EDITORIAL

Saving mothers

Maternal mortality audits remain a benchmark of obstetric care worldwide, particularly in under-resourced countries. There is no doubt that such audits and the resultant recommendations lead to improved maternity care and an overall reduction in maternal deaths. The UK report *Why Mothers Die* is a classic example of this; recommendations on the clinical management and regionalisation of the management of severe cases of pre-eclampsia have led to a dramatic decrease in deaths from hypertensive disorders within a short period of time.[1]

Reductions in maternal death ratios, however, require more than confidential enquiries into maternal deaths and access to maternal health services. The latest report on the *Confidential Enquiries into Maternal Deaths in South Africa: Saving Mothers 2002 - 2004,* shows that other factors such as a commitment from civil society, and in particular health professionals, government and the general public, are essential to make pregnancy safer.[2]

During 2002 - 2004, a total of 3 406 maternal deaths were reported to the National Committee on Confidential Enquiries into Maternal Deaths (NCCEMD) in South Africa. This was much higher than the 2 772 deaths reported in the previous triennium report. The most populous provinces, as expected, had the most maternal deaths (Table I). The major causes of maternal deaths have remained unchanged from the previous report and the category non-pregnancy related infections (NPRIs) was the commonest primary cause of maternal deaths, comprising 37.8% of all deaths. More importantly, the most common sub-category in NPRI was AIDS, which accounted for 20.1% of all deaths. The number of deaths in this sub-category may have been higher as strict criteria were used to define AIDS, viz. a positive HIV test, a CD4 count < 200/µl and/or an AIDS-defining illness. Further, HIV status was unknown in almost 53% of the deaths. It is expected that HIV testing will improve with the National Department of Health's Comprehensive Care and Management Plan for HIV and AIDS, which started at the end of the triennium.

Complications of hypertension remain the commonest direct cause of maternal deaths and comprise 19.1% of all deaths. It is of extreme concern that 50% of all hypertensive deaths were due to cerebral complications, mainly intracerebral haemorrhage. This finding suggests that available guidelines on clinical management of acute severe hypertension in pregnancy are probably not being used.

Table I. Maternal deaths recorded per province, 2002 - 2004

Province	*N*	%
Eastern Cape	370	10.9
Free State	432	12.7
Gauteng	669	19.6
KwaZulu-Natal	722	21.2
Limpopo	281	8.3
Mpumalanga	293	8.6
North West	326	9.6
Northern Cape	106	3.1
Western Cape	207	6.1
Total	3 406	100.0

Deaths due to obstetric haemorrhage and pregnancy-related sepsis were the second and third most common causes of deaths (Table II).

Table II. Primary obstetric causes of death, 2002 - 2004*

Primary obstetric cause	*N*	%
Direct	1 767	53.6
Hypertension	628	19.1
Postpartum haemorrhage	313	9.5
Antepartum haemorrhage	129	3.9
Ectopic pregnancy	47	1.4
Abortion	114	3.5
Pregnancy-related sepsis	274	8.3
Anaesthetic-related embolism	91	2.8
Embolism	64	1.9
Acute collapse	107	3.2
Indirect	1 430	43.4
Non-pregnancy related infections	1 246	37.8
AIDS†	*662*	*20.1*
Pre-existing maternal disease	184	5.6
Unknown	99	3.0
Total	3 296	100.0

*Coincidental deaths have been excluded.

† AIDS is a sub-category of NPRIs.

Avoidable factors, missed opportunities and substandard care for 2002 - 2004 are shown in Table III. Avoidable factors were thought to occur by the assessors in approximately 38% of cases, and 80% of the avoidable factors were due to four conditions, viz. hypertensive disorders of pregnancy, obstetric haemorrhage (both ante- and postpartum), puerperal sepsis, and anaesthetic complications.

It should be noted that the pattern of deaths reported from private hospitals is very similar to that in the public sector, although the proportion of deaths from acute collapse (viz. pulmonary embolism) is much greater.

Table III.	Avoidable factors, missed opportunities and substandard care for all cases, 2002 - 2004
Category	**% of avoidable factors in assessable cases***
Patient orientated	43.9
Administrative factors	32.1
Health worker-related emergency management problems:	
Primary level†	53.8
Secondary level†	48.3
Tertiary level†	36.5
Resuscitation	22.3

*Not all cases could be assessed.

†Some women first attended primary or secondary levels of care before being referred to higher levels. The care of the woman at each level of care was assessed. Hence, of the women that died and were seen at primary level of care and could be assessed, 53.8% had avoidable factors related to the health care workers.

Discussion

Confidential enquiries into maternal deaths (CEMD) can identify the major pathological/medical/clinical causes of death, prioritise the causes of death, identify the most common avoidable factors, missed opportunities and substandard care related to the causes of death, and highlight the key areas requiring recommendations for the health sector and community action, and have been associated with a reduction in maternal deaths.[3]

However, CEMD only assess maternal deaths and are therefore inherently biased. CEMD will always indicate what is wrong; they cannot indicate what is right, so the reports will always be negative. Avoidable factors, missed opportunities and substandard care will never decline to zero because advances in medical science and subsequently protocols are always being improved as new knowledge is developed, resulting in constantly moving goalposts. Maternal deaths are perceived as preventable, so inherently any maternal death is scrutinised more strictly than other cases, sometimes with unrealistic expectations. Information is obtained from case notes; if the notes are incomplete assessment is also incomplete. Finally, the assessment of avoidable factors, missed opportunities and substandard care is subjective and dependent on the assessor's perceptions.

Documenting trends in the maternal mortality ratio (MMR) will indicate whether care is improving or not and should complement the interpretation of CEMD reports by putting them into perspective. CEMD are not designed to calculate an accurate MMR. However, if the collection of maternal deaths is complete and if there is an accurate denominator, an MMR can be established. Maternal death reporting was incomplete in this report. The process was institution-based, reporting from some institutions was erratic and most deaths occurring at home were not included. The number of live births can be obtained from the Statistics South Africa Live Birth Reports that are produced annually and record the number of births registered by Home Affairs. If the live births are used as a denominator a minimum MMR can be calculated to give the order of magnitude of the problem and an idea of the trends. The MMR for 1999 - 2001 was 96.3/100 000 live births, and for 2002 - 2004 it was 141.9/100 000. There were three provinces where the committee was satisfied that the reporting was fairly complete for institutional deaths. The MMRs for Free State, Gauteng and Western Cape were 199.8, 99.8 and 47.9/100 000 live births for 1999 - 2001, respectively. In 2002 - 2004 the MMRs for Free State, Gauteng and Western Cape were 315.9, 145.0 and 78.1/100 000 live births, respectively. It appears that there has been an increase in the MMR.

NPRIs were the commonest primary cause of maternal deaths, comprising 37.8% of all deaths, and AIDS was the single most common sub-category of deaths, comprising 20.1% of all deaths. The assessors did not think that most of the NPRI deaths were avoidable. This is not surprising, as antiretroviral therapy was not available in public sector health facilities at the time of the report. Deaths from NPRIs are potentially avoidable and it is hoped that the implementation of the National Government's Comprehensive Care Management and Treatment (CCMT) plan for HIV and AIDS, which started at the end of this triennium's report, will lead to a reduction of deaths from NPRI. The CCMT plan will also provide standard guidelines against which a mother's treatment can be assessed and therefore a proper assessment of avoidable factors made.

Some of the major causes of death, such as postpartum haemorrhage, hypertension in pregnancy and anaesthetic deaths, are highly preventable. Specific guidelines and protocols of clinical management have been developed and made available to all health facilities. Despite this, the most common avoidable factor is still lack of adherence to standard protocols of management. Renewed effort is needed to ensure that protocols are available, accessible, known and utilised. To this end, effective outreach programmes such as on-site, face-to-face teaching by an experienced and respected clinician should be instituted. Although this ideal may be difficult to attain, some systematic, sustainable outreach programme must be instituted. This is essential as significant proportions of maternal deaths due to conditions such as postpartum haemorrhage occur at level 1 hospitals, which are to a large extent staffed by community service doctors and medical officers. Postpartum haemorrhage is 'highly preventable' by early identification of cases at risk of postpartum haemorrhage, timely referral, and appropriate steps in resuscitation. All health educational facilities (medical schools, nursing schools and colleges, technikons) and all institutions providing postgraduate degrees on reproductive health should therefore include and emphasise in their curricula the prevention and management of the major causes of maternal deaths.

Assessment of the maternal deaths once again highlighted problems associated with decision-making, delayed referral and resuscitation skills. The question should be raised whether South African medical graduates are still obtaining the practical skills training that the country was known to produce, or whether teaching has become highly theoretical and not relevant to practical problems faced by the great majority of the population. It appears that the time is ripe for the introduction of specialised courses focused on resuscitation skills such as the Advanced Trauma Life Support (ATLS) training programme. Major problems leading to maternal deaths also include lack of proper organisation of transport systems and staff shortages. Innovative ways of retraining staff, recruiting and training new staff, and improving transport services between health institutions must be investigated. Attention to these issues may prevent a 'syndrome of obstacle creation' to the timeous transfer of patients to higher levels of health care.

Although the shortage of health professionals, appropriate training and access to facilities are important factors in reducing maternal deaths, patient-related factors also play a part. Despite the fact that maternity services in the public sector are free of financial charges, lack of regular attendance at antenatal clinic, 'late booking' and delay in seeking help continue to be problems identified by the assessors of maternal deaths. Further, although there are factors such as transport which are intertwined with patient-related avoidable factors, the public at large (women, their families and communities) must be empowered and become committed to become partners with health care professionals and administrators to help reduce maternal deaths. Every woman who becomes pregnant and continues with her pregnancy does so in the expectation of delivering a healthy child and the joy and satisfaction of watching the child grow. Surely it is the duty of society and the health care profession to do their utmost to fulfil this expectation? Confidential enquiries into maternal deaths have been associated with massive reductions in maternal deaths in other countries.[1] It is expected that the recommendations arising from the latest Saving Mothers Report, when implemented, will have the same results in South Africa.

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1. Department of Health. *Why Mothers Die 2000-2002: the Sixth Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom.* London: RCOG Press, 2004.
2. Executive Summary. T*hird Report on Confidential Enquiries into Maternal Deaths in South Africa 2002 - 2004.* Pretoria: National Department of Health, 2006.
3. Macfarlane A. Confidential Enquiries into Maternal Deaths: Developments and trends from 1952 onwards. In: *Why Mothers Die 2000 - 2002: The Sixth Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom.* **http://www.cemach.org.uk** (accessed 2006).