Reviewer's report

Title: Bacteriophage-based tests for the detection of Mycobacterium tuberculosis in clinical specimens: a systematic review and meta-analysis

Version: 1 Date: 28 April 2005

Reviewer: Carlo Mengoli

Reviewer's report:

General
The article is a review, which is not currently considered among the article types to be published by BMC Infectious Diseases. The perspective is diagnostic/microbiological. Rapid and simple tests are especially suited to primary-care settings and to countries with both high TB circulation and limited laboratory resources. The conclusion formulated by the authors is appropriate. The mycobacteriophage amplification tests do not add much to the accuracy offered by microscopy, and require the level of organization and equipment of microbiological facilities capable of mycobacterial culture (reference laboratories). The turnaround time of phage amplification tests is 2 days compared to about 2 hours (microscopy) or up to 2 months (culture). The phage-based tests have to compete with the molecular methods, which are comparably time and labor-intensive. So, when TB is suspected, the algorithm of specimen processing is unlikely to change radically in view of phage-based tests.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
In general, heterogeneity of the outcome is not addressed adequately, for instance by looking for covariates in order to set up a subgroup analysis or a metaregression. Admittedly, the effort in this direction could not be rewarding. However, the attempt should be done and the outcome of the attempt reported.
The different sensitivity of the gold standard (LJ, or BACTEC, or LJ+BACTEC, or LJ+AMTD) can add to heterogeneity. See point 1.
After separating the smear-positive subgroup from the smear-negative one, no statistical comparison is done. See point 1.
This is largely a review on FASTPlaque-TB. Ten of 13 studies are based on this commercial kit. This subgroup of studies can be compared to the that based on different kits. See point 1.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
The figure 1 is called where the text says Two main phage-based approaches are used to detect M. tuberculosis, but depicts only the phage amplification methods.
Through the text. The expression phage-based tests seems to be equivalent to phage amplification based-tests. The exclusion (or inclusion) of LRP-based tests should be stated explicitly.
Already in the abstract, bacteriophagic tests should be introduced as (relatively) rapid tests.
Already in the abstract the gold standard (culture) should be indicated.
In discussion, comparative mention should be done to molecular tests, which are the obvious competitors for phage-based tests.

Discretionary Revisions (which the author can choose to ignore)
What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No

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