The Malawi Safe Motherhood Project

Using process indicators to measure progress

Improvement of the maternal health monitoring system is one of the major outputs of the Malawi Safe Motherhood Project. In 1998, the Project began implementing a series of activities with the objective of establishing a system to objectively measure project progress.

The maternal mortality ratio in Malawi is currently estimated to be 620 per 100 000 live births, nearly a hundred times higher than the ratio in the United Kingdom and other developed countries. The goal of the six year project is to reduce maternal mortality in the Southern Region of Malawi. The conventional approach to monitoring progress in reduction of maternal mortality is to use indicators such as the maternal mortality ratio quoted above. In theory, repeated measurements over time can be used to monitor trends. However, in many developing countries, vital registration systems may not be comprehensive, leading to serious drawbacks in measuring maternal mortality. Even newer and more innovative methods like the "sisterhood method" are costly, require large sample sizes and usually provide information for a period approximately ten years before the survey.

Consequently, the Project adopted the method of monitoring proposed by UNICEF/WHO/UNFPA in "Guidelines for Monitoring the Availability and Use of Obstetric Services". This document describes an alternative approach based on monitoring the processes, or interventions, aimed at reducing maternal mortality. The indicators proposed use the rationale that critical pathways to reducing maternal mortality include improvements to the **accessibility, utilisation** and **quality of care** for the treatment of complications during pregnancy and childbirth. Advantages of this approach include low cost and ability to reflect the current situation. The data collected do not require special surveys and information can therefore be routinely collected and analysed at facility level. Furthermore, the indicators provide useful information essential for guiding policies and programmes.

The Safe Motherhood Project is one of the first large projects to use these indicators to measure progress in Safe Motherhood interventions. Introduction of the indicators has therefore followed a rigorous process of needs assessment, tools development, operations research and field testing. The needs assessment provided information on existing systems and therefore assisted in developing a maternity monitoring system that could be integrated into established data collection activites. This lessened the risk of duplication and establishment of parallel systems. The tools development workshop allowed for wide consultation among stakeholders and implementors, providing the opportunity to increase ownership of the process and introduce proposed indicators. Operations research was necessary to ensure the correct siting of the registers used for data collection, and to resolve technical issues. Finally, the field test ensured that the training strategy and system developed was feasible to implement.

On completion of the field test, the system was launched, with training of 600 facility level staff within the space of four months. Some of the data obtained are described here.

Note: By the end of the year 2000 there were still 113 maternity units in the Southern Region of Malawi that performed less than three BEOC functions. At least 30 units did not even provide one basic EOC service. (Therefore the latter units did not, for example, administer parenteral oxytocic drugs after delivery to prevent post-partum haemorrhage, although it is Malawi national policy to do so. And post-partum haemorrhage is one of the morst important causes of maternal mortality).

Trend analysis. After the second quarter of 2000, a statistical trend analysis was done. For the Institutional Delivery Rate, there was a positive linear trend of borderline significance ($p=0.05$). For institutional Caesarian Section Rate and Case Fatality Rate there was no significant trend.

ACCESSIBILITY

The project target is to provide 4 basic emergency obstetric care units (BEOC)and one comprehensive emergency obstetric care unit (CEOC) per 500 000 population. Although the availability of "comprehensive" units has mostly exceeded the target, issues of the quality of care provided in each of these facilities remain. This underscores the need to use other indicators in conjunction with the accessibility indicator.

UTILISATION

In Malawi, institutional delivery rates provide information on the percentage of births conducted by medical staff or nurse-midwives. The figures obtained from the monitoring system can be compared with Demographic and Health Surveys that show institutional delivery rates of between 50-60%. Comparison of the two figures may give an indication of the validity of the monitoring data.

Appropriate utilisation is also an important consideration. It has been estimated that 15% of pregnant women are expected to experience an obstetric complication, so the "met need" demonstrates how many of these women with complications are actually seen in a hospital. Because of the nature of obstetric complications the ideal situation would occur when all (100%) women who experience complications receive appropriate treatment. The data collected indicate improvement, but it is likely that this improvement is related to better data collection.

Indicator	1998 (base -line)	1999 (last quarter)	2000 (1st quarter)	2000 (2nd quarter)	2000 (3rd quarter)	Project Target
Accessibility						
Indicator: Proportion of maternity units fulfilling certain defined obstetric functions per 500 000 population. BEOC = Basic Emeregency Obstetric Care facility CEOC = Comprehensive Emergency Obstetric Care facility	3 BEOC 1.6 CEOC	6.7 BEOC 2.1 CEOC	7.2 BEOC 0.7 CEOC	5.6 BEOC 2.1 CEOC	5.3 BEOC 1.9 CEOC	4 BEOCs 1 CEOC
Utilisation						
Indicator 1: Institutional delivery rate (= % of deliveries conducted by medical staff or nurse-midwives Indicator 2: "Met need" (= proportion of all women with obstetric complications who receive appropriate treatment)	34% 17.5%	36.7% 34.3%	42.2% 32.6%	47.4% 39.0%	57.4% 43.6%	Increase 90%
Quality of care						
Indicator 1: Caesarean section rate (population, rather than institution based)	1.5%	1.8%	2.0%	2.4%	2.7%	5-15%
Indicator 2: Case fatality rate, (= proportion of maternal deaths in those with obstetric complications)	Range 2-14%	Range 0-8%	Range 0-5.3%	Range 0-5.3%	Range 0-13.6%	<1%

QUALITY OF CARE

Studies have indicated that case fatality rates can be as low as 0.03% in developed nations and range between 1-8% in less developed countries. The information available in Malawi is collected only for CEOCs. A wide variation between different facilities is present, but case fatality rates are high in most facilities.

CONCLUSIONS

The experience of the project is therefore that process indicators for obstetric care are feasible to collect on a large scale using existing developing country monitoring systems. The process indicators provide useful supplementary information to that obtained from maternal mortality rates or ratios. Other process indicators such as the proportion of deliveries by skilled attendants and the utilisation of antenatal care relate to services provided to all pregnant women and cannot focus on the women most likely to die or who may experience severe disability.

Implementation of the monitoring system thus far raises questions on the accuracy of the data collected. Improving data quality is an incremental process and has potential to occur as health personnel gain familiarity with the system. Wide consultation at each step of the process, clarity of technical definitions, rigorous field testing, simplification and use of existing systems are worthwhile to undertake in the early stages in order to gain support and improve the motivation of those most involved in data collection and analysis. The same steps can assist in the integration of the new protocols with government improvements to the health information system and therefore its sustainability.

The continuing development of staff capacity to analyse and interpret the data is vital to success. Loss of staff due to transfers, the need for constant supervision to assure data quality, refresher training, and ensuring continued motivation will be major challenges for the future.

UNICEF/WHO/UNFPA 1997 Guidelines for Monitoring the Availability and Use of Obstetric Services UNICEF New York

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For more information, please contact:
Dr. Esther Ratsma
Technical Adviser, Safe Motherhood Project