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Diagnostic accuracy of centralised assays for TB detection and detection of resistance to rifampicin and isoniazid: a systematic review and meta-analysis

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In people with symptoms of pulmonary TB, the centralised molecular assays demonstrate comparable diagnostic accuracy for detection of TB, rifampicin resistance, and isoniazid resistance to existing WHO recommended tests <https://bit.ly/3kQE20V>

Cite this article as: Kohli M, MacLean E, Pai M, *et al.* Diagnostic accuracy of centralised assays for TB detection and detection of resistance to rifampicin and isoniazid: a systematic review and meta-analysis. *Eur Respir J* 2021; 57: 2000747 [<https://doi.org/10.1183/13993003.00747-2020>].

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ABSTRACT Various diagnostic companies have developed high throughput molecular assays for tuberculosis (TB) and resistance detection for rifampicin and isoniazid. We performed a systematic review and meta-analyses to assess the diagnostic accuracy of five of these tests for pulmonary specimens. The tests included were Abbott RealTime MTB, Abbott RealTime RIF/INH, FluoroType MTB, FluoroType MTDBR and BD Max MDR-TB assay.

A comprehensive search of six databases for relevant citations was performed. Cross-sectional, case-control, cohort studies, and randomised controlled trials of any of the index tests were included. Respiratory specimens (such as sputum, bronchoalveolar lavage, tracheal aspirate, *etc.*) or their culture isolates.

A total of 21 included studies contributed 26 datasets. We could only meta-analyse data for three of the five assays identified, as data were limited for the remaining two. For TB detection, the included assays had a sensitivity of 91% or more and the specificity ranged from 97% to 100%. For rifampicin resistance detection, all the included assays had a sensitivity of more than 92%, with a specificity of 99–100%. Sensitivity for isoniazid resistance detection varied from 70 to 91%, with higher specificity of 99–100% across all index tests. Studies that included head-to-head comparisons of these assays with Xpert MTB/RIF for detection of TB and rifampicin resistance suggested comparable diagnostic accuracy.

In people with symptoms of pulmonary TB, the centralised molecular assays demonstrate comparable diagnostic accuracy for detection of TB, rifampicin and isoniazid resistance to Xpert MTB/RIF assay, a WHO recommended molecular test.