Reviewer’s report

Title: Tuberculosis Treatment Outcome and Predictors in Northern Ethiopian Prisons: a five-year retrospective analysis

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Reviewer: Christopher Kuaban

Reviewer's report:

This is a simple straightforward report of the evaluation of the results of TB programme activities in some Northern Ethiopian Prisons over a five year period (September 2010- August 2015). It is therefore a retrospective review using a secondary data source.

1. In a study of this nature concerning the outcome of patients after an intervention, it is not enough for the authors to tell a reader that "information regarding the TB diagnostics and treatment services in these settings have been described elsewhere. Briefly there was no sputum microscopy service in the clinics of the prisons and the TB diagnostics relied merely on a referral of prisoners to health facilities outside prisons. The diagnosis was carried out of the referral sites using the direct microscopy and/or chest X-ray following the national guidelines. Pathological evidence was also used to support the diagnosis" (lines 78-85).

As seen from the above it is not known how the authors ascertained that the patients they studied had tuberculosis. On what criteria was smear positive pulmonary tuberculosis, smear negative pulmonary tuberculosis and extra-pulmonary tuberculosis based? Without knowledge of these, how can we be sure that the patients were suffering from tuberculosis?

2. The authors do not also inform the reader on the treatment regimens that were used to treat these patients. Did they for example use the same regimen for treating new cases and retreatment cases? Is the duration of treatment same for new and retreatment cases? Is bacteriological follow up same for these two groups of patients? Etc.

3. It is not clearly understood where the affected prisoners were treated. Were they treated at "directly observed treatment short-course clinics or in the prison by the prison health personnel or the both? ( lines 85-89).

4. In the data analysis section it is not understood why the authors mention specifically that "death was also considered as an additional outcome variable" (line13) when in line 108 they included this among the elements constituting unsuccessful treatment outcomes.
5. On what bases do the authors affirm in lines 145-146 that "All the prisoners transferred out to other prisons or released during their treatment were lost to follow up?" in normal TB programme jargon, "transfer out" refers to the transfer of a patient to another health facility where they continue their treatment. The facility transferring out the patient to another health facility will therefore not know the outcome of the patient. For patients released from prison with or without linkage to a health facility (the authors have not made this clear), the authors cannot also be sure that all of them were lost to follow up.

6. In the results concerning outcomes, the authors have lumped up cohorts of patients who do not constitute a homogenous population. New smear positive pulmonary tuberculosis patients are not similar to retreatment cases even though they all have tuberculosis. New cases are treated for six months with a regimen of four drugs while retreatment cases are treated for eight months with a regimen of five drugs. It is therefore not surprising that retreatment should be a predictive factor for unsuccessful treatment outcomes as found by the authors. Similarly smear negative tuberculosis cohorts as well as cohorts of extra-pulmonary tuberculosis cases are never mixed up with smear positive cases on cohort analysis because for one we are not sure of the diagnosis and for two, their follow up is simply for the most part clinical. It is therefore not surprising that the treatment success rate should be quite high since more than three quarters of the study population were made of smear negative pulmonary tuberculosis and extra-pulmonary tuberculosis cases for whom bacteriological confirmation of cure could not be ascertained.

7. Table 2 is quite difficult to read through and make sense out of it. I suggest that the authors transform this table into a frequency polygon if they think it is important.

8. It is not understood why the authors have decided to include the text in lines 182-197 describing the living conditions of the prisoners here. This does not tie with or explain what precedes. I suggest it should be omitted.

9. The conclusion does not seem to respond or give answers to questions the authors set in their objectives especially the one concerning predictors of unsuccessful treatment outcomes. As said above, "transfer out" cannot be considered as unsuccessful treatment outcomes.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

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

No

Are the conclusions drawn adequately supported by the data shown?
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No

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