

Reducing direct causes of maternal death



Three conditions are responsible for almost two-thirds of potentially avoidable maternal deaths in South Africa: non-pregnancy-related infections (most are HIV-related), obstetric haemorrhage, and complications of hypertension in pregnancy.

Although there has been a significant reduction in maternal deaths due to non-pregnancy-related infections, as shown in the Ninth Interim *Saving Mothers* report (in press; authored by R C Pattinson, J Moodley and S Fawcus), deaths due to obstetric haemorrhage and complications of hypertension in pregnancy have remained stubbornly high. Birth asphyxia is the most common cause of perinatal death in South Africa for babies weighing over 1 000 g, and this has not decreased significantly for more than a decade.^[1]

Why have we been successful in reducing deaths due to non-pregnancy-related infections, but not the other key conditions?

A massive campaign was launched to reduce deaths due to complications of HIV infection. Pregnant women have been initiated on antiretroviral therapy at increasingly high CD4⁺ counts, and now all pregnant women who are HIV-infected go onto a single-tablet highly active antiretroviral therapy regimen until at least after they stop breastfeeding. Treatment has become increasingly simple. The skills required to test for and treat HIV infection have become less, and its treatment can now safely be devolved to all clinics and initiated by professional nurses. The only special skills required are to follow standard protocols. Treatment of HIV infection does not require clinical skills such as assessing the cervical dilation of a woman in labour, or performing a caesarean section or assisted delivery.

Is the lack of progress in reducing deaths due to obstetric haemorrhage, hypertension and birth asphyxia a result of poor obstetric skills on the part of the managing doctors and professional nurses?

To answer this last question, I will digress a bit. The World Health Organization (WHO)^[2] has specified requirements for providing basic emergency obstetric care in the form of seven basic signal functions. These are: the ability to give parenteral antibiotics, anticonvulsants and oxytocics; performing assisted delivery; manual removal of the placenta and manual vacuum aspiration for uncomplicated incomplete miscarriages; and bag-and-mask ventilation of a neonate. Every clinic and community health centre (CHC) should be able to provide these functions if they are to conduct births safely. Comprehensive emergency care requires that the seven basic signal functions are available together with two more, namely the ability to perform a caesarean section and give a blood transfusion.^[2] This should be provided by all district hospitals and higher levels of care.

Approximately 60% of pregnant women deliver in public clinics, CHCs or district hospitals, i.e. at the primary level of care. The necessity for clinics, CHCs and district hospitals to be able to perform these signal functions is clear. Medical science, even in high-income countries, is fairly poor at predicting complications prior to labour and even worse at predicting who will develop complications during labour.^[3,4] For this reason, women in labour should be monitored as high-care patients. Once a complication occurs, *the time it takes* for the woman or her baby to receive *adequate skilled care* in an *adequately resourced facility* will determine the outcome for mother

and baby. The skills and appropriately resourced facilities should be readily accessible, either by the woman starting her labour in such a facility or by having an efficient ambulance service that can get her and her baby to the appropriate facility quickly.

The national assisted delivery rate is less than 1%,^[1] compared with 13% in a low-risk population in the UK.^[4] The national caesarean section rate in public hospitals hovers around 18 - 20%.^[1] In other words, in the majority of maternity units in South Africa, skills in performing assisted delivery have to a large extent been lost, and unnecessary caesarean sections are being performed instead. The Ninth Interim *Saving Mothers* report (in press) indicates that deaths due to obstetric haemorrhage continue to rise, mainly due to bleeding during or after caesarean section. Predicting delay in the second stage is poor, and when it occurs, immediate action must be taken, either by assisted delivery or by performing a caesarean section. In clinics, CHCs (and also district hospitals) without either caesarean section or assisted delivery skills (of which there are many), delay in the second stage becomes an absolute life-threatening condition for the baby, and also for the mother. Long delays may occur in getting the woman transferred to an appropriate facility with the knowledge and skills to manage her. Most CHCs are more than 20 km from their referral hospital, ensuring that the delay in the second stage will last hours. When, finally, the woman arrives at a suitable facility and a caesarean section is performed, the risk of maternal haemorrhage is massive and the chance of the baby dying of birth asphyxia is high.

Predicting who will develop pre-eclampsia/eclampsia is also not an exact science, and the best tests available for doing so (e.g. uterine artery Doppler ultrasound) are not available in a primary care setting. Most women in South Africa who develop pre-eclampsia/eclampsia will present first at primary healthcare level. The ultimate treatment of women with pre-eclampsia/eclampsia is delivery. This should occur after stabilising the patient, either by inducing labour or performing a caesarean section in the appropriate setting. The timing of these decisions takes clinical skills, as does managing the actual delivery.

The WHO^[2] suggests that to provide the minimum for a safe healthcare service there should be one comprehensive emergency care unit per 500 000 people, and this should be served by four CHCs. The South African treasury has suggested that one district hospital should serve a population of 300 000 people. In either case, South Africa has many more healthcare facilities (clinics, CHCs and district hospitals) than these minimum levels require. However, we cannot staff these facilities with healthcare providers with the necessary skills. Approximately 15% of births occur in clinics and CHCs. These should be staffed by advanced midwives, as their scope of practice includes performing assisted deliveries. This is not the case for the vast majority of clinics and CHCs where births are conducted. The normal staff complement consists of professional nurses with midwifery, whose scope of practice does not include performing assisted delivery. There is an absolute shortage of advanced midwives to work in CHCs and district hospitals. CHCs that cannot provide these services are not a safe place for women to deliver. Furthermore, many health facilities classified as district hospitals do not have the capacity to perform caesarean sections, assisted deliveries or blood transfusions.

To reduce deaths due to obstetric haemorrhage, complications of hypertension and birth asphyxia, attention will have to be paid to reducing the time it takes for the woman (and/or her baby) who develops a complication to receive skilled care in an adequately resourced healthcare facility.

There is an absolute lack of advanced midwives and medical officers with the appropriate skills to perform an assisted delivery or caesarean section safely. Some form of consolidation of services will therefore be required to concentrate the skills in specific areas where there are the facilities to manage the patients. Encouragingly, Minister of Health, Dr Aaron Motsoaledi, announced at the International Conference on Maternal, Newborn and Child Care in Africa (Johannesburg, 1 - 3 August 2013) that Free State Province had reduced its maternal mortality rate by 43% by reducing the time it took for pregnant women to receive appropriate care at an appropriate facility (unpublished – report still to be released). This was achieved mainly by improving the inter-facility emergency transport system, but also by concentrating services in specific areas and improving the knowledge and skills of healthcare providers in maternity units.

If South Africa is to make further advances in reducing its number of maternal and perinatal deaths, the health system will have to provide safe maternity units. This means that the maternity unit must at least have staff with the skills and the required facilities to be able to provide the seven basic emergency obstetric care functions; that there

is a district hospital, also with appropriately skilled staff and adequate facilities, close by to provide all comprehensive emergency obstetric care functions; and that there is a rapid transport service between the basic and comprehensive care units. Task shifting, maternity waiting areas, dedicated obstetric ambulances, consolidation of services, and holding CEOs responsible for providing the appropriate package of care are some of the changes that will need to be made. If this does not happen, women will continue to deliver in maternity units that are not safe and the direct causes of maternal deaths will not decline as rapidly as they should.

R C Pattinson

Editor

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S Afr J OG 2013;19(3):59-60. DOI:10.7196/SAJOG.772

Editor's note

I have come to the end of my time as editor of *SAJOG*. During the past few years, an ever-increasing number of good-quality manuscripts have been submitted to the journal, and with the support of the readers, *SAJOG* is in a good place.

Dr William Edridge will be taking over for the next and subsequent editions. Dr Edridge was born in Sussex, England, in 1960, was educated at Tonbridge School in a neighbouring county, and went to Corpus Christi College, Cambridge University, to read history in 1978. He left Cambridge the following year, rematriculated and returned in 1980 to read medicine. His training in gynaecology and obstetrics was in Newcastle and London. He came to South Africa on a registrar exchange programme in 1998 and has remained at Chris Hani Baragwanath Hospital and the University of the Witwatersrand ever since. He has the FCOG from South Africa and MRCOG from the UK. His interests include endoscopy, oncology, urogynaecology, and anything related to obstetrics and gynaecology. I am convinced that Dr Edridge is the right person to lead *SAJOG* into a new era, and wish him the best of luck.

Bob Pattinson

Farewell wishes

The Health & Medical Publishing Group (HMPG) would like to thank Robert Pattinson for his editorship of *SAJOG* for the past 3 years, and congratulate him on securing research awards to the tune of R60m which will enable him, in his role as Director of the MRC's Maternal and Infant Health Care Strategies Unit at the University of Pretoria, to scale up emergency obstetric care in the health districts in South Africa.

We look forward to working with William Edridge as his successor; happily, Leon Snyman will continue as co-editor.

Janet Seggie

Editor-in-Chief

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