Reviewer's report

Title: Determinants of multi drug resistant tuberculosis in patients who took first line tuberculosis treatment in Addis Ababa: a case control study.

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Reviewer: Rawleigh Howe

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I have reviewed “Determinants of Multi Drug Resistant Tuberculosis in Patients Who Took First Line Tuberculosis Treatment in Addis Ababa: a Case Control Study by Selamawit Hirpa et al.” submitted for publication in BMC Public Health. The authors evaluate epidemiological factors associated with 147 patients referred from multiple health centers in Addis Ababa for MDR tuberculosis treatment at St.Peter’s Hospital, and compare these findings with a control group consisting of equal numbers of tuberculosis patients treated at similar health centers who had positive treatment outcomes. Incomplete TB therapy, TB medication side effects and inadequate DOTS supervision during prior TB therapy were among the risk factors identified within the MDR cohort at St. Peters.

In general, the study and manuscript are sound. The scientific question, rationale, methodology are well defined and appropriately expressed. The data are straightforward, and discussion reasonable with strengths and limitations stated.

I would make the following comments (Minor essential revisions):

1. While the manuscript is well structured and the points to be made are logically presented and understandable, the English used in the manuscript needs significant polishing throughout—not major changes just extensive editing. Some examples are provided below, but there are so many corrections needed and it is suggested that the authors consult locally an individual(s) with editing experience so that this paper attains the international standard it deserves.

2. More information on the patients in the MDR cohort would be helpful. Do they have confirmed MDR TB? Most had multiple episodes of TB previously, but what had been the treatment outcomes of those prior illnesses? How about those with a single TB illness—are we to presume this illness as the one they were currently undergoing therapy for? This is relevant to the study questionnaire and design, because it is not clear whether the answers given in the structured question refer to their most recent illness, all of their illnesses, any of their illnesses, or – as sometimes implied—their “first” course of TB therapy. How might this influence the results obtained?

3. That MDR patients have a higher fraction of prior category II therapies is virtually guaranteed (not merely a “possibility”) from the study design, since, by
definition many would or should have gone onto such regiments given national policy for previously unsuccessful therapy, whereas few among the control cohort would have since they were preselected among those with positive outcomes. Thus, although there are good reasons to believe this could have contributed to MDR emergence, the association in this study could be purely fortuitous. The assertion that more attention to drug testing among high risk individuals should be applied in Ethiopia rather than immediately starting on category II is obviously important, but it might be helpful to cite the positive benefits of category II when given in the correct context. Overall the discussion of category II could be better developed and written.

4. The composition of the control group from health centers from which MDR patients had been referred is a reasonable approach. The authors state that such subjects were selected “randomly”. How was random selection done? More detail should be given.

English examples:

1. Abtstrack Methods “While controls were treated TB cases that were registered as cured or treatment completed; after taking first line anti-TB drugs in five health centers in Addis Ababa city between 9th of April 2009 and 7th of February 2010.” – this is a fragment and needs correcting.

2. Abstract Results “Factors which had significant association with MDR-TB were, encountering drug side effects (adjusted odds ratio (AOR): 4.5, 95% CI; 1.9 to 10.5), not being directly observed by the health worker during course of TB treatment (AOR=11.7, 95 %CI; 4 to 34.3) and among individuals who had two episode of TB, those who were treated by Category II treatment had significant association with MDR-TB.” – “MDR-TB were,” should be followed with a colon not comma.

3. Abstract Results (cont) “and among individuals who had two episode of TB, those who were treated by Category II treatment had significant association with MDR-TB.” could be shorted to “and among individuals who had two episodes of TB, treatment with category II regiments”

4. Conclusion and recommendation “Non adherence” should be changed to “Non-adherence”

5. Background “Multi drug resistant tuberculosis (MDR -TB) is a type of TB which is resistant at least to the most potent anti -TB drugs Rifampacin and Isonized.” Isoniazid is the correct spelling.

I’m not going to go on. These are all minor mistakes but it’s rare to find a paragraph without at least one mistake. The point is that the manuscript needs some final editing, and although publishers typically will do some editing, the amount of editing needed for this manuscript is beyond what should be done by the publisher. This should be done by the authors.
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.