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Short Communication

Speaking for the Dead: The Evolution of Verbal Autopsy

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Abstract

Deciding prevalent diseases in society, mortality data is useful. Cause of death (COD) is crucial to provide information about diseases in community and to take preventive measures for them. There is scarcity of qualified and registered medical practitioners, particularly in rural areas, to certify it at the time of death. It leads to a lack of information and data for statistics. Physician's role is important and irreplaceable by computer coding methods.

1. Introduction

Mortality data are important in deciding prevalent diseases in society. Cause of death (COD) is crucial to provide information about diseases in community and to take preventive measures for them. However, the non-availability of qualified and registered medical practitioners, particularly in rural areas, to certify it at the time of death leads to a lack of information and data.¹⁻⁵ As a result, COD data based on the "Medical Certification of Cause of Death" is insufficient to represent the whole country accurately. To address this problem, epidemiologists developed a novel approach called "Verbal Autopsy (VA)" to identify the most likely COD, based on an inquiry of relatives of the deceased. In 2001, VA was implemented as a component of India's Sample Registration System, which is overseen by the Registrar General of India for Births and Deaths Office.

2. Evolution of Verbal Autopsy:

World Health Organization (WHO) in want of mortality data from low and middle income

countries published WHO Verbal Autopsy Instrument and Manual (latest version in 2022). According to this manual, trained interviewers are required to get information from relatives of the deceased using a structured questionnaire. The collected information is about the deceased's symptoms, medical history, and circumstances leading to death.⁶ This data is then analyzed by physicians or computer-based diagnostic programs to assign the most likely cause of death.

In African and Asian countries where medical certification of death is low, the most effective technique for determining causes of death (COD) is physician-coded verbal autopsy (PCVA). India also faced similar problems with mortality statistics, so All-India Institute of Medical Sciences (AIIMS), New Delhi, developed the "Mortality in India Established through Verbal Autopsy" (MINerVA) platform with state-level partners across India in November 2017.⁷ In MINerVA network, VA questionnaire form is reviewed independently by

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two trained community physicians to separately assign COD. Wherever both assign the same cause of death, it is reported as the final COD, and if it differs, then it is finalized by reconciliation between two physicians. If the difference persists, then a third senior community physician (as adjudicator) independently reviews the VA form to assign the final COD. The final underlying cause is then assigned specific three-character codes from the International Classification of Diseases- Tenth Revision (ICD -10). An alternate technique to PCVA for determining the COD is computer-coded verbal autopsy (CCVA), which is thought to be effective and economical. Computer methods can be algorithm-based like tariff and random forest method or probabilistic like InterVA (Expert based) and King – Lu, simplified symptom pattern etc (Data-driven).⁸ A study by Benara SK et al⁹ found that the PCVA method performed better than CCVA methods. CCVA methods are still evolving and must be rigorously validated in extensive studies. Software tools like OpenVA, are also being used to automatically process VA data. A study by Gupta M¹⁰ suggests that PCVA is the optimal option available in the current scenario, until CCVA methods evolve in scope, design and performance.

2. Conclusion

Medical professionals should have knowledge of these VA methods and tools and wherever possible, should participate in these projects. Physician's role is irreplaceable by computer coding methods. Data generated through VA is used for formulating health policies by governments and health organisation; hence it must be as accurate as possible.

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