Reviewer's report

Title: Infection control and the burden of tuberculosis infection and disease in health care workers in China: A cross-sectional study

Version: 1 Date: 29 July 2010

Reviewer: Mareli Claassens

Reviewer's report:

Major Compulsory Revisions
1. Add to Introduction: China’s tuberculosis stats (prevalence, incidence, burden), BCG policy and TB infection control policy and the implementation thereof at the time of the study. This should include the occupational TB policy, i.e. screening of HCW at facility level.

2. P6 line 6: please explain sample size calculation for 40 randomly selected TB centers. How many of these selected centers had inpatient wards?

3. P6 line 12: please explain how the checklist was compiled? By whom? How comprehensive was it with regards to TB infection control measures, i.e. did it contain information on administrative, environmental and personal protective measures? How was it validated? Did it include researcher observation within a facility? How does it compare to the CDC risk assessment tool that was published in December 2005?

4. P6 lines 12-18: please include the data on the HCW who contracted TB as a separate table, including columns on sputum spear results, culture results, chest x-ray results, symptom screen results as well as category and treatment outcome if possible. Please comment why only three of the cases were smear positive, if possible. Also add data on TST.

5. Please also tabulate/illustrate how many HCW in total were screened symptomatically and by chest x-ray. How many had abnormal x-rays, how many were symptomatic, how many did not give consent or were not available, etc.

6. P9 line 14: please comment on the sputum examination room stats – include a recommendation that sputum rooms should be separated from administrative areas (only 15.7 % separated), windows should be open at all times (not only 66.9%) and UVGI should be used daily (not only 66.1%) and tested regularly, especially in the sputum room.

7. P11 line 7: the prevalence for HCW working with TB inpatients is 15.9, much higher than any other job location. Please include this in the results/discussion

8. P15 line 3: include administrative measures as first priority to strengthen infection control practices

Minor Essential Revisions
9. P4 line 10: add reference
10. P4 line 12: check reference 6 – either change to MDR TB or change reference, insert date


12. P5 line 10: ... survey on HCW from TB centers in Henan Province.

13. P5 line 13: how does Henan province compare to other provinces with regards to MDR-TB proportion of cases?

14. P6 line 1: please explain why some TB centers do not have TB clinics? Do these centers have inpatient wards? (could be illustrated in flow diagram, if inserted as advised under discretionary revisions)

15. P6 line 8: Is Zhumadian city in the same province? Please explain why the pilot data were included in the analysis? What was the impact of the pilot study on the protocol?

16. P6 line 14: ... chest x-rays were done on all HCW

17. P6 line 15: please explain how the sputum samples were examined. Was this according to the WHO policy at the time?

18. P6 line 16: please start a new paragraph with: ... A TST was done on all HCW... This was not done on all HCW, but only on the HCW in the preselected facilities. Please explain how many HCW were employed at these selected facilities in total for the time period, of which how many were enrolled in the study?

19. P9 line 11: Is more information available on the type of pre-employment screening? Was the regular screening program in 48.8% of centers an annual program?

20. P10 line 5: what was the definition of ‘large TST indurations’?

21. P10 line 11: define which job cadres were included in ‘job location within the TB center’?

22. P10 line 12: which are the ‘medical staff’ and which are the administrative staff?

23. P10 line 14: which factors were similar for HCW when those with and without BCG scars were compared? (list factors)

24. P11 line 2: HCW who worked longer than 10 years at the facility had a lower prevalence than those employed 5-9 years. Please comment.

25. P11 line 4: please include the total number of females here, so that the reader realises 9/1937 cannot be significant.

26. P11 line 17: include data from prevalence survey in 2000. Are the prevalence data for the same age groups, geographical location etc.?

27. P12 line 8: please clarify – does the phrase “an average LTBI prevalence of 54%” refer to the general population in China? If not, please include data on the LTBI prevalence in the general population of China.

28. P12 line 13: please comment why HCW working at prefecture level were at higher risk for developing TB?
29. P12 line 16: please include data to confirm statement “we did not observe the association of male sex with increased M.tb infection risk”.
30. P13 line 8: which TB infection control standards are referred to?
31. P13 line 9: please include references to suggest that these interventions would be ideal for this context? Were these interventions evaluated as part of the checklist?
32. P13 line 13: are exhaust ventilation systems feasible in this rural area? Will maintenance not become an issue?
33. P14 line 13: please explain the assumptions for this calculation.
34. P14 line 20: how generalisable are the data to other provinces in China?
35. P25 table 3: please speculate on why 14 of the 20 TB-cases were found in the sample population?
36. Spelling, grammar mistakes and abbreviations to be corrected throughout the manuscript. References and format to be checked (see reference 2, 17...)

Discretionary Revisions
37. P 4 line 14: insert flow diagram to illustrate breakdown of TB programme in Henan province
38. Please insert reference number for ethics approval by Chinese Ethics Committee.
39. P9 line 18: is there any information available on where the UV lights were situated? Current literature favours upper room UVGI.
40. Please consider including data on TB/HIV in China. Specifically about HIV in HCW, if any known data are available.
41. P11 line 15: consider adding the phrase: “... TB infection control as evaluated by this checklist/study... “. Data on the administrative components of TB infection control were not included in the manuscript, so TB infection control in general can not be commented on.
42. P11 line 19: for this part of the analysis, consider using a 6 mm cut off for the study participants as well.
43. Please consider including an argument explaining why LTBI rates were similar to that of the general population, but TB-disease rates were much higher.
44. P13 line 18: please include the study dissemination strategy.
45. In the discussion, please try to follow the tables’ variables from top to bottom and comment on all variables. Please look at the formatting of table 2 (inpatient ward and size of clinic)

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published
**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.