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: 26 April 2005

Reviewer: Ruth McNerney

Reviewer's report:

General
A clearly written article that addresses a problem important to public health in developing countries.
This is a thorough review on a novel topic.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Assay characteristics: the in-house assay did not use NALC-NaOH decontamination method.

Discussion:
The authors have not commented on the bias introduced through the exclusion of samples due to microbiological contamination. Smear microscopy results may be obtained for samples found contaminated by culture or phage.

Assessment of accuracy has been made in comparison to a single smear test. Current WHO recommendations are for three sputum samples to be examined for each patient. To assess diagnostic accuracy the phage tests should be compared to three smears. The authors have not addressed this issue in their discussion.

Whilst reporting that phages tests may produce false positive results due to non-tuberculosis mycobacteria the authors do not comment on the bias caused by sampling in settings with high (or low) incidence of TB.

The authors state a need to verify that the sputum found positive in the phage test contains M. tuberculosis but do not suggest how this might be undertaken. A requirement for a confirmatory test would affect the cost/time of diagnosis and thus affect the usefulness of the technology. The authors should comment on this.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Fig 1. Though readable the quality of reproduction of the diagram is poor. The legend is missing.
Tables need reformatting. The legends for tables 3 and are on the incorrect pages.
The quality of reproduction of figures 4, 5 and 6 should be improved. Figure 5 does not fit on the printed page.

Discretionary Revisions (which the author can choose to ignore)
Background (page 1), regarding costs of liquid culture in developing countries. This has recently reduced through an agreement with WHO and Becton Dickinson.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I have no personal financial interests that may be affected by this publication. My employers (London School of Hygiene & Tropical Medicine) are currently seeking payment of debts from Biotec laboratories (manufacturers of the commercial kit) relating to a previous agreement on IPR. These payments are not linked to sales of the test.

I am currently investigating alternative technologies for the diagnosis of tuberculosis that might be appropriate for developing countries, work funded by the Department for International Development, UK.