Validity of Interval model versus physician review of verbal autopsy for tracking tuberculosis-related mortality in Ethiopia

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Background:

In most African countries where a legitimate vital registration system is lacking, physicians often review verbal autopsy (VA) data to determine the cause of death, while there are concerns about the routine practicality, accuracy, and reliability of this procedure. In Ethiopia where the burden of tuberculosis (TB) remains unacceptably high, reliable VA data are needed to guide intervention strategies. This study aimed to validate the InterVA model against the physician VA in tracking TB-related mortality in Ethiopia.

Methods:

From a sample of deaths in Addis Ababa, Ethiopia, VAs were conducted on TB-related mortality, physician- certifed verbal autopsy (PCVA) through multiple steps to ascertain the causes of death. InterVA model was used to interpret the causes of death. Estimates of TB-related deaths between physician reviews and the InterVA model were compared using Cohen's Kappa (k), Receiver-operator characteristic (ROC) curve analysis, sensitivity, and specifcity to compare agreement between PCVA and InterVA.

Results:

A total of 8952 completed PCVA were used. The InterVA model had an optimal likelihood cut-of point sensitivity of 0.64 (95% CI: 59.0–69.0) and specifcity of 0.95 (95% CI: 94.9–95.8). The area under the ROC curve was 0.79 (95% CI: 0.78–0.81). The level of agreement between physician reviews and the InterVA model to identifying TB-related mortality was moderate (k= 0.59, 95% CI: 0.57–0.61).

Conclusion:

The InterVA model is a viable alternative to physician review for tracking TB-related causes of death in Ethiopia. From a public health perspective, InterVA helps to analyze the underlying causes of TB-related deaths cost- effectively using routine survey data and translate to policies and strategies in resource-constrained countries.

Keywords: Tuberculosis, Mortality, Verbal autopsy, InterVA, Cause of death, Ethiopia

Biography

Haileleuel Bisrat have completed his study at Addis Ababa University Department of Statistics with a minor in Computer science. He always strives for continued his excellence and hence currently He had an MSc degree of Integrative Health Science, from Kristiansand University, Sweden currently he is an expected graduate student in MSc student at Addis Ababa University Department of Clinical Trial.

Haileleuel had a lot of significant professional experiences in Data Management. He Developed several data collection tools and databases with different software to help his research organization. He also monitors more than 100 data collectors and data management groups, evaluates their performance weekly, and examines weekly reports. Apart from this, Haileleuel also have a strong educational background and extensive experience in different surveillance Data Analysis and Monitoring and evaluation.