Author’s response to reviews

Title: Disparities in access to diagnosis and care in Blantyre, Malawi identified through enhanced tuberculosis surveillance and spatial analysis

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Author’s response to reviews:

Wednesday 5th December 2018

Dear Dustin Graham,

Re: BMED-D-18-01128. Disparities in access to diagnosis and care in Blantyre, Malawi identified through enhanced citywide tuberculosis surveillance and spatial analysis

I write on behalf of my co-authors to thank the reviewers for their careful re-review, and appreciate the opportunity to respond with a revised submission.
Please see point-by-point responses below.

Yours Sincerely,

Peter MacPherson

(On behalf of the authors)

Responses to Reviewer 2’s comments

1. Some of the issues raised in my previous review were not addressed: In number (4), I am interested in the non-CHW catchment area residents which consisted of: TB cases who were resident in an area of the city not mapped by study activities AND TB cases from another part of the country. The non-CHW resident consisted of a total of 2354 TB patients i.e., 38.7% of the total proportion of TB cases seen. Of this number, what is the number (%) that are TB cases who were resident in an area of the city not mapped by study activities AND what is the number (%) that are TB cases from another part of the country. If we are making a study on enhanced surveillance system for TB in Blantyre, and almost two-fifths of potential patients from Blantyre were excluded, I am not sure this still represents the TB population in Blantyre

We thank the Reviewer for these comments, and their careful re-review of our manuscript. We apologies for the lack of clarity in our previous responses and have endeavoured to respond fully here.

i. “The non-CHW resident consisted of a total of 2354 TB patients i.e., 38.7% of the total proportion of TB cases seen. Of this number, what is the number (%) that are TB cases who were resident in an area of the city not mapped by study activities AND what is the number (%) that are TB cases from another part of the country.”

Of the 2354 TB non-CHW resident TB cases, 1722 resided in a District outside of Blantyre, and 632 resided inside Blantyre but in an area not mapped by study activities. In the previously revised manuscript, we provided these numbers on Page 11, Lines 20-24, where we stated:

“Of these, 3723 cases were resident within a CHW catchment area, and 2354 were not: 1722 residing in a District outside Blantyre city, and 632 resided inside Blantyre city but outside of a
study CHW catchment area or in an area of the city that had not been mapped by study activities and where enhanced surveillance GPS coordinates could not be obtained.”

ii. “If we are making a study on enhanced surveillance system for TB in Blantyre, and almost two-fifths of potential patients from Blantyre were excluded, I am not sure this still represents the TB population in Blantyre”

We thank the Reviewer for this comment.

Acknowledging and appreciating the Reviewer’s important point about “citywide TB surveillance”, we have removed all mention of “citywide” throughout the manuscript. We have additionally added further text to the Limitations paragraph in the Discussion to emphasis

“Additionally, because we could only collect geospatial data from TB cases who were resident within neighbourhoods mapped by our study activities, we are unable to include TB cases resident outwith mapped areas in our regression analysis. There therefore may be important predictors of access to TB diagnosis and care among populations excluded from the present analysis that we were unable to identify.”

We hope that this, in conjunction with the detailed description of study limitations in the Discussion section on (Page 19, Lines 13-36) will be acceptable.

Responses to Reviewer 5’s comments

1. Page 17, line 18: how was the high burden of undiagnosed TB quantified?

Thank you for this comment. On Page 17, Line 18, we stated:

“If a high burden of undiagnosed TB is confirmed, then, policy-makers should strongly consider prioritising the implementation of pro-poor interventions to improve access to TB services in these underserved neighbourhoods.”

In the present study, we did not quantify the burden of undiagnosed TB: doing so would require an extremely large and expensive TB prevalence survey. We plan to conduct a TB prevalence survey in Blantyre during 2019 as part of a community cluster-randomised trial.

In this sentence (and in the previous sentences in this paragraph), we say that our Bayesian spatial modelling analysis suggests that there might well be a high burden of undiagnosed TB in the poorer neighbourhoods furthest from TB registration clinics in Blantyre. We then state that, if this high burden of undiagnosed TB is confirmed, then interventions to improve case-detection from these neighbourhoods will be required.
To add additional clarity, we have modified this sentence to state:

“If a high burden of undiagnosed TB is confirmed through future prevalence surveys, then, policy-makers should strongly consider prioritising the implementation of pro-poor interventions to improve access to TB services in these underserved neighbourhoods.”