The UK style of confidential enquiries into maternal mortality: Is it suitable for developing countries?

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What is the Confidential Enquiries into Maternal Mortality (CEMM)?

CEMM is an example of professional self-evaluation. In the UK, it is a Government requirement that all maternal deaths should be subject to Confidential Enquiry and all health professionals have the duty to provide the information required. Its main aim is to ensure that all pregnant women and recently delivered women receive the best possible care.

The objectives of the program are:

- To assess the main causes and trends of maternal deaths; to identify any avoidable death or substandard care; and to communicate these findings to relevant health care professionals.
- To improve the care that pregnant and recently delivered women receive and to further reduce maternal mortality and morbidity, as well as the proportion of deaths due to sub-standard care.
- To make recommendations concerning the improvement of clinical care and service provision, including local audits.
- To suggest directions for future audits and research.

How the CEMM is conducted in the UK?

Enquires into maternal deaths took its present form in the UK in the 1950s and 1960s, but the method used today has been developed over a longer period of time.

The program, in its current format, is managed by a Central Body. Any maternity related death is notified to this central body, which in turn notifies the Director of Public Health. It is the responsibility of the Director of Public Health in each defined geographical location, where the women reside to initiate the confidential enquiry. The Director of Public Health then passes the appropriate enquiry forms to be filled by all those who had been involved in the women's care, after filling in the first part of the form confirming the initiation of the enquiry.

The Director of Public Health sends the forms to obstetricians; anesthetists, pathologists, general practitioners, midwives and any other professionals who had been involved in the care of the women to comment on the care the women had received.

When all the information about the death has been collected, the Director of Public Health forwards the completed forms to the Central Body. The forms are then forwarded to an appropriate assessor who is an obstetrician as well as a member of the Central Body. The obstetrician assesses the forms and seeks further assessment from other professional assessors. For example, Anesthetist assessors review all cases where there had been involvement of an anesthetist and midwifery assessors review all cases where the involvement of a midwife may have affected the outcome. In addition, every possible attempt is made to obtain full details of any autopsy reports or pathological investigations, which are then reviewed by the appropriate pathology assessors. The assessors add their comments and opinions regarding the cause or causes of death and any lessons learnt from that particular death.

Once all possible information has been collected, The Central Body collates the case-by-case information and publishes a report every three

years. The report shows the trend in maternal mortality over the past three years; any common themes and causes of death. It highlights areas of substandard care and discusses learnt lessons. It also makes recommendations for good practice and future research. It is completely anonymous and is written in a no blame fashion that makes it difficult to identify the deceased women or the health professionals who had been involved in their care.

The latest UK report covered the triennium (2003-2005) and found that the commonest causes of direct death (death caused by pregnancy or birth) were:

- Thrombo-embolism
- Sepsis
- Pre-eclampsia
- Amniotic fluid embolism

There was a decline in deaths from haemorrhage, anaesthesia and uterine trauma.

Heart disease was the commonest cause of indirect death (death from pre-existing physical or mental diseases aggravated by pregnancy).

The report found that poverty and maternal obesity are major contributory risk factors for maternal death.

The report made recommendations around preconception care; access to care; clinical skills; guidelines in the care of high risk women; and the development of an early warning scoring system that enables timely recognition, referral and treatment of high risk women.

Is this approach suitable for Developing Countries?

The United Kingdom has developed its system, in its current structure, over many years. Studies on maternal mortality date back to the end of the eighteenth century, when Robert Gordon investigated an outbreak of puerperal fever in Aberdeen and identified its contagious nature. Debates about the nature of puerperal fever and its contribution to the high maternal mortality in in-patients continued throughout the nineteen-century. Statistics were compiled for these hospitals and compared to the general population. The first report of a National Enquiry into Maternal Death was published in 1915 by the local government in England and Wales. This report drew heavily on death and birth registration along with aggregated data from other sources. It looked at trends and geographical variations across the country and investigated the possible causes of maternal mortality.

The UK system, in its current format, is based on a well-defined professional and administrative structure; furthermore, the process is supported by governmental legislations. The structure consists of a Central Body comprised of professional experts from various medical disciplines and led by a senior Obstetrician and Gynecologist. The Centre has dedicated funding and is responsible for initiating and coordinating the whole process. The most important parameter of this system is the availability of good quality routine data, especially a system of notifying maternity related deaths whether they occur in hospitals or in the community. It relies heavily on a well-defined public health structure and a strong surveillance system across the UK. By contrast, there is a lack of resources and infrastructure to develop a system that has similar sophistication and effectiveness in developing countries. Furthermore, in most developing countries, vital registration and routine data is either not available or incomplete.

How maternal mortality is currently measured in Developing Countries?

Currently, in developing countries population surveys are often used to measure maternal mortality; however the disadvantages of these surveys are that they can be expensive because they need a large sample size to yield valid results.

Another way of measuring maternal mortality is to use hospital records. Unfortunately, hospital- based estimates are not representative of the whole population. Other methods include:

- *Adding maternal mortality questions to the Population Census*. This approach has been used successfully to estimate maternal mortality in some developing countries like Iran. The census provides an opportunity to obtain a large sample size, hence, a more reliable and valid result and a lesser chance of sampling errors associated with sporadic population surveys. Although this approach is feasible because it utilizes existing resources and infrastructure, it has its inherent challenges: firstly, adding questions about maternity related deaths increases the census workload by around 1%. Secondly, as the census is usually conducted every 10 years, questions that cover maternal death over the past ten years are likely to be subject to recall bias (inability to remember death events) resulting in under-reporting. Even after adopting measures to reduce recall bias, the census estimates are still prone to under-reporting. The WHO suggests several statistical techniques to adjust the census result to overcome this limitation. Thirdly, the questions need to be worded in a way that can differentiate between direct and indirect maternal deaths. In most countries, the census is conducted every 10 years, thus it needs to be augmented by sporadic surveys or projections at regular intervals e.g. every 5 years in order to have realistic and up to date estimates. The census findings can be broadened to include in-depth investigations of the causes of death by accessing the patient's clinical notes, if available, to identity causes of death and other related risk factors.
- *The Sisterhood method*. In this method, women are interviewed at busy centers such as markets and health centers about any maternal deaths amongst their sisters. This is a crude method and is unlikely to give accurate estimates.
- *Rapid Ascertainment Process for Institutional Death (RAPID).* This is a tool designed to detect under-reporting of maternal death in hospitals. It compares data from existing hospital records with routinely reported hospital figures, thus creating more complete statistics. This approach is more useful in evaluating certain localized preventative programs but it is unlikely to be effective in estimating maternal mortality at population level accurately.

The way forwards for Sudan

No single tool can perfectly measure maternal mortality in all situations, unless a sophisticated system similar to the one in the UK is developed. However, even for a well resourced country like the UK, it took a centaury; a strong strategic leadership; a dedicated professional and financial commitment; and effective legislation for the system to reach its current sophistication, its 100% coverage and its positive impact on clinical governance and risk management.

I suggest that, for Sudan, we start by using multiple parallel measures that include adding maternal mortality questions to the Population Census and updating the census estimates for example, every 5 years.

The second parallel approach is to develop a Maternal Mortality Confidential Enquiry system in major hospitals as a starting point. This can be initiated as a pilot in one of the states in the Sudan with the view of evaluating its feasibility and its impact on reducing maternal mortality rates before rolling it out to other areas in the country. The system would ideally be led by the Ministry of Health in that particular region, in close

collaboration with universities, hospitals and other relevant professional bodies in the region. The Ministry of Health will need to ensure that hospitals and other health professionals, including the private sector will provide the required information through incentives and/or Legislation. It also needs to ensure that the assessment process of the clinical care provided to the deceased is strictly confidential and non judgmental, as the main essence of developing this system is to learn from mistakes and use this opportunity to introduce changes that ensure best practice and lead to a reduction in maternal mortality. The system needs to have dedicated funding and administrative support.

I believe that, these two approaches could be the first steps towards developing a robust system for measuring maternal mortality and the first milestone in the road map to reduce maternal mortality in the Sudan.

Sources

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