

Maternal mortality and morbidity – still not right

Eckhart Buchmann – Head of the Department of Obstetrics and Gynaecology, Chris Hani Baragwanath Academic Hospital, and Chair of the Priorities in Perinatal Care Association of South Africa.

Maternal mortality - The global picture

The death of a woman who leaves behind a young family has devastating consequences for these survivors, with increased chances of disadvantage, illness and premature death, especially in poorer societies. Maternal death (death during pregnancy or less than 42 days after the end of a pregnancy) is also the outcome measure that causes serious concern to public health authorities and maternity care clinicians. No health outcome shows such large discrepancies between rich and poor nations. The most recent reliable figures show more than hundred-fold differences in maternal mortality ratios (MMR – deaths per 100 000 live births). For example, for 2008 the MMRs in Italy, Egypt, South Africa, Zimbabwe, Lesotho, and Afghanistan were estimated at 4, 43, 237, 624, 964 and 1595 respectively (1). The Millennium Development Goal (MDG) 5a has as its target the reduction of maternal mortality by 75% from 1990 to 2015. A number of middle-income countries have made good progress, and Egypt, for example, has already attained its MDG 5a goal. South Africa, also a middle-income country, has unfortunately seen an increase in maternal mortality, related mainly to deaths caused by HIV and AIDS (Figure 1). Given the 1990 figure from this source, South Africa needs to reduce its MMR to 30 by 2015, clearly an unattainable goal at present. Progress towards MDG 5a is also not good in other African countries south of the Sahara, although recent small reductions from very high levels of mortality have been shown (Figure 2).

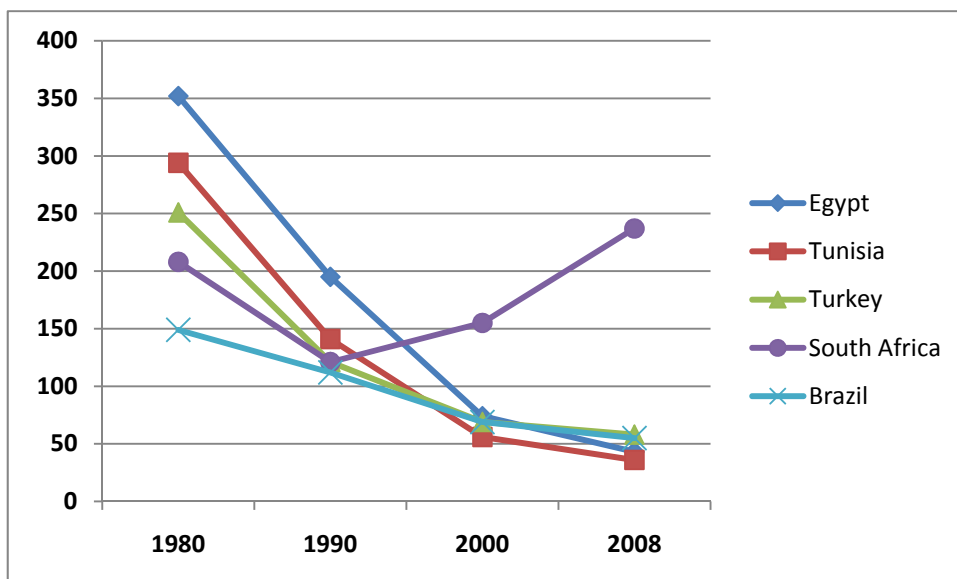


Figure 1. Maternal mortality ratios (per 100 000 live births) for five middle-income nations, 1980-2008 (1).

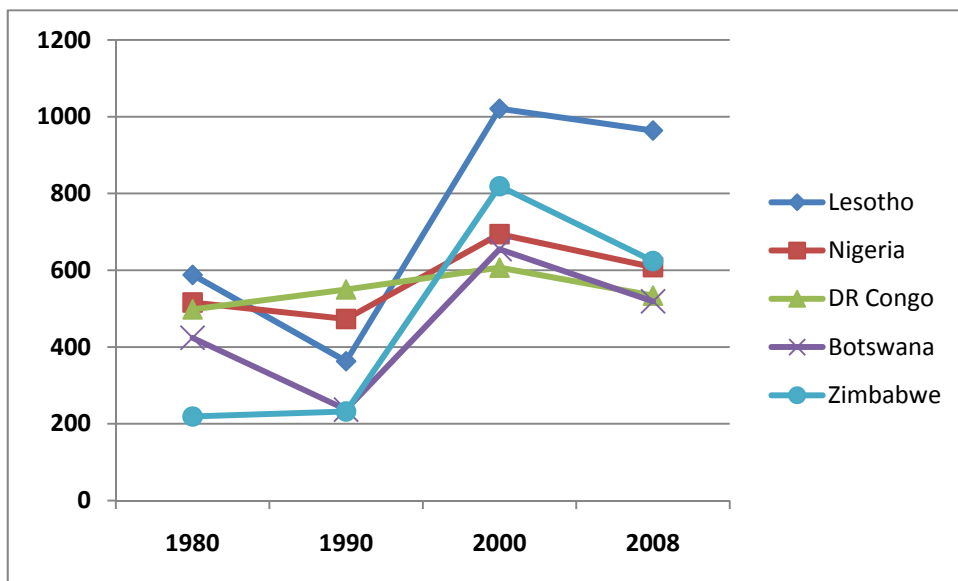


Figure 2. Maternal mortality ratios (per 100 000 live births) for five nations in Africa south of the Sahara, 1980-2008 (1).

Worldwide, it is estimated that there were 342 900 maternal deaths in 2008, with the major contributors being South Asia, and Africa south of the Sahara. Classically, the ‘big 3’ causes of maternal death are obstetric haemorrhage, hypertension and pregnancy-related sepsis (Figure 3). In poorer countries, this reflects deficiencies in infrastructure, health services and skilled attendance at childbirth. A large proportion of cases of haemorrhage and sepsis result from unattended obstructed labour. Furthermore, illegally induced abortions result in thousands of deaths from haemorrhage and sepsis, and go almost unnoticed in countries where safe abortion services are not available (2). The World Health Organization’s World Health Report of 2005, dedicated to maternal and infant health, made a plea for countries to invest politically, socially and financially in human resources, health facilities and institutional capacity, to achieve universal health care coverage and reduce this burden of unnecessary and preventable mortality (3).

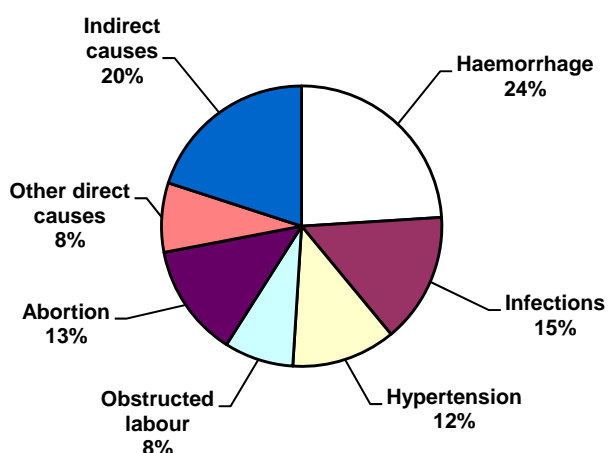


Figure 3. Causes of maternal death worldwide (3).

Maternal mortality in South Africa

In 1997, the new democratic government of South Africa made maternal death a notifiable condition. Maternal deaths must be reported to provincial health authorities within 7 days of their occurrence, and each death is confidentially assessed by provincial assessors who assign causes of death and avoidable factors. Triennial 'Saving Mothers' reports are released by the health ministry's National Committee for Confidential Enquiries into Maternal Deaths, and the most recent is the fourth report, for the years 2005-2007 (4). During those three years, 3959 maternal deaths were notified. There is an unknown but significant degree of underreporting of maternal deaths, especially home deaths, and so the Saving Mothers reports can only provide facility-based MMR estimates for South Africa. For total current MMR in South Africa, there are varying estimates, from 230 to 702 per 100 000 live births (5).

Based on the most recent Saving Mothers report, Figure 4 shows the causes of maternal death in South Africa, modified to the classification in the World Health Report. The most obvious difference from the global figures is the high proportion of deaths from indirect causes, overwhelmingly accounted for by HIV and AIDS-related deaths. The 'big 3' causes – hypertension, haemorrhage, and pregnancy-related sepsis – follow. The true proportion of deaths from HIV and AIDS is likely to be even greater than estimated here, because of underreporting of maternal deaths that do not occur in health facilities or maternity units. According to the fourth Saving Mothers report, 38% of maternal deaths were 'clearly avoidable' within the health system (administration or health worker deficiencies). Eighty-five percent of anaesthetic accidents and 77% of haemorrhage-related deaths were considered avoidable. The single largest cause of deaths from haemorrhage was related to caesarean section deliveries, with 201 deaths caused by bleeding during or after caesarean section, many (38%) in district hospitals (4). The seriousness of these deaths prompted a recent forum paper on safe caesarean section delivery in the South African Medical Journal (SAMJ) (6). Deaths among the most common cause of maternal deaths, non-pregnancy-related infections, were not frequently considered avoidable (21%), likely because antiretroviral treatment was largely inaccessible to HIV-infected pregnant woman in the period of review (2005-2007). With expanded HIV treatment guidelines now approved by the South African government, further deaths related to HIV will increasingly be classified as avoidable.

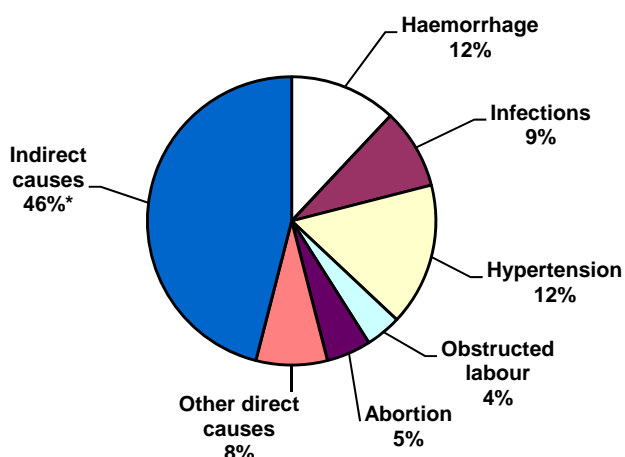


Figure 4. Causes of maternal death in South Africa, 2005-2007. *88% of indirect causes were non-pregnancy related infections, mostly HIV and AIDS (4).

Based on the most important findings on causes and avoidability of deaths, the triennial Saving Mothers reports suggest 10 key recommendations to reduce the numbers of maternal deaths (Table 1) (4). The recommendations from 2005-2007 include women empowerment, improvements in screening and diagnosis, and strengthening of systems such as training, human resource needs, facility and equipment needs, referral routes, transport, blood transfusion, and contraception and abortion services.

Table 1. Ten key recommendations to reduce maternal deaths in South Africa (4).

1	Protocols on the management of important conditions causing maternal deaths must be available and utilised appropriately in all institutions where women deliver. All midwives and doctors must be trained on the use of these protocols.
2	Training should be provided for all health professionals working in maternity units in practical obstetrical and surgical skills. Skills should be provided in anaesthesia, especially in level 1 institutions.
3	All pregnant women should be offered information on, screening for and appropriate management of non-pregnancy related infections and common medical disorders.
4	Criteria for referral and referral routes must be established and utilized appropriately in all provinces. Emergency transport facilities must be made available for all pregnant women in need (at any site).
5	Postnatal care must be strengthened.
6	Staffing and equipment norms must be established for each level and for every health institution concerned with the care of pregnant women.
7	Blood for transfusion must be available at every institution where caesarean sections are performed.
8	Contraceptive use must be promoted through education and service provision.
9	The number of deaths from unsafe abortion must be reduced.
10	Women, families and communities at large must be empowered, involved and participate actively in activities, projects and programmes aimed at improving maternal and neonatal health as well as reproductive health in general.

Besides recent high-level government concerns about maternal mortality, two areas give cause for optimism. One is the nationwide roll-out of antiretroviral treatment as mentioned earlier, the effects of which might already be seen in the next 2008-2010 Saving Mothers report. The other is the development and upscaling of ESMOE (Essential Steps in the Management of Obstetric Emergencies), a practical modular training programme which is currently targeting interns and junior doctors at all levels of care in South Africa. Early experience with ESMOE suggests that effective implementation should result in a significant improvement in clinical skill and vigilance (7).

Chronic maternal morbidity following childbirth

It can be expected that for each maternal death, there will be a large number of women who suffer severe illness and perhaps came close to death or are left with chronic disability. The burden of maternal death from obstructed labour, haemorrhage and sepsis has a further dimension in poorer countries, where large numbers of women who survive these insults are left in states of chronic ill-health. Vesicovaginal fistula, the result of prolonged unattended obstructed labour, is the most well-known of these conditions, disabling tens of thousands of women in Africa each year (8). Survival after obstetric haemorrhage on a background of chronic undernutrition and malaria also leaves countless women chronically debilitated, and survival after septic abortion or puerperal sepsis may come at a cost of chronic pelvic pain and infertility (2). Fortunately, South Africa is spared much of this burden thanks to liberal abortion legislation, and relatively high rates of skilled attendance at birth.

Severe acute maternal morbidity

This concept, often termed ‘near-miss’, has attracted interest in recent years because of its potential value as a supplementary maternal outcome measure to maternal death. Cases of severe acute maternal morbidity (SAMM) serve as markers of severe illness and can be used as audit triggers to initiate discussion, education and facility improvement. A definition and classification was developed in South Africa (9), defining SAMM as an organ system failure (cerebral, cardiac, respiratory, renal, liver, haematological, and so on) or use of extraordinary measures to save life (large blood product transfusion, intensive care unit admission, emergency hysterectomy). The classification has been modified for global use by the World Health Organization (10). Health care facilities may measure their burden of maternal illness by their numbers or rates of SAMM. Better still, they can track their effectiveness in preventing maternal deaths by calculating a ‘mortality index’ – maternal deaths divided by the sum of cases of SAMM and maternal deaths. The lower the mortality index, the more effective is the facility in preventing maternal deaths.

There is currently no national or provincial surveillance system for SAMM in South Africa. But with expected reductions in maternal deaths, SAMM notification or reporting will become more frequent, and provide useful information to clinicians and facility managers.

Conclusion

The burden of maternal mortality and morbidity remains unacceptably high in South Africa, and even more so in Africa south of the Sahara. Whichever MMR estimate is considered correct, MDG 5a will most likely not be achieved in South Africa. However, some reduction in MMR can be expected if the HIV and AIDS treatment rollout, and the ten key recommendations, can be properly implemented.

Note that the views expressed in this article are those of the author(s) and do not necessarily represent the views of PHASA.

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