Reviewer's report

**Title:** Population Health Metrics Research Consortium Gold Standard Verbal Autopsy Validation Study: Design, Implementation and Development of Analysis Datasets

**Version:** 1  **Date:** 2 May 2011

**Reviewer:** Peter Byass

**Reviewer's report:**

This paper describes an extremely important and significant development in the somewhat fraught world of validating verbal autopsy (VA): namely the collection of an international reference dataset. The authors clearly and persuasively present the details behind the dataset and obviously believe it is justified to claim that this represents a new "gold standard" in terms of relating pre-mortem hospital findings to cause of death and thence to blinded VA interview responses. I would generally share this belief.

However, as a peer-reviewer I am required to consider the evidence underlying the conclusions drawn, and not to assess the legitimacy of beliefs. In these terms there is a major flaw in the scientific reasoning behind this paper: no evidence whatsoever is presented which attempts to validate the physician committee’s mapping between the pre-mortem hospital diagnostic findings and specific causes of death. Despite the details presented in Annexes 3A and 3B, which clearly reflect a considerable compilation of clinical wisdom, there are likely to be modest fractions of deaths satisfying particular examples of the stated pre-mortem clinical criteria in which the true cause of death (which could putatively have been established e.g. by post-mortem findings) would have differed from the physician committee’s mapping. This might particularly be the case where multiple criteria mapped to more than cause of death were involved. There is considerable evidence from sophisticated clinical settings that there can be appreciable differences between hospital pre-mortem findings and post-mortem causes of death (see e.g. Shojania K, Burton E, McDonald K, et al. The Autopsy as an Outcome and Performance Measure. Evidence Report/Technology Assessment No. 58 (Prepared by the University of California at San Francisco-Stanford Evidence-based Practice Center under Contract No. 290-97-0013). AHRQ Publication No. 03-E002. Rockville, MD: Agency for Healthcare Research and Quality. October 2002.).

Hence I would ask for the following major compulsory revisions:

1. An additional paragraph discussing: relationships between ante-mortem hospital findings and post-mortem causes of death; any possible subjectivity around the processes of the physician committee; an indication of why post-mortem pathology was not considered or used in this study, and what the possible implications of all these factors are for the validity of the “gold standard”
dataset

2. Please review how the term “gold standard” has been used throughout the manuscript, and find a less value-loaded name for the new dataset – for example “the PHMRC VA reference dataset” or something along those lines. Although it probably represents the best available data at the present time, there will undoubtedly be further developments in VA validation in the future, and as discussed above, I do not consider that this can be described as an absolute and permanent gold standard.

3. On page 11 we learn that supervisors re-interviewed a portion of the VAs as a quality control procedure. However, there seem to be no data presented or discussed on the results from this process, which is a pity given the very sparse existing data on VA repeatability. Can this be added, since it also represents a possible source of variation in terms of the mapping between VA interview parameters and established causes of death.

Minor essential revisions

4. There is an inconsistent use of abbreviations in the manuscript e.g. gold standard and GS; verbal autopsy and VA. There needs to be a more consistent approach to the use (or not) of abbreviations.

**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 have been funded by IHME to visit Seattle and to participate in the Bali VA Congress. I am a member of the PHM editorial board.