Reviewer's report

Title: Decreasing household contribution to TB transmission with age: a retrospective geographic analysis of young people in a South African township

Version: 3 Date: 2 December 2013

Reviewer: Hassan Mahomed

Reviewer's report:

Technical
1. What upper age was used to define adolescents. Reference 3 refers to an upper age limit of 22. Although these were all schoolgoing persons, some young adults seemed to have been included. Were these still living with their parents or in the home that they grew up in? – there is a possibility that this was not the case. Was stable residential status confirmed for the period investigated for all participants? If not, this should be listed as a limitation – the “adolescents” in this study would have a higher likelihood of not living at the same residence for the period of exposure assessed – this would have introduced a bias which could explain the results obtained.

2. How were the models developed that were used in the multivariate analysis e.g. only adjusting for gender was used in one analysis.

3. The difference between adolescents >15 and children < 15 is marginal in terms of odds ratio for having had infection if exposed. There is a possibility that type II error may be operating and that a bigger sample size may produce a significant result for those >15. A possible interpretation is that household exposure is less associated with household exposure amongst adolescents rather than not associated – a mixture of external and household exposures. I believe some caution is required in interpreting the results rather than definitively stating that household exposure is not the source of infection in adolescents.

4. Was HIV status associated with being smear positive or negative?

5. Figure 2 legend states that “59% of TST negative adolescents were exposed to an adult TB case on their residential plot compared to 59% of TST positive adolescents”. If this were true, then the number exposed to TB on plot should be 278 and not 298 as stated. In addition, the odds ratio will be 0.99. Please check these figures.

6. Conclusion: "..not SIGNIFICANTLY associated with adult TB cases..." may be a better way to state this.

Grammar and spelling/ editorial
1. Introduction: second paragraph, second last sentence – reference 9 not appropriate as this study focused on young children not adolescents.

2. Methods – study community - HIV prevalence and TB notification rates – the years from which these data come would be useful to add.
3. “Adolescent” should be “adolescents” in the third paragraph under “Study Community”.

4. Results, Childhood and adolescent TB infection cohort - last sentence, should be “…who WERE tested…”.

5. Results, Prevalent TB infection: should be “Of these participants…” not “Of these adolescents…”

6. Table1: if these are adjusted odds ratios, then this should be made clear in the table.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests