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Increased Viral Suppression with Adherence Counseling Incorporating a Point-of-Care Urine TFV Test

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BACKGROUND

- Innovative approaches are needed to achieve the third UNAIDS 95-95-95 target, to sustain virologic suppression (VS) in patients on tenofovir (TFV)-lamivudine-dolutegravir (DTG) (TLD)
- Virologic failure in patients on TLD likely due to non-adherence because of DTG's high resistance barrier.
- Counseling patients on non-adherence to TLD with a point-of-care (POC) TFV test may help achieve VS
- In Namibia, we integrated a low-cost, POC urine test into standard-care Enhanced Adherence Counselling (EAC)

METHODS

- Patients on TLD with viral load (VL)>1000 copies/mL after completing ≥1 round (3 months) of EAC enrolled from 42 clinics across Namibia
- At each monthly ART pick-up, participants had the POC urine test and received tailored EAC based on results
- After 3 months (1 round), participants received a viral load (VL). If VS not achieved, up to 3 additional rounds of EAC informed by the POC urine test provided
- HIV drug resistance at month(M) 9 performed if no VS
- Prior to the intervention, only 33% of patients suppressed with 2 rounds of EAC alone, which served as the comparison
- Acceptability of the urine assay assessed via surveys administered to participants and providers.

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RESULTS

Incorporating a urine tenofovir (TFV) assay into enhanced adherence counseling (EAC) in Namibia increased virologic suppression from 0% to 93% by 9 months in a pre-post intervention (compared to 33% counterfactual with EAC alone)

- Of 211 participants enrolled (median age 33 years, IQR 22-46, 61% female), 195 reached Month 3 and received a VL, with 169 achieving VS (87%, p<0.001). VS increased to 181 by Month 9 (93%, p<0.001)
- Month 3 urine tenofovir testing 98% sensitive and 59% specific for VS at Month 3 **(Fig 1)**
- Drug resistance testing performed in five participants with high VL at M9. 1 developed DTG resistance (N155H and R263K). Month 9 urine TFV testing 100% sensitive / 75% specific to predict resistance (**Fig** 1)

Figure 1: Urine Assay Results compared to Month 3 VS and Month 9 Resistance Testing

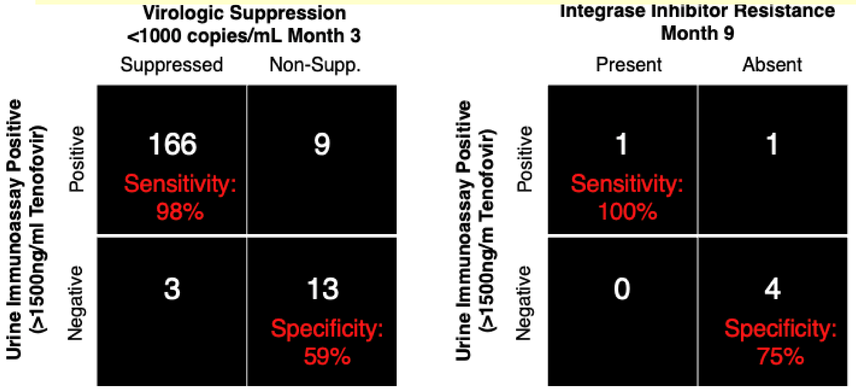
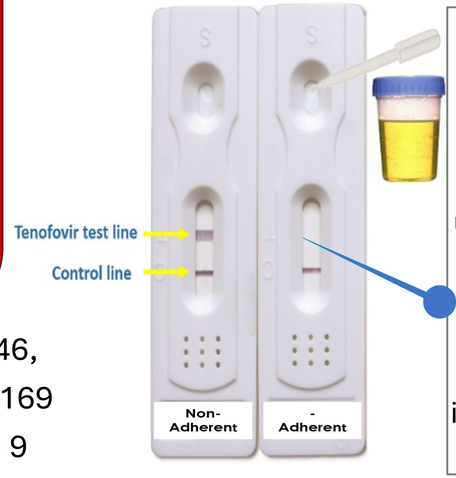


Figure 2: Acceptability of POC Urine Test-Targeted EAC



Over 84% of participants and 89% of providers agreed/strongly agreed that the urine test improved EAC; 88% of participants and 95% of providers would use the test in future counseling sessions

CONCLUSION

- Nearly 90% of patients on TLD with VL >1000 copies/mL achieved VS within 3 months (93% at M9) with EAC that incorporated a urine POC TFV test
- Urine test highly sensitive for detecting VS and integrase inhibitor resistance.
- Promising pre-post-intervention results will now be tested in an RCT
- POC urine TFV test has great potential to help achieve the third 95-95-95 target in a low-cost, scalable manner.

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