WHO Maternal death and near-miss classifications

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Bull World Health Organ 2009;87:XXX–XXX.

In an effort to expand the evidence base on epidemiology of maternal health for informing global health action necessary to achieve the United Nations' Millennium Development Goals, WHO initiated a series of systematic reviews on maternal mortality and morbidity. As a result, many inconsistencies in classifying causes of maternal deaths around the world were identified and standard definitions and identification criteria for maternal near miss were perceived as urgently needed.[1,2]

This led WHO to establish a technical working group, composed of obstetricians, midwives, epidemiologists and public health professionals from developing and developed countries. This working group aimed to develop a maternal death classification system that could be used consistently around the world and develop criteria which could be used throughout the world to identify maternal near-miss cases.

The working group laid down a set of principles that guided the development of the new WHO maternal death classification system. Among these principles, the classification must be useful and understandable to those who use it (e.g. clinicians, epidemiologists and programme managers). The underlying causes must be defined as being **exclusive** of all other conditions; as in the International Classification of Diseases (ICD), the underlying cause would be the disease or injury which initiated the sequence of events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury. It was also agreed that the new classification system should be compatible with and contribute to the concurrent

development of the 11th revision of the ICD (ICD-11). Its incorporation into ICD will encourage consistent application in death certificates and confidential enquiries into maternal deaths, further enhancing comparability of data on maternal health and deaths.

The proposed maternal death classification system was sent to more than 40 individual reviewers, various international organizations including the International Federation of Gynecology and Obstetrics, United Nations Children's Fund (UNICEF) the United Nations Population Fund (UNFPA) and national professional organizations including the Royal College of Obstetricians and Gynaecologists, the American College of Obstetricians and Gynaecologists and the Canadian College of Obstetricians and Gynaecologists. Feedback was vigorous and the revised version was tested on eight databases: Colombia, Jamaica and South Africa country databases, other databases from Kenya, Malawi and Zimbabwe, and verbal autopsy data from Afghanistan and Nigeria. All sites found the classification workable and useful.

The new WHO classification of cause of maternal death has a clear and simple structure for ease of tabulation: group, disease category and individual underlying causes. The "group" includes three categories - direct and indirect maternal deaths, as well as a new group called "unanticipated complications of management". This addition highlights the ever-increasing epidemic of iatrogenic disease for example as related to caesarean sections. A second new area in the classification structure is to clearly separate out the underlying causes from contributory conditions. Finally, to bring the classification in line with new developments, it was agreed that women who committed suicide in pregnancy, puerperal psychosis and postpartum depression would be included in the group of direct causes of maternal deaths.[3]

The working group was also able to reach consensus on a definition and identification criteria for "maternal near miss".[4] The definition of a maternal near miss was agreed to be "a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy". Furthermore it was agreed to use criteria developed for near-miss case identification based on signals of organ dysfunction following life-threatening conditions, allowing for comparison of the organ system failures that occur in maternal near misses and maternal deaths. The maternal near-miss approach therefore is able to use the same classification of underlying causes as used in maternal death classification, enabling

consistency and comparison between the two. The combined evaluation of maternal near misses and maternal deaths permits assessments of quality of care. For instance, a very high proportion of maternal deaths among women with life-threatening conditions may suggest a low quality of maternal care in a health system.

The WHO technical working group recommends that the new maternal death classification system be adopted by all countries and the maternal near-miss approach be considered in national plans for improving maternal health. With these tools, and using the same classification structure, reliable comparisons can be made between various areas within countries as well as between countries and regions. In the end, a more comprehensive and appropriate identification of health systems issues is expected, leading countries to work out solutions for reducing maternal mortality and the burden of complications related with pregnancy and childbirth around the world.

Acknowledgements

The following individuals were among the members of the expert group that developed the identification criteria for maternal near miss (Affette McCaw-Binns, Anoma Jayathilaka, Buyanjargal Yadamsuren, Cleone Rooney, João Paulo Souza, José Guilherme Cecatti, Lale Say, Linda Bartlett, Mary Ellen Stanton, Mohamed Cherine Ramadan, Nynke van den Broek, Robert C Pattinson, Rogelio Gonzalez,Veronique Filippi). We thank Ahmet Metin Gülmezoglu, Jelka Zupan, and Vicky Camacho for their contribution. This work was funded by USAID and UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP).

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