Reviewer's report

Title: Insufficient quality of sputum submitted for tuberculosis diagnosis and associated factors, in Klaten district, Indonesia

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Reviewer: Maryline Bonnet

Reviewer's report:

This paper is important in the field of TB diagnosis for limited resource countries because it addressed an important issue of the TB smear microscopy diagnosis, which is often neglected. Indeed, as mentioned by the authors, more attention is given to the performance of smear microscopy than the collection of good sputum specimen. This is clearly shown by the low number of publication in this last field. Also, this paper has the advantage to address the issue of sputum specimen collection in routine program conditions. Nevertheless, some major revisions are necessary before publication.

· Major compulsory revisions

Methods:
- The authors should precise, which health staff among doctor, paramedic and laboratory technician is in charge of providing specimen containers and giving explanation how to provide sputum specimen according to the national guidelines in the health centers where the study was conducted. Indeed, this information is important to interpret the results of the patients' interview regarding the education information of sputum collection.
- Further information is required to be able to better interpret the study results:
  o To confirm if the health staffs were interviewed before to be trained how to use the new forms.
  o To better describe the procedure of patients’ interview: when patients were interviewed after being identified as TB suspects, if patients who were absent at the 1st visit were visited again and who was in charge of the patients’ interview.
  o To give the case definition of “Never”, “Rare”, “Occasionally”, “Often” and “Always” in table 2 for the assessment of the type of information provided to the patients.
  o To give the case definition of “Poor” and “Good” to assess the “Knowledge of TB” and “Motivation to provide a sputum” in Table 3.

Results:
- It would be important to report the mean time between the identification of suspect and the date of interview.
- The smear microscopy result should be analyzed according to the quality of the specimen collection using the strict and less strict case definition, respectively.
Indeed, the goal of a good quality specimen collection is to increase the smear microscopy diagnostic yield. Also, this could also indicate if the case definition used in the study was appropriate or if data recorded in the TB06 forms were reliable.

- It would be important to present the study profile, specifically to know the reasons why some TB suspects could not be interviewed for the 2nd part of the study (no consent, wrong address, patients not at home…). The reasons why 23% of patients who couldn’t be interviewed and why samples of 22 patients couldn’t be assessed should be documented.

- The assessment of the quality of specimen collection when using a less strict case definition and the association with patients' characteristics are part of the methods but results are not presented. Same for the comparison of completeness of sample collection with patients' characteristics. The authors can’t report a significant association with one of the factors (low income) and not give the figures.

· Minor Essential Revisions

Results:
- Numbers should be systematically reported together with %.

Discussion
- I am surprised by the low AFB recovery among TB suspects (6.3%). Do the authors have any explanation? This should be discussed at the end of the 1st chapter of the discussion.

· Discretionary Revisions

- It would be very interesting if the authors could report the reasons why patients couldn’t produce 3 specimens. Was it due to patients’ drop out during specimen collection, which is common in routine program conditions?

- It would be also very interesting to know the mean time between TB suspect identification and final smear result. This is another key factor in the TB sputum microscopy diagnosis, which can explain patients drop out before smear results when the time is too long.

- I would be interested to know the HIV infection rate in the study population or if the authors have some data from the overall population or among TB cases. HIV infected patients are more likely to have poor quality specimen collection.

Level of interest: An article of importance in its field

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