New treatment decision algorithms for TB in children: diagnostic accuracy, impact, and considerations for implementation

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Background

Tuberculosis (TB) remains underdiagnosed in children, with nearly half of cases missed globally. In 2022, the World Health Organization (WHO) recommended new treatment decision algorithms for TB in children, including laboratory testing and a score based on clinical, and where available, chest X-ray features. We assessed the diagnostic accuracy, the feasibility and acceptability of these algorithms as well as TB case rates prior to and after their implementation in 5 sub-Saharan African countries.

Methods

This multi-country study included three components, a prospective diagnostic study, a mixed-methods study and a review of programmatic data. The prospective diagnostic study and review of programmatic data included children under 10 years with signs and symptoms of TB. The mixed-methods study included health providers, policy makers, key informants and caregivers. Study sites included primary and higher health care facilities, nutritional centres, and HIV services in Guinea, Niger, Nigeria, South Sudan, and Uganda. Children were followed for 2 months. .

Results

Among 1613 children enrolled, 27% were diagnosed with TB (79% at their first assessment). Clinical and clinical-radiological scores drove most treatment decisions (69%). Sensitivity was 91.3% (95%CI 88.3-94.3) and specificity was 87.6% (95%CI 85.5-89.6). Following algorithms' introduction, TB treatment rates increased across all sites (adjusted effect = 2.23, p=0.012). Qualitative findings revealed high acceptability of the algorithms, enhancing decision-making legitimacy. Challenges included increased workload and the need for effective communication with caregivers.

Conclusion

The new treatment decision algorithms for TB in children showed high accuracy, enabling prompt TB diagnosis in children. Implementation led to a two-fold increase in TB treatment rates. The algorithms were well accepted by healthcare workers, and provided autonomy, particularly in health facilities with less skilled staff and ambulatory care. These findings endorse the algorithms' adoption by MSF and Ministries of Health, and will contribute to the upcoming WHO guideline review in 2026.

New treatment decision algorithms for tuberculosis in children had good accuracy, led to increased tuberculosis treatment and helped health workers diagnosing tuberculosis in children.