Reviewer's report

Title: Impact of sputum gross appearance and volume on smear positivity of pulmonary tuberculosis: a prospective cohort study

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Reviewer: Ruth McNerney

Reviewer's report:

This manuscript describes an observational study to examine visual assessment of sputum and the association of sample appearance and a volume with TB positivity rates according to the sex of the patients.

The article is clearly presented with a good standard of English.

The article will be of interest to those working in the diagnosis of tuberculosis.

Major revisions

1. The article does not describe how the sputum specimens were sampled. Sputum is an inconsistent matrix and technicians would normally remove the mucoid/purulent fraction for examination by microscopy leaving the more watery/saliva portion that are less likely to contain the TB bacteria behind. This makes research to compare diagnostic methodologies difficult. To get equitable sampling would require homogenisation prior to division of the specimen, which may affect the performance of smear microscopy disproportionally. The authors should describe their sampling strategy and discuss its potential impact on the data obtained.

2. Clinical/radiological improvement following TB treatment is taken by the authors to indicate TB disease in microbiologically unproven cases. It is likely that TB treatment will affect cure in other bacterial infections and it might be more appropriate to classify patients as confirmed TB, possible TB and unlikely TB. The analysis should reflect this uncertainty.

3. There were more male than female smokers and analysis should be undertaken to see if the impact of smoking was more significant that the effect of gender.

4. The statement that women are less proficient than men at expectoration should be modified to include consideration of the impact of severity of disease (early vs late presentation) or other confounders such as smoking.

Minor/discretionary revisions

5. The authors should discuss the potential impact of techniques such as sputum induction.
Level of interest: An article of limited interest

Quality of written English: Acceptable

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

Declaration of competing interests:

No