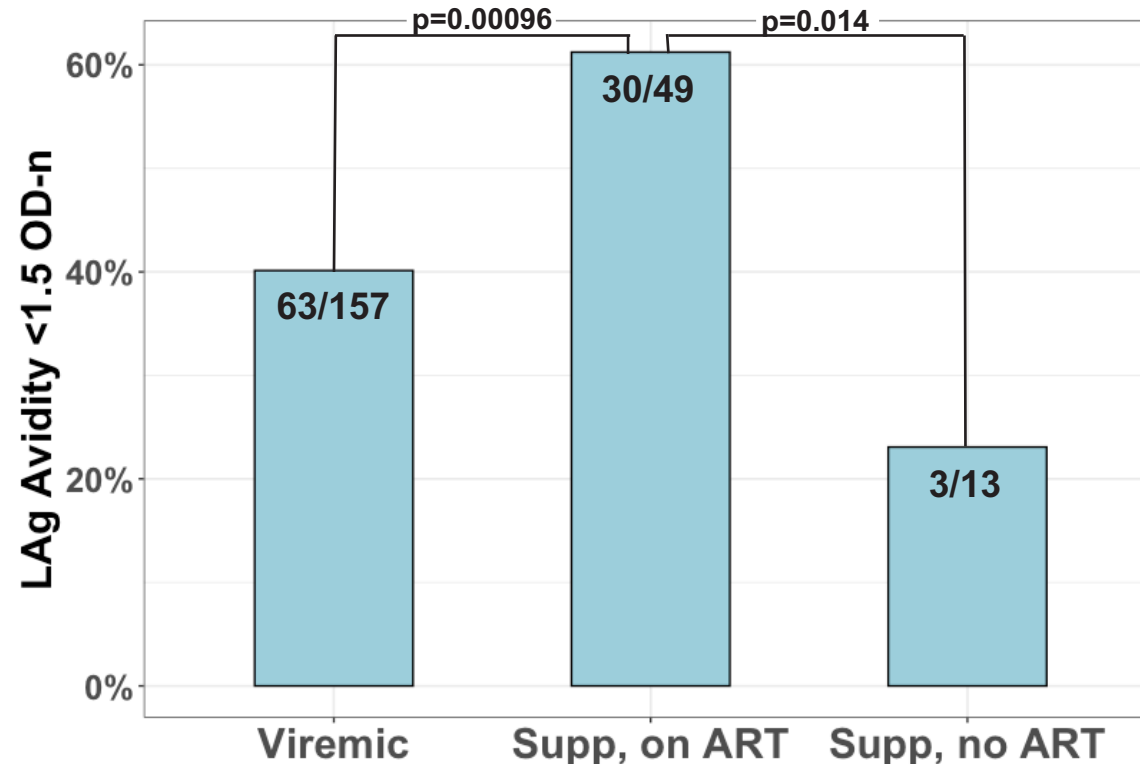
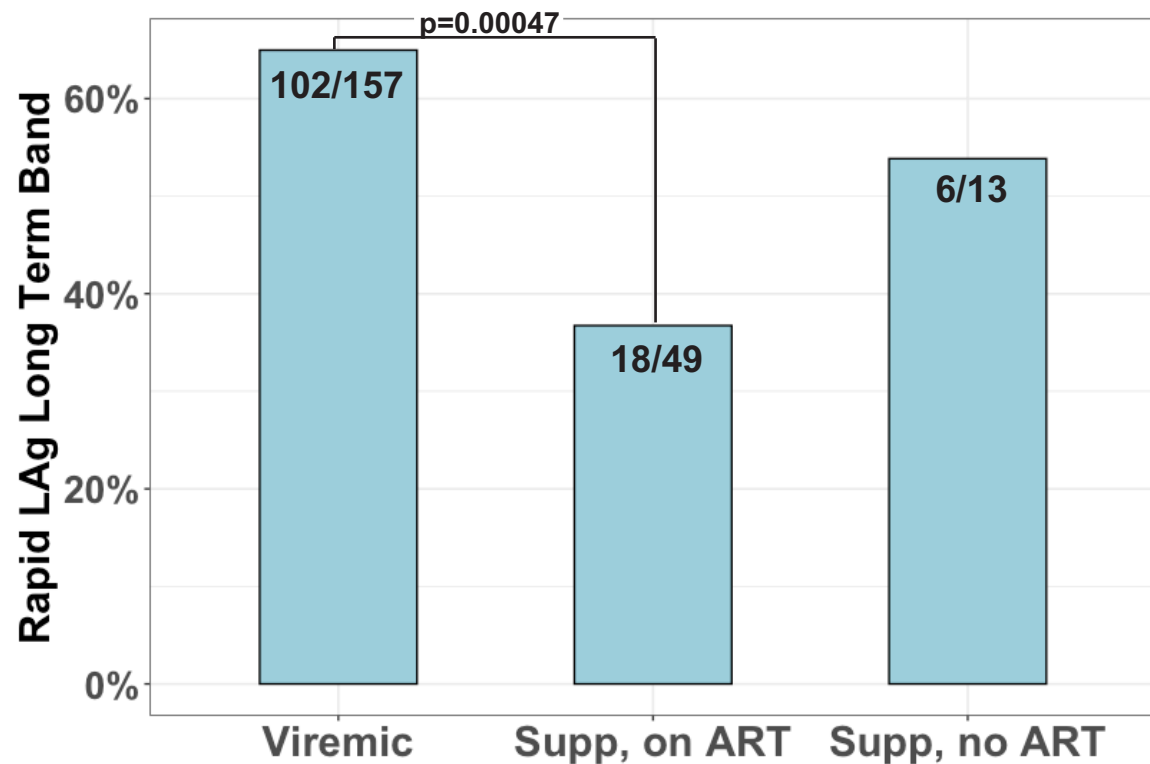


Results

Group	Participants
Viremic	157
Suppressed on ART	49
Suppressed, no ARV drugs detected	13

- There was no difference in mean LAg-avidity values between groups.
- The mean BioRad-avidity value was higher for seroconverters who were suppressed on ART than for those who were viremic.





- Seroconverters who were suppressed on ART were less likely to have the long-term infected band on the rapid LAg assay than those who were viremic.
- Seroconverters who were suppressed on ART were also more likely to have LAg-Avidity values <1.5 than those who were viremic or were virally suppressed in the absence of ART.

Conclusions

- Persons who were virally suppressed on ART in the first year of infection were more likely to have “recent” results using the LAg-Avidity and Rapid LAg assays.
- In contrast, ART-induced viral suppression in the first year of infection did not significantly impact performance of the BioRad-Avidity assay.
- Persons who were suppressed on ART were more likely to have lower LAg-Avidity values than persons who were virally suppressed in the absence of ARV drugs. This may reflect differences in the serological responses of those with ART-induced vs. natural viral suppression.
- Further research is needed to determine if these differences impact the performance of multi-assay algorithms for HIV incidence estimation.

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