Author’s response to reviews

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

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Response to reviewers

Version: 3, Date: 29/01/2018

Giorgia Sulis,

Academic Editor

BMC Pulmonary Medicine

Subject: Revised manuscript ((PULM-D-17-00307R2)

Dear Dr. Giorgia Sulis,

Thank you very much for your email dated on December 31, 2017. Here, we have carefully considered and tried to address the points raised by the reviewer. We hope that it would now be suitable for publication in BMC Pulmonary Medicine

1. Emanuele Pontali (Reviewer 1): None

2. Giuseppina De Iaco (Reviewer 4):
1) The main limit of the study is represented by the fact that underline only 2 negative predicting factors for treatment outcome: TB category (new episode or retreatment case) and smear not conversion at 2nd month. Only few words are spent on all other factors that can play a role such as comorbidities, substance abuse, malnutrition, HIV, lack of family support, type of prison (high security prison? - high turnover of inmates?). The 4 sites of the study are similar for population and or human resource /diagnostic availability? Any role of NGOs? Any involvement of visitors of civil society to be treatment supporter? Any incentives to strengthen compliance to treatment?

Revision: We have now tried to include other potential (suggested) risk factors (in the limitations part) and indicated that they have been shown to be associated with variations in treatment outcome (lines 265-267). With regard to the status of the prisons, as described, not all the four prisons had sputum microscopy service in their clinics, but additionally, we have now described aspects related to human resource (lines 80-83).

Response: As mentioned, we have tried to collect data on the HIV status and tried to interpret it (lines). With regard to malnutrition, though we did not collect data on height, we also have tried to highlight the relationship with weight at initiation. Consulting previous literature, we have explained the relationship between TB and malnutrition and treatment outcome in general.

It would be difficult to talk about the role of NGOs as we did not collect data or undertook observations. However, even though we did not systematically collected data, we observed that there was no any form of incentives or supporters from the society.

2) any information about the rate of clinical diagnosis of EPTB versus hystological - microbiological diagnosis?

Response: It is also difficult to tell about this, as there were no data on how many cases were sent and diagnosed by each of the diagnostic methods.

3) The use of diagnostic service external to the prison system may lead to a delay in the diagnosis and the beginning of the treatment. Do you think this influence negatively also the monitoring of the treatment or could be a possible explanation to the over diagnosis of EPTB?

Response: Yes, this could have an effect on treatment monitoring. The prison health professionals will need to regularly go to the nearby health facilities to collect the drugs, which creates inconveniences and makes treatment monitoring a difficult task. However, we do not think that this would have an effect on overdiagnosis of EPTB. The main problem is the absence of more accurate diagnostic methods in the country (in the hospitals) in general. Rather, it would even contribute to miss diagnosis due to delay owing to the barriers to a referral. In other words, there could be overdiagnosis of EPTB in the country in general, but for the prisons, this
overdiagnosis could even be relatively small as many prisoners with clinical suspicion of EPTB may not still be referred.

4) As far concern the in the method section I would add, if feasible, some data on population of the prison (denominator). Something should be also said about TB prevalence compared to TB prevalence in the region or TB incidence/year with some possible explanation or comment on the drop of TSR during the last year of the study 2014-2015 which is not addressed in the text (line 166-170; line 180-182 and Figure 3).

Response: We agree that it would have been good if we had mentioned such data. However, it was not feasible. To show this, we need to know the average of the five years prison's population of the four prisons, which was difficult to find because of that the prisons did not have an organized registration system. In addition, we were focused on the treatment outcome as we already have investigated the prevalence (point prevalence of course) in our previous study.

5) in the Methods section it could be advisable to add something about the availability or not of performing DST or GeneXpert at least for retreatment cases (line 242-245). In the discussion in fact the author mention that it could be advisable to suggest this test (line 274-275).

Revision: We have now incorporated this remark (Lines 81-84).

Thanks in advance!