Probabilistic modeling of verbal autopsy data is best for public health decision making

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Computer-based probabilistic models that are used to interpret verbal autopsy data- information from interviews with family, friends and carers about deaths that are later interpreted into possible cause(s) of death- are as effective as physician reviews of the data for establishing cause of death, according to research by Peter Byass from Umeľ University, Sweden, and colleagues from Witwatersrand University, South Africa, that is published this week in *PLoS Medicine*.

Probabilistic modeling is cheaper and faster than physician review and also completely internally consistent. Therefore, in many circumstances, probabilistic modeling is the best available means of incorporating data on deaths into public health actions.

The authors compared and contrasted physician reviews and probabilistic modeling as applied to verbal autopsies from a series of 6,153 deaths that occurred in a rural South African population from 1992 to 2005. The ten highest-ranking causes of mortality accounted for 83% and 88% of all deaths by physician interpretation and probabilistic modeling respectively, and eight of the highest ten causes were common to both approaches. Therefore, the authors say that there were no differences between physician interpretation and probabilistic modeling that might have led to substantially different public health policy conclusions at the population level. Physician interpretation was more nuanced than the model, for example in identifying cancers at particular sites, but the model was able to capture the uncertainty associated with individual cases.

The authors explain that the main aim of this paper is not to provide a validation of any particular verbal autopsy method, but to consider alternative approaches for handling interview data on individual deaths to give meaningful pictures of population health They conclude: "where [verbal autopsy] is used within routine health services, probabilistic modeling with its consistent approach over time and place, the elimination of inter- and intra-assessor variation, faster results, and much lower cost, should be the interpretative method of choice."