Reviewer: Hong Van Tieu

Reviewer's report:

- Major Compulsory Revisions

This paper examines the prevalence of TST reactivity at different cut-off thresholds in young schoolchildren 6-12 years of age in the Central African Republic to determine prevalence of TB infection. The paper is written in clear English. However, there are several major issues with the paper and analysis.

(1) Page 3, Introduction: What is the TB prevalence in the pediatric population? What are the prophylaxis guidelines for latent TB for children in the country? It would also be good to provide HIV prevalence and HIV/TB coinfection prevalence, as well as prevalence of nontuberculous mycobacterium infection in children in the country? What is the BCG vaccination coverage in children, when do they get vaccinated, is BCG vaccination mandatory? It would also be important to provide reasons why the neighboring region of Ombella M’Poko was selected in addition to Bangui. Is it because it was a convenience sample? Is it a rural region (this was only mentioned much later in the paper), does it have lower HIV prevalence than that of Bangui? Is BCG vaccination coverage different between the 2 regions?

(2) Page 4, Methods: In the TST and data collection section, it would be good to mention how personal information of the participants (age, BCG history, whether HIV status was asked) was obtained- was it by a counselor-administered questionnaire, questionnaire for parents to complete, what other information of the participants was obtained? Was TB exposure history of the participants obtained? If so, this information should be provided in the manuscript. Was a physical exam done to assess BCG scar? What is the nutritional status of the children, and how was that assessed (ie, exam with weight and height)?

(3) Page 4, Results section: In the first paragraph, were there any differences in age/demographics between those who completed the TST implant/reading and those who were absent at time of skin reading? Was there a difference between the 2 regions (Bangui and Ombella) in exclusion from the final data set due to being absent, etc.? In the third paragraph: why mention that 26.6% children had a tuberculin reaction induration of >= 1mm; also does this relate to only children with BCG vaccination, or all children in the data set? Was any questionnaire collected or exam performed to assess if any of the children had symptoms or signs of active TB? Do the positive TST results presented only reflect latent TB without active symptoms/signs?
Page 5, Discussion section: In the bottom of first paragraph, the authors noted that when prevalence of NTM is high, a threshold value of 10 mm overestimates the prevalence of MTB infection because of cross sensitivities. It would be good to elaborate little bit more here, and why induration of >15 mm was selected to estimate the prevalence of infection and calculation of ARI. Also, it would be good to expand the entire discussion section as it is only 1 paragraph long, with the other paragraph related to limitations. So how does the results differ from previous reports in the country? How do they compare with other countries in Africa? Is it feasible to utilize other techniques such as interferon gamma release assays in the country? Please also add limitation of distinguishing TB and nontuberculous mycobacterium infection in the study, and limiting distinguishing active vs latent TB in the study if these were not assessed.

- Minor Essential Revisions

(1) Page 3, Methods: It would be good to explicitly mention the eligibility criteria here. Also, in the Training section, it would be good to describe what the team consists of. Does it consist of nurses, doctors, or counselors? In the TST and data collection section, it would be good to mention how personal information of the participants (age, BCG history, whether HIV status was asked) was obtained—was it by a counselor-administered questionnaire, questionnaire for parents to complete, what other information of the participants was obtained?

(2) Page 5, Discussion section: In the first sentence, it would be good to specify that it relates to the prevalence of TB infection. It would also be good to specify that it does not distinguish active vs. latent TB infection.

(3) Table 1: It would be good to put total N=2710 at the end of the title

(4) Figure 1: the HR7 and HR1 are not highlighted. It is difficult to see where are the 2 regions that are included in the study. HR7 and HR1 should be in a darker shade to differentiate them from the other regions not included in the study.

- Discretionary Revisions

N/A

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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.