Obstetric anaesthesia: the source of the crisis

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The Saving Mothers Reports have consistently shown that, out of all the provinces of South Africa, the Free State has one of the highest rates of maternal deaths arising from anaesthesia.[1,2] The province's Department of Health requested the University of the Free State's Department of Anaesthesiology to investigate the problem.

We examined possible factors, including training and experience of doctors administering anaesthesia, availability of suitable anaesthetic drugs and equipment, and use of regional anaesthesia. All the level 1 and 2 hospitals in which caesarean sections (CSs) were being performed were investigated. The foremost problems identified were lack of training and experience in administering obstetric anaesthesia, and lack of senior anaesthetic assistance.

Study findings

Experience and training in obstetric anaesthesia was assessed by means of a questionnaire. A total of 148 doctors were identified as having given obstetric anaesthesia during visits to each hospital in 2005. Replies were received from 105, of whom 25% were community service doctors, 47% medical officers (MOs), 15% general practitioners (GPs), 3% specialists and 10% interns. Only anaesthetic specialists had postgraduate qualifications in anaesthesia, and 1 MO had the Diploma in Anaesthetics (DA). Our findings should be viewed in light of the fact that 23% of MOs and GPs had given obstetric anaesthesia for over 5 years, and 32% for 13 months - 5 years, some even working in level 2 hospitals accredited for DA training.

Most doctors had been trained in anaesthesia for 4 weeks or less, while interns; this had not included obstetric anaesthesia for 13% of respondents. Twelve doctors (11%) had never given either a spinal anaesthetic or a general anaesthetic for obstetric anaesthesia prior to their present post, where it was required of them. Six of the 12 were interns (which was not an unexpected finding for them), but 4 were MOs and 2 were GPs, doing sessions involving obstetric anaesthesia. Four of these MOs/GPs were working in hospitals where there was no senior doctor experienced in anaesthesia. All of the community service doctors had previous experience in obstetric anaesthesia.

The Saving Mothers Reports repeatedly emphasised that doctors should be competent in both spinal anaesthesia and general anaesthesia for CS. A significant proportion of the doctors were experienced in only one type of anaesthesia for CS, and some only minimally so (Table I).

Our study identified senior anaesthetic supervision as a major problem, including at level 2 hospitals where interns are trained. The Health Professions Council of South Africa (HPCSA) guidelines stipulate that interns must be *directly* supervised while giving anaesthesia.[3] Half of the interns responded that, if they needed help during administration of anaesthesia, they would have to contact or summon the senior anaesthetist who was on call to come to the hospital. This would be of no benefit in an acute anaesthetic emergency such as a failed intubation. Interns were also working in hospitals where there were no specialists or doctors with a DA – which again contravened HPCSA guidelines.

Although community service doctors do not have to be directly supervised, but should receive support and supervision from seniors,[4] over half were working in hospitals that did not employ doctors with senior anaesthetic experience.

We requested respondents to suggest improvements in safety in obstetric anaesthesia. Their common theme was the need for senior anaesthetic assistance, better training and more input from academic insitutions.

Proposed solutions

Improve anaesthetic skills of doctors currently working long-term in level 1 or 2 hospitals by encouraging them to obtain the DA. Considering the shortage of doctors working in the South African public health services, efforts should be made to optimise the available resources. Our study revealed that there are many doctors who have been giving obstetric anaesthesia over the long term at level 1 and 2 hospitals but who have not obtained the DA, despite having given anaesthesia for a sufficient period at accredited facilities.

In South Africa, approximately 165 doctors pass the DA each year, yet we only identified 1 MO with the DA, and no GPs. Of the DA graduates from 1974 to 1999, about one-third were GPs, of whom 32% in turn continued to work in small towns and rural areas.[5] Almost no doctors who obtained the DA

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Table I. Obstetric anaesthesia experience before present post

No. of CSs	No. of doctors who had given spinal anaesthesia for CS (%)	No. of doctors who had given general anaesthesia for CS (%)
0	18 (17.8)	24 (24)
1 - 10	20 (19.8)	30 (30)
11 - 50	32 (31.7)	23 (23)
51 - 100	16 (15.9)	8 (8)
>100	15 (14.9)	15 (15)
Did not answer	4	5

are in Free State peripheral hospitals, despite the curriculum being designed for doctors working in such types of hospital. Further study is required of the career paths of successful DA candidates and to establish whether the DA serves its original purpose.

Doctors working long-term in level 1 and 2 hospitals should be encouraged to study for the DA. Financial incentives are the most effective, as utilised in Australia to improve the standard of doctors giving anaesthesia in rural locations. Job appointments could stipulate the DA as a requirement, although this may not be feasible at present in view of the scarcity of doctors applying for posts at peripheral hospitals. However, an increase in the number of doctors wishing to sit for the DA could cause problems as the examination is already oversubscribed.

Improve intern training in anaesthesia. Since this study was undertaken in 2005, intern training in anaesthesia has been extended to 2 months. While this should result in more obstetric anaesthesia experience, the current guidelines do not stipulate how many spinal or general anaesthetics for CS should be performed. Some doctors may finish intern training without having acquired any obstetric anaesthesia skills.

Intern training is intended to produce doctors competent to perform community service. As a CS is the most commonly performed type of major surgery in a level 1 hospital, doctors must be thoroughly prepared to perform anaesthesia specifically for this type of operation. Regulations should be reviewed to include a minimum number of obstetric anaesthetics performed and/or an assessment of competency.

It is literally vital that interns are trained by competent seniors, and level 2 hospitals should ensure also that they employ full-time anaesthetic specialists or experienced doctors with the DA. The HPCSA should withdraw interns from hospitals with inadequate supervision, otherwise the problem will continue indefinitely. At level 2 hospitals where specialists are appointed, the rotation of registrars from academic institutions must also be enabled, thus providing additional impetus to improving the quality of anaesthesia.

Implement the recommendations made in the Saving Mothers Reports. All three Saving Mothers Reports made recommendations on improving obstetric anaesthesia competency. The first recommended that a National Manpower audit be performed to elucidate the nature of the manpower problems and thus plan interventions. Our study gives insight as to where these skills problems occur in the Free State; such audits should be carried out in every province. This vital information cannot be obtained from the Saving Mothers Reports because the maternal death notification form does not include details on the grade and qualifications of doctors.

The last Saving Mothers Report also recommended Outreach programmes for each province, led by a senior academic in a dedicated post. This has yet to be done in the Free State, owing to lack of funds. If the Provincial Health Department wants to show its resolution and commitment to the problem of maternal deaths from anaesthesia, it needs to prioritise the funding of this post in its next budget.

Resist pressure for non-medical personnel to give obstetric anaesthesia. There is a worldwide shortage of anaesthetists, and – even in developed countries – there is political pressure to allow non-medical personnel (anaesthesia practitioners or nurses) to administer anaesthesia. Our study showed that there is little supervision of doctors in peripheral hospitals, and there would probably be even less if nurse anaesthetists were appointed. Obstetric anaesthesia is always high risk, and non-medical practitioners must not give obstetric anaesthesia unless they are supervised by experienced doctors. Standards of anaesthesia would otherwise deteriorate to the extent seen in rural hospitals in Nigeria, where '… ketamine anaesthesia by non-anaesthetists holds sway …' resulting in '… untimely deaths'.[6]

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