XpertHIV is more cost effective and quicker than conventional PCR in Early Infant Diagnosis of HIV in Malawi

XpertHIV was cost-minimizing at $42.34/test < $66.66/test for PCR.

Over a year, XpertHIV remained cost-minimising at $16.12 < PCR at $27.06.

From the patient perspective (travel, food, lost productivity), the cost / test of XpertHIV was $2.45.

Cost-effectiveness acceptability curves showed XpertHIV had higher probability of being cost-effective for all willingness to pay values ($0.10 to $200) that were simulated

Results
Cost analysis
The cost/test for XpertHIV was lower compared to PCR. ($42.34 vs $66.66).

Cost effectiveness
Table 1: Cost-effectiveness of Cepheid Xpert v PCR by Abbot, base case scenario

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XpertHIV was cost-effective, with an incremental cost-effectiveness-ratio of $0.17/hour of waiting time at health facility reduced

Cost-effectiveness acceptability curves for testing strategies showed that XpertHIV had higher probability of being cost-effective for all willingness to pay values ($0.10 to $200) that were simulated except at $0.10 (fig 3)

Conclusion
XpertHIV was cost minimising and cost effective compared to PCR.
Implementing XpertHIV in Mulanje district could significantly improve EID, decrease loss to follow up thereby decreasing morbidity and mortality.
More extensive modelling needs to happen to determine the full and long-term consequences of implementing XpertHIV in Malawi and sub-Saharan Africa.

Acknowledgements
Study participants, Mulanje District Hospital and Queen Elizabeth Central Hospital teams

In the year 2018 in Malawi,
• 38393 HIV exposed babies were born
• 45,637 DNA-PCR samples were collected and recorded
• 31730/45637 (70%) of the results were received at site.
• 20038/45637 (44%) of mothers received their infants’ results.
• The MoH spent $3,041,960.97 ($66.66 per test for 45,637 samples).
• 56% of the results were not received by mothers/guardians of the infants, therefore $1,083,878.48 was lost.

If XpertHIV was used, MOH would have
• spent $1,932,300.57 ($42.37/test for 45,637 samples).
• saved $1,109,660.40.
• Assuming XpertHIV has 100% results return rate, savings from implementing XpertHIV = $2,193,538.88.

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