Author's response to reviews

Title: A novel Bayesian geospatial method for estimating tuberculosis incidence reveals many missed TB cases in Ethiopia

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Author’s response to reviews:

Date: 24/08/2017

To: BMC Infectious Diseases

Re: Revised Manuscript

Thank you for allowing us to re- revise and resubmit our manuscript: "A novel Bayesian geospatial method for estimating tuberculosis incidence reveals many missed TB cases in Ethiopia".

We appreciate the time and the comments provided by all reviewers and the editor. We have incorporated the suggested changes into the manuscript and provided point by point response to the reviewers' comments. Modifications are in blue.

Uploaded herewith, please find the following files

1. Main text
2. Supplementary materials(n=2)
3. Figures(n=4)

Regards,
Debebe Shaweno
Editor’s comment

My key worry is how postulating a relationship between detection probability and clinic availability (or any other variable) allows one to identify a model when one also doesn't know incidence. I would have imagined the identifiability issue (high-CDR/low-incidence vs lower-CDR/higher-incidence) to be extremely problematic and would like to be more convinced on this point.

Authors’ response:

The difference between the prior and posterior (Figure 4) suggests sufficient information has arisen from the dataset to allow good estimate of the CDR. Identifiability issues can occur, for example when dealing with only one year of data or in the absence of information such as the presence of informative risk factors such as the presence of health centres. If there were identifiability issues, the posterior would be flat. Moreover, our model estimated incidence is consistent with “TB incidence” that was calculated using prevalence data from the Ethiopian national TB prevalence survey [1, 2]. This suggests that the model was effective in identifying the underlying incidence.

Reviewer reports

Luigi Sedda (Reviewer 1):

I thank the authors for taking into account the editor and reviewers’ comments. I am happy with the current status of the manuscript.

I have only two suggestions:

(i) please include your response to the editor's question in the manuscript (e.g. in the introduction section).

(ii) Can you add Figure 2 of the reviewer's response document to the manuscript please?

Authors’ response: We thank the reviewer for the positive comment.

i. We have now incorporated our response to the editor’s questions into the manuscript (Methods section, Model development subsection, paragraphs 1-3).
ii. Similarly, we have also incorporated the figure into the manuscript as figure 3 (Results section, Goodness of fit of the model subsection, paragraph 1, lines 5-8)

Ahmed Sarki (Reviewer 2): Accept without revision

Authors’ response: We thank the reviewer for the positive comment

References
