Abstract: Validation of verbal autopsy procedures for adult deaths in China

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Background

Vital registration of causes of death in China is incomplete with poor coverage of medical certification. Information on the leading causes of mortality will continue to rely on verbal autopsy (VA) methods. A new international VA form is being considered for data collection in China, but it first needs to be validated to determine its operating characteristics.

Methods

Detailed medical records and clinical evidence for 3290 deaths (mostly adults) among residents of six cities representative of the urban Chinese population were reviewed by a panel of physicians and coded by experts to establish a reference underlying cause of death. Independently, families of the deceased were interviewed using a structured symptomatic questionnaire and a separate death certificate was prepared for each matching case (2102). Validity of the VA procedure was assessed using standard measurement criteria of sensitivity, specificity, and positive predictive value.

Results

VA methods perform reasonably well in identifying deaths from several leading causes of adult deaths including stroke, several major cancer sites (lung, liver, stomach, oesophagus, and colorectal), and transport accidents. Sensitivity was less satisfactory in detecting deaths from several causes of major public health concern in China including ischaemic heart disease, chronic obstructive pulmonary disease, diabetes, and tuberculosis, and was particularly poor in diagnosing deaths from viral hepatitis, hypertension, and kidney diseases.

Conclusion

VA is an imprecise tool for detecting leading causes of death among adults. However, much of the misclassification generally occurs within broad cause groups (e.g. CVD, respiratory diseases, and liver diseases). Moreover, compensating patterns of misclassification would appear to suggest that, in urban China at least, the method yields population-level cause-specific estimates that are reasonably reliable. These results suggest the possible utility of these methods in rural China, to back up the low coverage of medical certification of cause of death owing to poor access to health facilities there.