

Improving Uptake of Tuberculosis Testing using Urine Lipoarabinomannan among Children with Advanced HIV Disease: Outcomes of a Quality Improvement Initiative in Southern Nigeria

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Background

Diagnosis of Tuberculosis (TB) in children living with HIV (CLHIV) can be challenging using conventional diagnostics. Lateral Flow Urine Lipoarabinomannan (LF-LAM) assay is recommended for TB diagnosis among CLHIV with advanced HIV disease (AHD) in Nigeria, with simultaneous GeneXpert mycobacterium TB/rifampicin (MTB/RIF) tests when sputum or stool samples can be produced. The PEPFAR/USAID-funded ECEWS ACE-5 project implemented this recommendation using a quality implementation framework that included the development of a simplified algorithm for TB testing using LF-LAM, inventory optimisation for LF-LAM, and weekly data reviews. This study assessed the outcomes of this quality implementation approach on the uptake of TB tests using LF-LAM among children with AHD in Southern Nigeria.

Methods

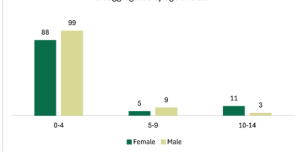
This was a retrospective cohort analysis using electronic medical records of ART-naïve children (<15 years old) diagnosed with AHD using the WHO criteria, from October 2022 to March 2023 across 153 health facilities in Akwa Ibom and Cross River States, Nigeria. Results were disaggregated by age and sex. Uptake of LF-LAM tests (Proportion of children with AHD who were tested using LF-LAM) and proportion of LF-LAM tests that were positive, were compared before (October-December 2022 [Period-1]) and during (January-March 2023 [Period-2]) the intervention, using chi-square.

Results

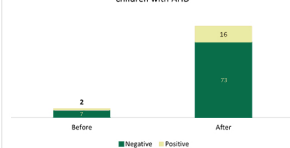
In total, 215 children had AHD (M:111, F:104) Figure 1, with 60% (129/215) identified in Period-2. Median age was 2 years (IQR 1-3). Overall, 45.6% (98/215) of children with AHD were tested for TB using LF-LAM, with 18% (18/98) testing positive. Of those who tested positive via LF-LAM, 88.9% [16/18] were in Period-2. Uptake of LF-LAM tests was significantly higher in Period-2 compared to Period-1 (69.0% [89/129] vs 10.5% [9/86] $p<0.01$) (Figure 2), and the proportion of positive LF-LAM tests was lower in Period-2 than in Period-1 (18.0% [16/89] vs 22.2% [2/9] $p=0.75$) (Figure 3).

“ Use of simplified algorithm for TB testing, inventory optimization, and weekly data reviews improved uptake of TB testing using LF-LAM among children with advanced HIV disease

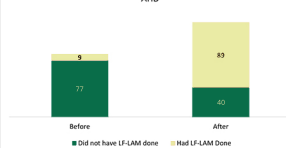
Children diagnosed with AHD (Oct 2022-Mar 2023) disaggregated by age and sex



Outcomes of TB Testing using urine LF-LAM among children with AHD



Uptake of TB testing using LF-LAM among children with AHD



Conclusions

The uptake of TB testing using LF-LAM for children with AHD improved in our setting following a quality implementation approach. Further investigation of factors affecting the uptake of TB testing using LF-LAM in this subpopulation is recommended.

Acknowledgements

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References

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