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# Implementation of virological point-of-care testing for HIV positive mothers and exposed infants to increase testing and for more timely clinical action: Cambodia experience

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## BACKGROUND

Cambodia has made substantial progress in reducing Mother-to-Child Transmission (MTCT) of HIV, with rates dropping from 32% in 2007 to 9.9% in 2022. However, centralized testing for HIV viral load (VL) in mothers and early infant diagnosis (EID) remains a bottleneck. In response, National Center for HIV/AIDS, Dermatology and STD (NCHADS) initiated a pilot program in 2023 to integrate Point-of-Care Testing (PoCT) for HIV VL and EID using GeneXpert devices, previously utilized solely for Tuberculosis (TB) diagnosis.

This collaboration between the NCHADS, the National Centre for Tuberculosis and Leprosy Control, and the National Maternal Child Health Centre aimed to assess the feasibility and effectiveness of PoCT in improving service delivery and patient outcomes within the PMTCT program.

*Figure 1. NTP staff provided training on how to conduct HIV testing on GeneXpert (Feb 2023)*

## METHODOLOGY

- 15 co-located TB and Antiretroviral Therapy (ART) sites with high testing capacity and more than 15 HIV tests for the target population per year were selected.
- The program compared testing volume and turnaround time (TAT) for both centralized and PoCT for HIV VL and EID services, aiming to quantify the impact of PoCT on service, potential improvements in patient care and faster treatment initiation and linkage to care.
- Testing was integrated for HIV and TB at the pilot sites.
- Key informant interviews were conducted with healthcare workers'(n=13) to gain deeper insights of the implementation, including challenges and satisfaction.


*Figure 2. ART sites for PMTCT POC pilot implementation*

## RESULT

- From February to December 2023, a total of 52 HIV VL tests, 175 EID tests, and 18,444 TB tests were conducted across 15 sites.
- Results indicate a significantly lower TAT compared to centralized testing with TAT of 7 and 14 days for HIV VL and EID respectively.
- PoCT reduced TAT to an average of 5 hours for HIV VL and 7 hours for EID.

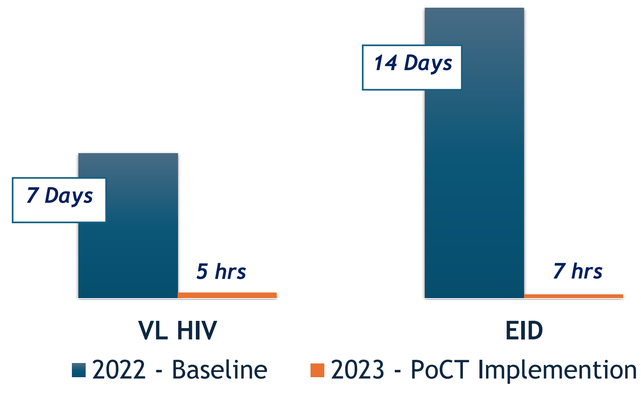
**52** HIV VL

**175** EID

**18,444** TB

*Total number of testing at 15 pilot sites From February to December 2023*

**Comparison TAT between centralized and onsite testing**




- This rapid TAT facilitated faster clinical decision-making and enabled swift initiation of ART for HIV-positive infants (n=7) within a day of diagnosis.
- The pilot successfully maintained TB testing capacity at the selected sites despite adding HIV testing, showcasing efficient use of GeneXpert devices for multi-disease testing, maximizing resource utilization, and causing no disruptions to TB testing.

*HCWs survey findings*


*Satisfaction of PoCT's implementation*

*Trust in result accuracy*

- Phone survey findings revealed PoCT's positive impact, with 100% satisfaction and 92.3% trust in availability and results. Healthcare workers' positive response suggests that the program could boost healthcare workers morale and improve service delivery.

## CONCLUSION

The PoCT integration pilot in Cambodia showcased the feasibility and effectiveness of integrating PoCT into the PMTCT program, notably reducing HIV VL and EID testing turnaround times to one day. This enabled quicker clinical decisions and ART initiation for HIV-positive infants. Furthermore, it maintained TB testing capacity and received high satisfaction and trust ratings from survey respondents. Consequently, national-scale implementation plan will be in 2026.

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