**Reviewer's report**

**Title:** Diagnostic Accuracy of Quantitative PCR (Xpert MTB/RIF) for Tuberculous Pericarditis Compared to Adenosine Deaminase and Unstimulated Interferon-gamma in a High Burden Setting: A Prospective Study

**Version:** 1  
**Date:** 14 February 2014

**Reviewer:** Padmapriya Banada

**Reviewer's report:**

**General comments:**

The above manuscript is well presented. This study has compared Xpert MTB/RIF assay to a newer modified uIFNr assay (IRISA, Antrum Biotech) and Adenosine DeAminase (ADA) assay. The authors tested 151 patients undergoing pericardiocentesis using the above diagnostic tests. The authors conclude uIFNr assay to be better in overall performance compared to the other two. However, it is important to note that this comparison is between 1 ml of pericardial fluid in Xpert to 20 ml in uIFNr. Although authors show the 20 ml volumes did not yield significance difference compared to 1 ml in Xpert, no efforts were made to optimize the sample processing to overcome the error rate. Specificity was considerably compromised with HIV positive patients in uIFN r and ADA tests (Table S2) indicating, these tests may not be of use in those population. Specificity is a major concern in diagnostics especially, when it is used for treatment decisions. Sensitivity of the Xpert MTB/RIF assay can be improved by optimizing the sample processing, sample volume etc., So the authors might want to consider rephrasing their conclusions.

**Major Compulsory Revisions**

1. Pages 8, 12, 16: Although it is agreeable that the LOD of Xpert assay in detecting TB in pericardial fluids was 75CFU/ml, it is statistically not well represented. The LOD should be calculated at 95% or 99% CI. It is not very clear from your methods, how many total replicates and experiments were run to establish LOD analytically!

2. Fig. 1: Curve should not be drawn here, since lower the cell numbers, the Ct will be higher not lower! This can get the reader confused! Instead you can draw a percent positive curve, to establish your LOD. But please indicate your replicates.

3. Does uITFNr levels alter with freeze thawing?

4. Detailed description of ADA assay is needed. How much of unconcentrated PF sample was used?

5. Page 12: How can ‘20’ be median of 10 to 20?

6. Page 12: SD is not put in parenthesis, it is traditionally represented as mean±SD.
7. Table S5: please indicate in the food note, what n and N represents.
8. Page 16, line 1: Without establishing a proper analytical LOD, this phrase would be inappropriate.
9. Page 16. Line 4: any possible reasons, why there was an increased ‘indeterminate’ rate, with increase in sample size?
10. Fig. 4: I recommend including the Xpert data as well in the ROC curve analysis, unless there is any other specific reason?

Minor revisions:
1. Please make sure the abbreviations are expanded in their first use in the text (in addition to the abbreviation list)
2. ADA- Expand and provide details for the first use of the term in the introduction.
3. What are the total hands-on time, time to detection and volume of the fluid used in all the three assays?
4. Table S7 is not referenced in the manuscript and authors are requested to explain the significance of this table.

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**
I declare that I have no competing interests