Reviewer's report

Title: Estimating the magnitude and direction of bias in tuberculosis drug resistance surveys conducted only in the public sector: a simulation study

Version: 2 Date: 31 May 2010

Reviewer: Emilia Vynnycky

Reviewer's report:

The authors have generally incorporated most of the changes suggested in the previous revisions. There are still a few minor issues which need to be addressed before the manuscript can be accepted for publication.

page 7, para 2, line 3: should a1-4 be replaced with aN or aP?

page 8: it would be helpful to include the definitions of k_FN and k_RN in Table 1.

page 8, para 2 (after the equation for A_A_N): this section looks more complicated than it actually is. It would be helpful if, besides using mathematical symbols, the authors could use words to say what they mean. For example, the 3rd line after this equation could be changed to read “First, all new cases go to the public sector (i.e. k_FN=1) if and only if all new sensitive and all new drug-resistant cases go to public sector (i.e. x_S=x_R=1).” At present, the argument is harder to follow than it should be as it’s necessary to keep referring to Table 1 in order to identify what the symbols mean.

The authors mentioned that they replaced all occurrences of the word “annealed”. However, the word is still used in several places: p10 line 13, p14 para 2, captions to Figures 5 and 6. Please could these be replaced. Likewise, the words “susceptible cases” on p11, line 4 should be replaced with something more appropriate,

page 13 – some of this section (description of cases 1 & 2) fits better in the methods section than in the results.

page 16, para 2, line 3 – it would be helpful to remind readers what k_FN and k_RN are.

Figure 1: The diagram could be made easier to understand by adding the words “drug-sensitive” and drug-resistant” to the unshaded and shaded areas. Also, why are the boxes of different sizes?

Figure 2: it would be easier to relate this plot to the equations if the authors could just include the text “x_R” and “x_S” in parentheses after the titles for the y- and x-axes respectively.

caption to Figures 5 and 6: it would be good to replace the words “are infected with MDR TB” with “have MDR TB” since, technically “tuberculosis” refers to the
disease state rather than to the infection.

Figure 5: the x and y-axis titles are missing.

Figures 5 & 6: Again, it would be easier to relate the diagram to the equations by including the symbol (e.g. Å) in brackets after the x and y-axis titles.

Table 1: the definitions for aN and aP are ambiguous. Perhaps they can be reworded to “fraction of TB cases in the public/private sector who acquire resistance”.

**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 interest