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## In reply

We have read with interest the observation by Marais and Graham on our recent article.<sup>1</sup> While not apparent in the abstract of our article, it is clear in the methods and fully acknowledged in the discussion, that our definition of ‘symptomatic’ was stricter than the current World Health Organization (WHO) definition.<sup>2</sup> In our study a combination of a more restrictive symptom definition and tuberculin skin test (TST) positivity led to 24% of the contacts requiring further investigation, compared to 36% in the Indonesian study quoted by Marais et al.,<sup>3</sup> which used the ‘any symptom’ criteria. With active 3-monthly follow-up for a year, we identified only three further clinically diagnosed cases of tuberculosis (TB) in the 3000 contacts.

A key question is whether we found TB in any of those individuals who had no symptoms at all, who would not have been investigated using the WHO definition. We have now further reviewed the set of children we had defined as not meeting the symptom criteria in our study: of the 27 children diagnosed with TB in this group, 19 had no symptoms at all and were evaluated in the clinic purely on the basis of their positive TST results. Five of these had bacteriologically confirmed TB. Our study is not alone in this regard. In a similar study by Beyers et al. using the WHO definition, seven of nine under-5 child contacts diagnosed with culture-confirmed TB were asymptomatic at the time of screening.<sup>4</sup>

In the study from Indonesia referred to by Marais and Graham, we note that all 21 TB cases identified in those aged under 5 years met more restrictive symptom criteria,<sup>3</sup> such as were used in our study. In contrast, no TB disease was identified in the other 72 children with ‘any symptoms’, who therefore had a prevalence rate of TB that was not higher than among those with no symptoms at all.

We agree that TST testing is not feasible in most high-burden settings, and that it is best to wait for those children with ‘any symptoms’ to become asymptomatic and be sure that they are not developing TB disease, before starting them on preventive treatment. The priority must remain to identify all children with TB disease as early as possible and to give preventive treatment to the remaining children under 5.

With contact tracing so poorly implemented at present, we believe it is important to provide national

tuberculosis programmes with possible options for contact tracing within the context of constrained resources. As fewer children need to be further investigated using a more restrictive symptom-based approach combined with TST testing, and a higher proportion of TB cases may be picked up, some programmes with the capacity to perform TST may prefer this approach.

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## Use of inhaled corticosteroids for obstructive lung disease following anti-tuberculosis treatment

In 2016, we advocated for attention to be paid to long-term respiratory dysfunction in patients who had been diagnosed with tuberculosis and successfully treated, suggesting that such patients should be assessed and managed for chronic obstructive and chronic restrictive lung disease if these were to be