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POINT-OF-CARE VIRAL LOAD TESTING IMPROVES HIV VIRAL SUPPRESSION AND RETENTION IN CARE

Paul K. Drain1, Jienchi Dorward2, Lauren Violette1, Justice Quame-Amaglo1, Katherine Thomas1, Natasha Samsunder3, Hope Ngobese3, Koleka Mlisana3, Pravi Moodley3, Deborah J. Donnell1, Ruanne V. Barnabas1, Kogieleum Naidoo3, Salim Abdool Karim3, Connie L. Celum1, Nigel Garrett3
1University of Washington, Seattle, WA, USA, 2University of Oxford, Oxford, UK, 3University of KwaZulu-Natal, Durban, South Africa

Background:
Achieving the 90-90-90 targets will require efficient methods to monitor people living with HIV (PLHIV) on antiretroviral therapy (ART) in resource-limited settings. We compared point-of-care (POC) viral load (VL) testing to standard laboratory VL testing for achieving VL suppression and retention in care for PLHIV in Durban, South Africa.

Methods:
We conducted an open-label, randomized controlled trial among adults (≥18 years) enrolled 6 months after ART initiation at an urban public clinic. Participants were randomized to receive either POC VL testing (Xpert® HIV-1 VL, Cepheid) and same day counseling or standard-of-care (SOC) laboratory VL testing. All participants were followed for 12 months and received HIV care according to South African guidelines, including clinic visits every 2 months, VL testing at month 6 and 12 after ART initiation, and consideration for decentralized ART delivery at community pharmacies 1 year after ART initiation. The primary outcome was retained with VL suppression (<200 copies/mL) after 12 months, with retained defined as collecting ART at the study clinic between 44-56 weeks after enrollment. Those not retained were contacted for follow-up VL testing.

Results:
Among 390 participants, mean age was 33 years, 235 (60%) were female, and median CD4 count at enrollment was 468 [IQR 309-666] cells/mm3. After 12 months, 175 (89.7%) participants in the POC arm and 148 (75.9%) in the SOC arm were retained with VL suppression, an increase of 13.9% (95% CI 6.4-21.2, p=0.0004) among participants who received POC VL testing compared to those who received laboratory VL testing (Table). When disaggregated, POC VL testing increased VL suppression by 10.3% from 83.1% to 93.3% (p=0.003) and increased retention by 7.7% from 84.6% to 92.3% (p=0.03). When restricted to those with a VL result at exit, the proportion with VL suppression increased by 5.3% from 91.0% to 96.3% (p=0.05) in the POC arm. During the study, 99.5% of POC arm participants received the VL result on the same day, while 74.7% of SOC participants received a VL result a median of 41 [IQR 28-69] days after blood draw. Participants in the POC arm had a 3.4-fold (95% CI 2.5-4.8) higher rate of entry into decentralized ART delivery.

Conclusion:
POC VL testing significantly improved HIV viral suppression and retention in care in South Africa, partly by ensuring rapid receipt of VL results to PLHIV and their providers. Increasing access to POC VL testing could help to achieve the 90-90-90 targets.