Reviewer's report

Title: Mass screening for tuberculosis infection and disease in a network of 12 Brazilian prisons.

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Reviewer: Christopher Hoffmann

Reviewer's report:

Thank you for the opportunity to review the manuscript “Mass screening for tuberculosis infection and disease in a network of 12 Brazilian prisons”. Further data on TB from correctional settings is welcome. The authors present a cross-sectional study of what they purport is a randomly selected sample of inmates and describe laboratory confirmed TB disease and TST positive prevalence. While the study design has limitations and the methods themselves limit the conclusions, additional insight into TB point prevalence is of value. I have the following major concerns:

Title: The title suggests that this the manuscript is about implementation of mass screening in correctional facilities. The manuscript actually describes a population-based sampling study of Tb screening, culture for those with a cough and PPD testing with less than half of inmates actually reached in the study. A more description title should be used, for example: “Active tuberculosis and latent tuberculosis infection in Brazilian correctional facilities: a cross-sectional study”

Background:
1. Is rambling and discusses issues not addressed in the study. For example: there is a description of the need for screening algorithms and improved screening tools for correctional settings. The actual study does not assess screening algorithms or test tools. This discussion is out of place.

2. The question is relatively clear, but comes after a sentence about “an evidence base for TB screening and control strategies” Since this manuscript deals neither with improved approaches to screening nor control, the following description of the study comes as a non-sequitur.

Methods:
1. Actual target sample size not stated

2. Recruitment methods unclear. Inmates line-up by inmate number, and then what?

Results
1. Several studies have suggested that cough is not very sensitive for TB in correctional facilities (60% sensitive). The failure to diagnose this potentially large group with asymptomatic TB appears to be a large limitation.

2. Solid media is less sensitive than liquid media. More is needed in the
discussion around this and the potential increased TB diagnosis with liquid culture

3. The number of refusals (10%) should be noted in the results, not just the figure. It also appears high. Were those who refused similar in characteristic compared to those who screened?

4. What was the annual turnover of inmates from the 12 correctional facilities. The daily census was stated at 7,221; the annual census would be expected to be much higher given turnover in facilities (new incarcerations, transfers to other facilities, and releases).

5. What was the duration of the screening study?

6. The results jump around. They need to be better organized. For example: TST status results are described, followed by a paragraph on participant demographics, followed by more paragraphs on TST results.

7. Time to TB diagnosis is not described in the Methods. A thorough description is needed including the average duration of incarceration at these 12 facilities. (of note, it is unclear how it is related to the thrust of the manuscript and could just be removed).

Discussion

1. TB incidence calculation methods are not described in the Methods and the incidence is not presented in the Results. I am skeptical that you can generate an accurate TB incidence with cross-sectional data and would remove (unless your computation methods are well defended in the Methods).

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: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests