Background: The diagnosis of extrapulmonary tuberculosis (EPTB) is often made on clinical suspicion alone, and many people receive the wrong diagnosis leading to unnecessary TB treatment or poor outcomes from untreated EPTB. In this study, we evaluated the clinical utility of the Xpert MTB/RIF on routinely collected extra-pulmonary specimens in Ethiopia.

Methods: This study was carried out at Jimma University Specialized Hospital, Southwest Ethiopia from September 2015 to June 2017. Extra-pulmonary specimens were collected from 572 patients clinically suspected of suffering from EPTB. All specimens were tested for TB by smear-microscopy, culture and Xpert MTB/RIF. The diagnostic accuracy of Xpert MTB/RIF was calculated compared to a composite reference standard (CRS), composed of liquid culture and anti-TB treatment response.

Results: In total, 572 extra-pulmonary specimens (279 lymph node, 159 pleural, 80 peritoneal, 45 cerebrospinal and 9 pericardial fluids) were tested. The pooled sensitivity and specificity of Xpert MTB/RIF were calculated to be 91% and 90.6% respectively when compared to culture. The pooled sensitivity of Xpert MTB/RIF was decreased to 75% and the specificity was improved to 98% when Xpert MTB/RIF was compared to the CRS. The sensitivities among the specimen types differed markedly. The highest sensitivity was documented for lymph node (90%), moderate sensitivity for cerebrospinal (53%), while the sensitivity was lowest for pleural (30%) and peritoneal (32%) fluids. Xpert MTB/RIF, in addition, detected rifampicin resistance in 13 patients in perfect agreement with line probe assay.

Conclusion: Our study showed that Xpert MTB/RIF is likely to be of greatest utility when testing lymph node specimens. A negative Xpert MTB/RIF result on fluid specimens does not exclude the diagnosis of EPTB and patients with a high clinical probability of EPTB should be started on anti-TB treatment.