

Commentary

Importance of accurate information on causes of maternal deaths for informing health care programmes

Health programmes need accurate information on causes of mortality and morbidity in their target populations for making decisions in organization of care. Information on conditions causing death as well as those contributing to death should be collected and categorized according to the codes and rules defined within the International Classification of Diseases and Related Health Problems 10th edition (ICD 10)¹. A careful analysis of both underlying causes and contributing conditions would help in making decisions with respect to appropriate planning, resource allocation, and evaluating impact of interventions.

Cause of death information can only be useful for making decisions in health care if it is accurately collected and classified. Such information is not usually available routinely in developing countries for a number of reasons. First, death registration systems where cause of death for each case is identified via medical certificate do not exist or have incomplete population coverage. Second, providers recording the causes of death have limited training in completing death certificates accurately. Third, standard tools for accurate cause-attribution and classification of deaths are not available for specific areas of interest.

In the absence of routine and complete data collection systems on cause of death, special studies identifying cases and reviewing conditions surrounding each death are useful for providing policy-relevant information. In particular, in settings where majority of deaths do not occur in hospital settings or those occurring in hospital settings, but lacking accurate medical certificate of death, such studies use the verbal autopsy methodology. Verbal autopsy technique involves investigating deaths through interviews of family members towards assigning a specific cause to each death. The World Health Organization, in collaboration with partners, has developed standards

for conduct of verbal autopsy methods, including data collection instrument, cause-of-death assignment resources for verbal autopsy, and general guidelines for their use, to facilitate accurate attribution of the causes of deaths aligned with ICD codes within verbal autopsy studies².

In this issue, Kulkarni *et al*³ report on an analysis of the deaths of women of reproductive age in a sample population representative of the Maharashtra State in India, undertaken by the Indian Council of Medical Research (ICMR). Data on the deaths analyzed were collected using verbal autopsy technique³. The survey and analysis identified the main causes of deaths among women of reproductive age in this population. In addition, factors contributing deaths and social circumstances around each death were explored and reported in detail. Deaths due to conditions related to pregnancy and childbirth, in other words, maternal deaths are the 6th biggest cause, following infectious and parasitic diseases, injuries, conditions not elsewhere classified, neoplasms, and diseases of the circulatory system³.

Maternal deaths, constituting over 5 per cent of deaths of women in this population are to a large extent preventable. The clinical causes of maternal deaths identified in the analysis by Kulkarni *et al*³ reflect the need for access to effective reproductive health care including interventions such as active management of third stage of labour, magnesium sulphate for pre eclampsia, antenatal care, clean delivery, and antibiotics for sepsis. The study also provides an understanding of the wider determinants of maternal deaths which need to be tackled to improve women's access to health care and reduce deaths. According to the findings, the majority of maternal deaths occurred at home, or on the way to hospital or in the rural clinics, and among women living in rural areas. Again, women

who died of maternal causes tended to be younger than 25 yr of age. These findings highlight the necessity to reach vulnerable populations if maternal deaths are to be reduced. In this sample, the vulnerabilities seem to be related to age, place of living and health care access. Therefore, while improving the facilities for ensuring that women receive good quality of care for prevention and management of pregnancy and delivery complications, it is of particular importance to ensure access of vulnerable populations to care. Indeed, countries are increasingly adopting policies that promote women to deliver in health facilities.

The findings of the study demonstrate the value of information on both causes of and circumstances surrounding maternal deaths for making policy and programmatic decisions to address them. Standard tools should be available for facilitating the generation of this information. Ideally such tools should be useful for both routine health records and verbal autopsy studies.

For supporting better data collection and use with respect to causes of maternal deaths and contributing conditions, the World Health Organization carried out a project to examine the current knowledge and practice of attribution of causes to maternal deaths and developed an expanded classification for maternal death that can be used in all settings and different data collection systems⁴. The purpose of this new classification is to robustly define the single mutually exclusive underlying cause of death while appreciating contributory conditions that may have played a role in a maternal death, and aligned with ICD. This WHO maternal death classification system is designed to contribute to and be compatible with the 11th revision of the ICD.

One of the targets of the United Nations Millennium Development Goal-5 (MDG-5) calls for reduction of maternal mortality by 75 per

cent between 1990 and 2015. Methods for the measurement and identification of maternal deaths continue to evolve. For effective planning of organization of health care to reduce and eliminate maternal deaths, it is crucial to understand the causes of deaths and contributing factors. Verbal autopsy is a well-established methodology to collect such information especially when such deaths occur outside the health care system and where death registration systems are limited in coverage. The new classification of maternal deaths is a standard tool for accurate identification of maternal deaths and contributing conditions via both verbal autopsy and routine registration studies.

Disclaimer: The views expressed in this document are solely the responsibility of the author and do not necessarily represent the views of the World Health Organization or its member countries.

Lale Say

Department of Reproductive Health & Research
World Health Organization
Avenue Appia 20
1211 Geneva 27, Switzerland
sayl@who.int

References

1. World Health Organization. *International statistical classification of diseases and related health problems, Tenth Revision (ICD-10)*. Geneva: WHO; 1992.
2. World Health Organization. *Ascertaining and attributing cause of death*. Geneva: WHO; 2007.
3. Kulkarni R, Chauhan S, Shah B, Menon G. Cause of death among reproductive age group women in Maharashtra, India. *Indian J Med Res* 2010; 132 : 150-4.
4. Pattinson R, Say L, Souza JP, on behalf of the WHO Working Group on Maternal Mortality and Morbidity Classifications. WHO Maternal death and near miss classifications. *Bull World Health Organ* 2009; 87 : 734.