Reviewer's report

Title: Higher Blood Volumes Improve the Sensitivity of Direct PCR Diagnosis of Mycobacteraemia among HIV-AIDS Patients: An Observation Study

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Reviewer: Colleen Kraft

Reviewer's report:

Please number your comments and divide them into
Major Compulsory Revisions

Overall: Bwanga et al describe their study in which they used increased blood volumes in PCR to diagnose bloodstream infection with MTB in HIV-infected patients in Uganda. To begin with, this article is framed in a way that is very confusing to the reader. In general, HIV-infected patients can have "mycobacteremia" from several different types of Mycobacterium species. I think that this term should be stricken from this article, because it is confusing. It has nothing to do with mycobacteremia, but it has to do with MTB sepsis or bloodstream infection. Also, it seems as if both studies were essentially quality improvement type studies in a diagnostic test, and I think that the manuscript over-reaches what is a simple technique of enhancement of PCR sensitivity.

Abstract: It takes until the conclusion to understand that this only has to do with MTB and nothing else. This is very confusing. Also, I think the term Mycobacteremia should be removed, but if it is used, it should not be capitalized. In the methods, it should say whether this is retrospective or prospective. In the results, it does not say what the diagnostic sensitivities refer. Again, the conclusion seems to come from nowhere, and if this is the conclusion of the paper, it needs to be set up less like a clinical study, and really just as a diagnostic paper.

Background:
Line 69: I think the term fast growing is too colloquial-I think just bacteria or standard bacteria
Line 74: instead of mycobacteremia, I would use MTB sepsis as the term throughout the manuscript.

Paragraph starting with line 77: This really sets up the whole article, and I would just stick to this aspect, instead of trying to also have a clinical question.

Methods:
Line 99: cross-sectional studies are not conducted over a 2 year period. Is this a convenient sample? Is this prospective? I believe this is a prospective study with batched samples at the end?
Line 106: would say infection instead of infected.
I do not understand the value of the MTB sputum except to place the bloodstream infections in context.
Line 119: what is MBN?

Results:
Line 175ff: statements like these belong in the discussion, and makes no sense unless it has been tested- inferences do not belong in the results, and should be tempered with references in the discussion.
Line 193: Are A10 and B10 the same individual? I am not sure how someone can be in both study A and B
Line 222: I do not understand why this is not mentioned in the results, and only in the discussion?
Line 228: same, why is this in the discussion, and is this mixed infection diagnosed by culture?
Line 256: I think it is important to clarify, that while this takes 4.5 hours, it was performed in Germany, and in this case, not in a timeframe to make clinical decisions, since they were batched and stored?

Table 3: what is the diagnostic sensitivity compared to? Culture? These tables need to stand alone.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

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