Reviewer's report

Title: Effect of "cough officer screening" on detection of pulmonary tuberculosis among hospital inpatients

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Reviewer: Daniel Datiko

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General comments

The paper addresses important aspect of tuberculosis case finding in health institutions. This could help to reduce delay due to the health service including the health workers to improve early case finding. It also reduces nosocomial transmission. The authors describe important topic in tuberculosis control but requires more work on the methods and discussion to improve the manuscript. The title should also be in line with the methods and discussion.

Major compulsory revisions

1. Under the methods section add a subtopic that describes the setting of the study.

2. Under statistical analysis, the Wilcoxon rank-sum test was used to measure the delays in health care system while the objective of the study was to measure the effect of cough officers on detection of pulmonary tuberculosis. What the statistical test is intended for differs from the objective. The objective of the study should be eared with the statistical test used and discussed accordingly.

Minor essential revisions

1. Page 4 paragraph 1, line 4, the sentence ‘When local healthcare facilities are functioning efficiently and when TB prevalence is low, additional strategies may not be required’ may be omitted or add some notes on the importance adequate health service coverage.

2. Page 4 paragraph 1, line 7, the phrase ‘for its cost effectiveness may be omitted or add a sentence that describes DOTS as a cost effective strategy.

3. Page 4 paragraph 2, may be shortened and describe about case finding in DOTS strategy and the role of active and enhanced case finding.

4. Page 6, paragraph 2, describe more on the stages of screening and reasons for excluding patients.

5. Page 6 paragraph 3, line 1, add selection criteria of cough officers and if they had received special training to conduct the screening.
6. Page 6, add a subtopic before statistical analysis to describe tuberculosis diagnostic procedures. How does it compare with the National Tuberculosis Programme recommendation? Also add some notes on data collection.

7. Was not ethical clearance required for the patients?

8. Page 8, paragraph 1, among patients for which the COS alarm was given only 40% (7998/19836) and 55% (6221/11323) were examined by the physicians in stage I and II respectively. Explain why the rest were not examined.

9. Page 8, paragraph 1, in addition, 77.2% and 90% of the cases were examined before the alarming system. Explain more about this and comment on this in the discussion section.

10. Page 2, paragraph 2, in the sentence ‘The average time from admission to diagnosis was 24 days for stage I and 19 days for II (Table 1); however, these numbers were strongly influenced by the presence of a small number of patients (outliers) who were diagnosed with TB long after admission to the hospital (up to 163 days)’ the role of outliers is not a problem if when Wilcoxon rank-sum test is used for median is the test statistic.

11. The next sentence ‘Our COS recorded all patients’ coughs for as long as they were in the hospital’ should be included in the methods. The next sentences’ in fact…till the end of the paragraph should be part of the discussion.

12. Page 10, paragraph 1, the second and third sentence could be described as ‘the COS system has led to high rates of examination but lower rates of tuberculosis diagnosis’. The sentences could be explained with the limitation of the study.

13. Page 10, paragraph 3, could be shortened and add on the reasons why the COS system used 5 days and compare it with the national Tuberculosis Programme recommendation. Explain how it leads to high false positives.

14. Page 11, paragraph 3, line 4, 90.4% in stage II were examined before COS alarming while it was stated to be 90% in page 8 paragraph 1. Which one is correct?

15. Page 12, paragraph 1, and paragraph 3, the comment on the possibility of the patients to be ignored and risk of nosocomial transmission should be cautiously explained in relation to the objective of the study.

16. What is the limitation of the study?

17. Comment on the application of the study results in other settings.

18. Write the conclusion of the study in line with the objective of the study.

19. Reference 4 & 19 and 12 & 16 are the same and require revision.

20. Add one able showing the baseline characteristics of the patients like by age, sex, duration of cough and tuberculosis classification etc. In addition, show the duration of cough vs. tuberculosis diagnosis to see the yield of the alarm system.

Discretionary revisions
1. Page 5 paragraph 1, line 7, add more on the reported nosocomial infections.
2. Page 5 paragraph 1, line 7, the phrase ‘for its cost effectiveness may be omitted or ad a sentence that describes DOTS as a cost effective strategy.

3. Page 5, paragraph 2, line 9, the sentence ‘WHO’s Practical Approach to Lung Health (PAL) is similar to our COS program’ may be omitted. And the next sentence could be explained under case finding strategies as mentioned above.

4. Page 6, paragraph 1, the second sentence should be put under methods.

5. Page 7, paragraph 1, line 1, what is the importance of mean and standard deviation? Reporting the findings related to median is enough

6. Page 7 paragraph 2, the first sentence should describe the statistical software followed by the ‘Wilcoxon rank-sum and the description about median, minimum and maximum…

7. Page 8, paragraph 1, line 6 and the last sentence of the paragraph, qualify the sentence if the patients would be ignored or delayed.

8. Page 8, paragraph 2, show the diagnostic procedures by the type of examination done to the patients in figure 2 and then rewrite the percent of physicians who took action following the COS system. Then the number of actions in both stages could be commented on.

9. Page 10, paragraph 2, high prevalence of HIV and tuberculosis and low health service including diagnostic facilities and physicians could be the reasons for the difference.

10. Page 11, paragraph 2 delete the list of diseases. What is the duration of cough in Morocco suspects?

11. Page 11, paragraph 3, could you classify the patients in to smear-positive and smear-negative to comment on disease transmission.

12. Add one variable showing duration from alarm to diagnosis in table

13. Figure: tuberculosis diagnosis in COS (-) and COS (+) in action and no action arms was reported.

<table>
<thead>
<tr>
<th>Stage</th>
<th>COS (-)</th>
<th>COS (+) action</th>
<th>COS (+) no action</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>16/82905=0.002%</td>
<td>184/7998=2.3%</td>
<td>10/11838=0.08%</td>
</tr>
<tr>
<td>II</td>
<td>21/67549=0.03%</td>
<td>125/6221=2%</td>
<td>0/5102=0%</td>
</tr>
</tbody>
</table>

From the report, there were TB patients missed by the COS system as shown by COS (-) right? Please comment on this. What was the gold standard test used to classify the patient into TN and TP? Comment on the sensitivity, specificity, PPV and NPV of the COS system if possible.

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

**Quality of written English:** Needs some language corrections before being published
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