Reviewer's report

Title: Simplified Symptom Pattern Method for Verbal Autopsy Analysis: Multi-Site Validation Study Using Clinical Diagnostic Gold Standards

Version: 1 Date: 16 May 2011

Reviewer: Soeharsono Soemantri

Reviewer's report:

I. Major Compulsary Revisions
1. SSP vs PPVA
   a. Individual cause assignment. The paper described that selection of a simplified symptom pattern (SSP) from 12 possible modifications of SP was basically based on adult causes of death and the selected variants have been implemented for children and neonates. Could the procedure may effect the performance of SSP for children and neonates in terms of chance corrected concordance?. As shown in Table 3, SSP for adults outperform PVCA better than SSP for children and neonates. Even Table 3 shows that PCVA outperforms SSP for children and neonates for group with HCE (Note the authors wrongly stated SSP does better than PCVA both with and without HCE).

   Chance corrected concordance shown in Table 3 can be used to indicate performance difference between SSP and PCVA by contrasting 95% CI values, but it can also be used to evaluate how strong the relationship between the methods (both SSP and PCVA) to assign individual cause with the true one. All chance corrected concordance coefficients shown in Table 3 are below 50% indicating a weak relationship.

   b. CSMF Estimation. CSMF accuracy achieved by SSP in comparison to PCVA by age group is shown by Table 4. Not all cases SSP performs better than PCVA. For group of neonates PCVA produces better accuracy of CSMF (although SSP accuracy results are not comparable). Although median CMSF accuracy for adult and child based on SSP are statistically better than PCVA, the increment of CMSF is only within the range 4% to 7%, it can not be claimed as substantial.

   2. Estimated of CSMF as a function of true CSMF

   Annex 2 shows relationship of estimated CSMF derived from SSP model and true CSMF from 500 different test splits in the form Estimated CSMF = True CSMF * slope + intercept and Figures 4A thru 4G highlight characteristics of SSP’s prediction. Slope and intercept indicate how well SSP’s method will predict true CSMF. Slope close to one and intercept close to zero indicate that estimated CSMF will be perfect to predict true CSMF. SSP only gives slope above 0.8 for four adult causes, three child causes and two neonates causes (see column HCE of Annex 2). Many slopes derived from SSP are below 0.5 (20 adult causes, 14 child causes and 7 neonates causes). For the 9 causes with slope above 0.8
their intercepts ranging from 0.010 to 0.051. Many low values of slope coupled with relatively high values of intercept and RMSE predicted by SSP indicate that the method is still unpredictable and imprecise for many causes.

3. In conclusion, the Simplified Symptom Pattern, in comparison with PCVA indeed improved the individual cause of death assignment as well as cause specific mortality fraction estimates. However SSP is still far from expectation to predict true CSMF for many causes of death.

II. Minor Essential Revisions
Table and Figure heading should follow standard format. Inconsistency in numbering Figure within text body and in attachment.

III. Discretionary Revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.