Reviewer’s report

Title: MDR-TB treatment adherence in migrants: a systematic review and meta-analysis

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Reviewer: Claudia Dobler

Reviewer's report:

The paper is well written and the research methodology is sound. I have made a number of suggestions below on how the manuscript could be further improved.

Major comments

1. Data analysis: The authors use treatment outcomes as proxy for treatment adherence.

The manuscript would be clearer if the authors would address the following points:

- Explain that success of treatment is only a proxy indicator of treatment adherence, often used in pragmatic population-based assessments.

- Was the definition of adherence based on treatment outcomes for this review chosen because information on quantity and timing of the medication taken by the patients in the included studies was not available? Other reasons?

2. Line 239: "…increased adherence rates among patients in specialist institutions, which may be better equipped to support treatment adherence…”

Was all treatment given as DOT? Were some programs community-based (versus institution-based treatment)? If yes, what was the association with adherence?

3. Line 282: "The comparable rates of adherence (and non-adherence) between migrants and non-migrants challenge assumptions that adherence to MDR-TB treatment is likely to be worse in migrants….though this group [migrants] is a key focus of TB strategies in high income low TB incidence countries…”

The authors seem to imply that concerns about treatment adherence are the reason for the focus of TB control measures on migrants in low TB incidence countries. However, the major reason why migrants are targeted for TB control measures is the high relative risk of TB in migrants
compared to the general population, not the assumption that they are less adherent to treatment. This should be clarified.

4. Line 312: "Further research is needed to improve understandings of drivers of MDR-TB treatment adherence and non-adherence within migrant populations…"

This sentence seems to contradict an earlier statement, where the authors state that migration status is not related to treatment adherence in MDR-TB, but that health systems and services might have the most important impact on adherence (line 262: "the comparable rates of treatment adherence between migrants and non-migrants across the included research suggest that health systems and services within which MDR-TB is diagnosed and treated may be a significant determinant of treatment adherence, and may mediate the effects that social and cultural barriers may have." I suggest that the authors modify their statement.

Minor comments:

1. Line 24: foci should be focus (singular)

2. Line 57: …with poor treatment adherence in TB patients thought to be a driver of this emerging resistance…"

Increasingly, MDR-TB is no longer primarily acquired through poor adherence to first line TB treatment, but direct transmission in the community (e.g. Nsofor CA et al, Sci Rep 2018, PMID: 28794425, Dobler CC et al., Emerg Infect Dis 2015, PMID: 26196504). I suggest that the authors discuss this and emphasize the importance of adherence to MDR TB treatment to prevent transmission of MDR TB.

3. Methods

Line 102: Assessment of MDR-TB treatment is mentioned as only study aim, which seems inconsistent with the aim in abstract: "to identify and synthesise data on MDR-TB treatment adherence and outcomes (loss-to-follow up, default, treatment failure, death) in migrant patients". Only later do the authors mention that treatment outcomes were used as proxy outcomes for adherence (see also major comment #1). The aim in the introduction and methods should be worded consistently.

4. Line 301 A reference for guidelines/ policies should be provided.
5. There is quite a bit of repetition in the discussion. Repetitions should be avoided and the discussion streamlined.

Examples of repetition:

- 255: The comparable rates of adherence (and non-adherence) between migrants and non-migrants are in contrast with assumptions that adherence to TB treatment is likely to be worse in migrants [1,18,61,62]. These findings point to the need for a stronger…. 

- 282: The comparable rates of adherence (and non-adherence) between migrants and non-migrants challenge assumptions that adherence to MDR-TB treatment is likely to be worse in migrants.

- 302: adherence to MDR-TB 302 treatment regimens in migrants is not as poor as previously suggested and may be nearing International targets for successful treatment.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

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