

Cochrane Review looks at accuracy of Xpert for the diagnosis of extrapulmonary tuberculosis

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In one-fifth of people with active tuberculosis (TB), the site of disease is outside the lungs (extrapulmonary TB). Some forms of extrapulmonary TB, such as TB meningitis, are extremely dangerous, where a rapid diagnosis can make all the difference to a patient. In a new *Cochrane Review*, a team of authors from LSTM along with colleagues from Canada, South Africa, and Switzerland reviewed the evidence and assessed the accuracy of the widely-used rapid diagnostic test, Xpert MTB/RIF (Xpert) - mainly used to diagnose pulmonary TB and resistance to rifampicin, the most effective first-line anti-TB drug—for such cases.

TB is the world's leading infectious cause of death. While it usually affects the lungs, extrapulmonary TB accounts for a growing number of cases in some countries, particularly where TB may be a co-infection with HIV. Young children are particularly at risk of more lethal forms of extrapulmonary TB, which include TB meningitis and disseminated TB.

Dr. Karen Steingart is an Honorary Research Fellow at LSTM, and the review's Senior Author. She said: "Patients should have access to the best TB tests available. Since 2013, the WHO has recommended Xpert for the diagnosis of active TB and simultaneous detection of rifampicin resistance in sputum and several extrapulmonary specimen types. This *Cochrane Review* was an opportunity to update the field with an up-to-date review, to include additional forms of extrapulmonary TB, and to

apply improved statistical methods acknowledging no perfect reference [test](#) is available for extrapulmonary TB. We found that Xpert sensitivity differed depending on the type of extrapulmonary specimen used for diagnosis, for example lower in pleural fluid and higher in cerebrospinal fluid and bone and joint fluid. In most specimens, the test was specific and rarely gave a positive result for people without TB. Also, the test was accurate for detection of rifampicin resistance. In people thought to have extrapulmonary TB, Xpert may be helpful in confirming the diagnosis. Clinicians and TB programmes should consider using Xpert for the diagnosis of extrapulmonary TB based on clinical judgement, TB prevalence, and availability of resources."

The review included 66 studies with a total of 16,213 specimens. Its aim was determining accuracy for eight common forms of extrapulmonary TB: TB meningitis and pleural, lymph node, bone or joint, genitourinary, peritoneal, pericardial, and disseminated TB. The team suggests that use of Xpert can help clinicians 'rule in' a rapid [diagnosis](#) of TB meningitis if the test is positive, but they should stick with their clinical judgement as a negative test can be a 'false-negative' and thus not a reason to withhold treatment. Xpert Ultra, a second-generation test designed to improve Xpert sensitivity, has recently been released, but few studies have been completed.

This *Cochrane Review* was co-ordinated by the Cochrane Infectious Diseases Group (CIDG), which has its editorial base at LSTM. The CIDG has been in operation since 1994 and consists of over 600 authors from 52 countries and is supported by UK aid from the UK Government for the benefit of low- and middle-income countries (project number 300342-104).

More information: Kohli M, Schiller I, Dendukuri N, Dheda K, Denkinger CM, Schumacher SG, Steingart KR. Xpert MTB/RIF assay for extrapulmonary tuberculosis and rifampicin resistance. *Cochrane*

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