Reviewer's report

Title: Tuberculosis diagnosis delays in Chad: a multicenter, hospital-based, survey in Ndjamena and Moundou.

Version: 2 Date: 17 November 2011

Reviewer: Rachel Royce

Reviewer's report:

Major Compulsory Revisions

1. Abstract Objectives para: Delays were estimated for more than "case-management". This term needs to be changed to be more accurate.

2. Abstract Objectives para: Should include that the estimate is for TB cases that were seen in hospital.

3. Abstract Results and Discussion para: Should include interquartile ranges for each median delay time reported.

4. Abstract Results and Discussion para: AOR should be defined.

5. Background Para 3. What would be the rationale for using cough as the starting point? of cough onset as the starting time point does not take into consideration other significant TB symptoms that may precede cough such that the time calculated may underestimate the delay.

6. Methods Para 2. What about cases who die before reaching the hospital? How frequent is that in Chad? How would the exclusion of these cases affect the study results and the generalization to all TB cases? What about the cases who were too ill to be interviewed. How might their exclusion affect the results of the study?

7. Methods Para 3. Not all patients with TB have a cough. Were there any patients in this study that did not report a cough? If so, how was delay defined?

8. Methods Para 3. Total delay is a composite of two pieces, patient delay and health care delay. The constellation of factors influencing each delay is distinct (as demonstrated in the tables) though there are some overlapping factors. There is something conceptually incorrect to analyze factors associated with total delays when the factors leading to patient delay might operate differently for health system delay. If the association for a factor is associated positively with one piece of delay and negatively with the other piece of delay then what is the meaning of its contribution for total delay? It is, however, useful to present the actual medians for the total delays because that represents the amount of time that cases were left untreated in the community, increasing their chance for more severe morbidity and for transmission to others. For example, 61.5% of those that went to hospital for first care for cough exceeded the median time for the patient delay (positive association with delay) however 32% of them exceeded
the median time for the health system delay (negative association with delay). Or, another example, in Table 4 the HU being a woman is associated with shorter patient delays and longer health system delays. Thus, the total delay is a mishmash of these associations. One could imagine that a public health intervention on delays might need to target the pieces of the delay differently in this case.

9. Methods Para 4. Income variable really should be named wealth as it is a composite of various aspects of wealth.

10. Methods Para 4. No info was included on definition of rural.

11. Methods Para 4. Some variables have response categories that could be overlapping. For example, people could believe that medicine and traditional treatment could cure TB. How might that be accounted for in the responses? Did the authors simply count the one the that patient did first? Another such variable is the one about how patients pay for additional expenditures. Patients could pay with working and using savings, for example. Please explain.

12. Methods Para 8. Some of the variables that are ordinal should have their association with the outcomes of interest assessed for trend. For example age and score for wealth (income).

13. Methods Para 8. One wonders whether there might be some important interactions in these data. There is no mention of looking for these in the methods section. For example, where someone first went for care and the hospital that they were registered as a case are both significant factors for health system delays. Please report whether interactions were examined or not.

14. Results Para 2. The authors need to explain why there is such a dramatic difference in the reported proportion of cases with HIV seropositivity according to hospital. What was the denominator for this proportion? Was it all cases or only among those with test results?

15. Discussion Para 2. The reader wonders about the different hospitals and what the catchment area is like for each. More importantly, it is common that an important proportion of TB cases are diagnosed at death. The authors talk about patients who do not use health facilities but they do not mention how TB mortality might affect their study results.

16. Discussion Para 5. The first sentence belongs in the results section of the report.

17. Discussion Para 5. The discussion of delays in other countries is very tedious. Perhaps these studies should be dropped into a table or summarized more cogently or restricted to the ones with most relevance for Chad. Perhaps this discussion should be driven by the Storla review that is cited rather than listing results.

18. Discussion Para 6. The point about including getting care from non-medical
sources is a very good one but then it makes the reader wish that the authors had included an analysis of the actual trajectories of care in order to make sense of the results. What was the timing like between informal care and medical care? Also, defining the starting point as onset of cough might have had an impact on the findings.

19. Discussion Para 7. Just because TB treatment is free does not mean that all have access. Presumably there are many potential barriers to care such as lack of time off work to go to doctor, etc.

20. Discussion or conclusion should tie back to the themes of the beginning of the report. Are the delays reported here important to the spread of TB in Chad?

21. Conclusion Para 1. The first few sentences include very interesting results that should have appeared in the results section. The results section needs more information on the distribution of the delays measured in days. Then, the authors could tie the results back to the population transmission dynamics.

22. Tables 2, 3, and 4. Inconsistent terms are used across tables so the reader gets confused whether the factors are the same or not. For example in Tables 2 and 3 there is a factor called “First care received” but in Table 4 it does not appear; but there is a factor called “Treatment considered first”. The levels for this second factor, however, are not the same as those for the first factor. What is going on here?

23. Table 2 Instead of dichotomizing the outcome into above and below the median delay this table would be more informative if it simply displayed the median delay (and interquartile range) for each level of the factors. This is especially the case because the cut point used for the dichotomous analysis is the median of all patients without regard to hospital. Hospital is an important predictor for delay so both the percent of each category above or equal to the median and the percent below the median.

24. Tables 2 and 3. There are too many variables included in Tables 2 and 3. The factors that are not associated with delays could be omitted. Also, the table would be more readable with subheadings of categories of factors such as sociodemographic; clinical; knowledge, attitudes and beliefs; and health services access and utilization.

Minor Essential Revisions

1. Table 3. One of the factors is in French – Nombre d’année d’instruction.

2. Table 3, the last few lines of the table. There are new abbreviations introduced here that are not explained – CHAG and MDOU. These lines do not appear to be in the right place as there are no factors defined in the first column for these lines.

3. Table 4, the results for hemoptysis are missing for extended patient delay and extended health system delay.
4. Table 4. The blanks in the table should be explained in footnote (i.e. reason that there are no modeling results for the last two factors in some of the columns of the table).

Discretionary Revisions

1. Background Para 3. Use of the term “patient delay” is somewhat unfair, same with “health system delay”. The former seems to blame the case when there might have been barriers out of the case’s control such as clinic hours that prevented getting care. Similarly, the health system delay might be heavily influenced by patient’s behavior, especially if it was necessary to go from one source of care to another to finally get on treatment. Consider using a more objective label for these two components of delay.

2. Methods Para 6. What was measured was distance to closest health facility and not distance to first place of the case sought care. That seems like it would be most relevant to patient delay and might have influenced what the first place of care was. The distance to closest health facility might be more relevant to health system delay.

Minor issues not for publication

1. Abstract Background para: English in last sentence is not grammatically correct.

2. Results Para 4 (and other places) AIDS is not properly capitalized. It is written as “Aids”.

3. Tables. The labeling of the tables should be revised to be simply “Table x.” where x is the number of the table.

4. Table 1. Define IQ.

5. Refs. Many of the references are missing the page numbers of the article cited.

There are many instances of grammatical errors, awkward or incorrect use of words or phrasing, inconsistent use of terminology.

• Interrogation, in English this is used almost exclusively in a situation of conflict/custody and is never used to refer to questionnaire administration.

• Delays should not be called “superior”.

• Discussion para 8. “women’s non emancipation” This is not a common term and this reader has no idea what is meant by this.

• The Discussion in particular suffers with language difficulties.

**Level of interest:** An article whose findings are important to those with closely related research interests
Quality of written English: Not suitable for publication unless extensively edited

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”.