Reviewer's report

Title: Completeness and Reliability of the Republic of South Africa National Tuberculosis (TB) Surveillance System

Version: 2 Date: 18 June 2015

Reviewer: John H Kalbfleisch

Reviewer's report:

These comments follow a request for a statistical review of the manuscript. The statistical methods applied to data captured from the sampling plan are reasonable and the reported conclusions are acceptable. However, the statistical methodology is not described well in the Methods Section. Some readers might expect statistical methods to incorporate all of the factors of the stratified sampling (provinces, sub-districts within provinces, facility-types within sub-districts and individual cases within facilities), but my feeling is that the conclusions in tables will be very similar. It seems there are system-issues that must be addressed before a change in statistical analysis would be effective. Below are comments for the authors to consider.

Major Compulsory Revisions
(1) Mention statistical software in the Methods Section.

Minor Essential Revisions
(2) Table 3. Is the p-value is for a chi-square comparison across “all columns” or only selected columns? Elaborate in the footnote.

(3) Table 4. “Concordance” in the table title is not mentioned in the Methods Section. A synonym might be used in this instance.

Discretionary Revisions

(4) Methods Section, Statistical Analysis, Reliability. Kappa was computed from a “weighting” procedure (which prompted a primary reviewer comment) but the detail for this are absent. The intraclass correlation coefficient (ICC) computing details are absent (in view of the data capture sampling plan, were variance components obtained and then a ratio of these used to obtain an ICC). Mention of the statistical software might give the reader needed information for this detail (or include a reference if CDC has an accepted methodology for these procedures).

(5) A comment. Are there any descriptive measures for the study cases and for the target population (or sampling frame) that are available and that can be compared (to illustrate how well the study represents the population? Table 3 gives only the relative occurrence of items (variables) in the data sources, not the
distributions of the variables for each source. For example, age is always available (99% or more), but beyond the high documentation frequency for age, is the study age distribution similar to the age distribution in the source-database(s)?

(6) A comment. In an effort to provide for system improvements, I wondered if the total data set might be separated into major subsets (by presence or absence of HIV/AIDS or by age groups). Each subset is then analyzed in a similar fashion. This allows for subsets to have different results and could suggest different system improvements for the subsets. For example, is it possible to make two Table 5 displays: for those with HIV/AIDS and for those (supposedly) without HIV/AIDS? HIV/AIDS cases would seemingly encounter the healthcare system frequently (allowing for TB detection) while the TB detection in the other group could be more difficult to accomplish. I have seen healthcare utilization differ by age group in a pediatric population, thus, it makes better sense to report by age group and suggests ages where improvement is needed.

Declaration of competing interests:

“I declare that I have no competing interests.”