

## Anaesthesia-related maternal deaths in South Africa

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The National Committee on Confidential Enquiries into Maternal Deaths (NCCEMD) has assessed maternal deaths in South Africa since 1997. Reports have been produced since 1999, culminating in the latest triennial report (2008-2010). The anaesthetic chapter from this report is published in SAJAA to improve dissemination of the information.

It is important to recognise that the NCCEMD is not, and was never aimed to be, an accurate epidemiological tool. Accuracy of data varies between provinces and internal processes can produce discrepancies within the report. However, the problem of deaths of young mothers and their babies, while under medical and nursing care in South Africa, is not so small as to require examination under a microscope. Despite its limitations, the NCCEMD reports have successfully identified a number of issues that are vulnerable to simple intervention and which have the potential to reduce maternal mortality.

We are often asked why discrepancies arise between the numbers of “officially” reported deaths due to anaesthesia and the numbers that appear in the anaesthetic chapter of the report. Figure 1 summarises the steps that are taken in the reporting and assessment process.

Following a maternal death and local institutional review, the death notification form is completed and sent to the Provincial Department of Maternal, Child and Women's Health (Step 1). This form, as well as the clinical information that is obtained from the patient's chart, are sent to the provincial assessors, usually an obstetrician and a midwife (Step 3). If an anaesthetic was administered, the documentation is then sent to the provincial anaesthetic assessor (PAA) for assessment of the cause of death, including the contributing role of anaesthesia. If anaesthetic records are not included, it is difficult to provide an anaesthetic assessment before data are entered into the

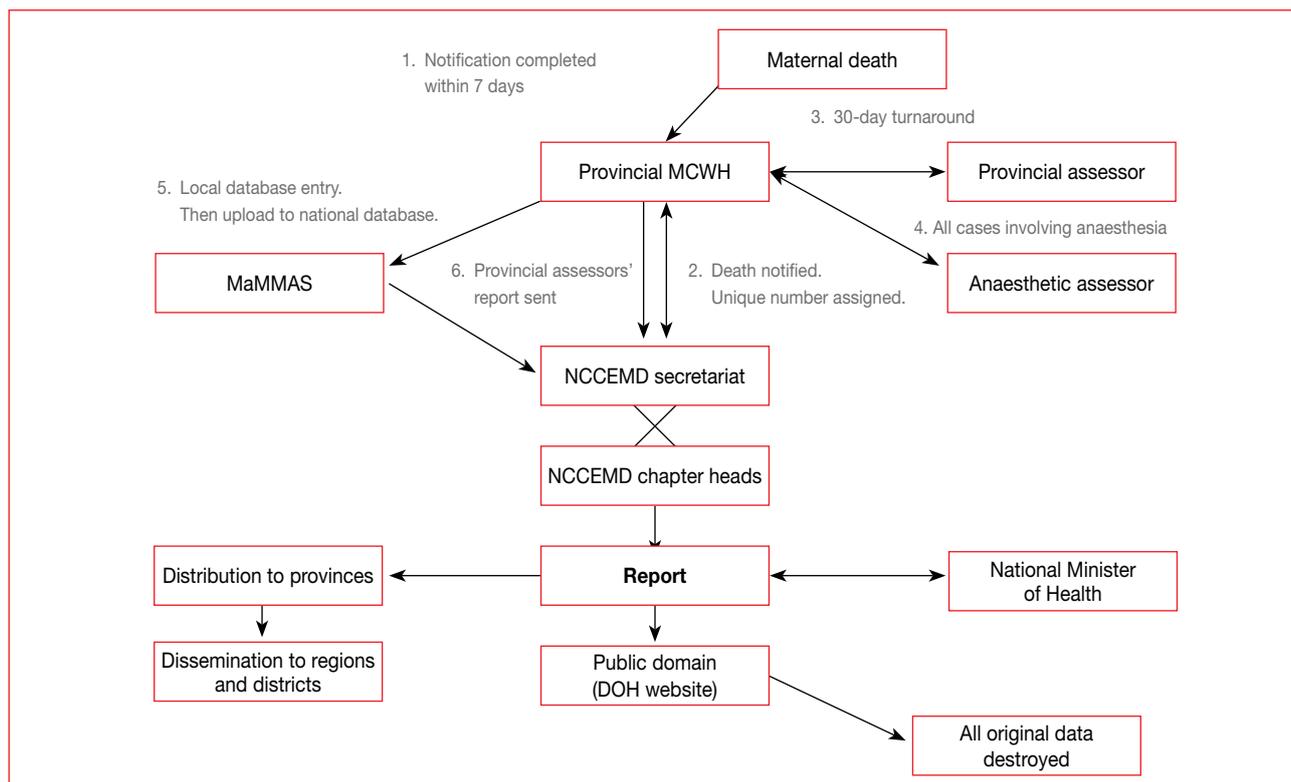
national confidential database (Step 5). The Maternal Mortality and Morbidity Audit System (MaMMAS) database contains a single “anaesthetic complications” field that is subdivided according to the following categories: epidural anaesthetic, general anaesthetic and spinal anaesthetic. Data entered into MaMMAs are used for the “official” statistics in the report summary, and until recently, correction has not been possible.

Sometimes, the information bundle, which now contains the PAA's control sheet, either doesn't reach the national office, or isn't received by the national anaesthetic assessors who are responsible for writing the anaesthetic deaths chapter of the report. Finally, it has not been possible to extract all of the PAAs' control sheets relating to deaths due to nonanaesthetic causes by national Maternal, Child and Women's Health (MCWH) for onward transmission to the national anaesthetic chapter head.

However, the process is improving with each report. Considerable information is available, particularly relating to types of management error and where they occur.

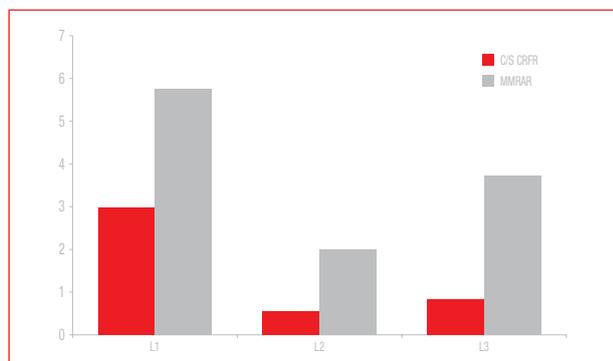
A consistent feature of all the reports is that whereas all-cause maternal mortality increases from clinic level to district hospital, regional hospital, then central or tertiary level (reflecting the referral flow of sick patients up the levels of care), anaesthetic-related mortality is experienced predominantly at district level. One of the omissions from the latest report is a graphical representation of this pattern, reflected in Figure 2.

A single improvement in anaesthetic mortality has been the marked reduction in the number of deaths in the Free State. This can be ascribed to systematic implementation of guidelines from previous reports and poses the question: Why we have not been able to do this in other provinces?



DOH: Department of Health, MCWH: Maternal, Child and Women's Health, MaMMAS: Maternal Mortality and Morbidity Audit System, NCCEMD: National Committee on Confidential Enquiries into Maternal Deaths

**Figure 1:** Summary of the reporting process that culminates in the creation of the National Committee on Confidential Enquiries into Maternal Deaths reports



C/S CRFR: Caesarean section case-related fatality rate per 10 000 procedures, L1: district hospitals, L2: regional hospitals, L3: national central and provincial tertiary hospitals, MMRAR: anaesthetic-related maternal mortality ratio (all procedures) per 100 000 deliveries

**Figure 2:** Anaesthesia-related deaths according to level of care, South Africa: 2008-2010

2008-2010		New assessors for 2011-2013	
Jerome Bitumba	Gauteng	Dominique van Dyk	Western Cape
Jonathan Burke	Western Cape	Raphael Samuel	KwaZulu-Natal
Sean Chetty	Gauteng	Michelle Scheepers	Free State
Robert Dyer	Western Cape	Dorinka Nel	North West
Phillip Kenny	Northern Cape		
Marius Nel	Mpumalanga		
Annerita Kuhn	Free State		
Edwin Maboya	Limpopo		
Marianne Senekal	Free State		
Lionel Smith	Eastern Cape		

The full NCCEMD 2008-2010 report can be accessed at: [http://www.doh.gov.za/docs/reports/2012/Report\\_on\\_Confidential\\_Enquiries\\_into\\_Maternal\\_Deaths\\_in\\_South\\_Africa.pdf](http://www.doh.gov.za/docs/reports/2012/Report_on_Confidential_Enquiries_into_Maternal_Deaths_in_South_Africa.pdf)

An issue is the lack of personnel. The chapter demonstrates South Africa's static production of qualified anaesthetists in the face of rising operative rates. Too few anaesthetists with the necessary time and experience are available to address systemic needs within the provincial hospitals. This is evidenced by the poor uptake of anaesthetic posts inside the district clinical specialist teams. Only seven of the 53 potential posts have been filled (personal communication with the Department of Health).

Finally, an undertaking such as the NCCEMD would not be possible without the dedication of colleagues who are prepared to donate their time and effort to the process. We would like to thank everyone who has contributed over the years, and specifically members of the provincial assessment teams who assisted with the latest report, as well as those who are currently actively preparing for the next.