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## SPECIAL EDITORIAL

## Improving emergency obstetric care



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Professor Bob Pattinson qualified as an obstetrician and gynecologist in Stellenbosch, South Africa, in 1985 and underwent further training in perinatal care in Oxford in 1987/88. He completed an MD on the use of Doppler ultrasound in high-risk pregnancies in 1992. In 1997 the MRC in South Africa awarded him the Maternal and Infant Health Care Strategies Research Unit. Currently, Professor Pattinson is also head of the department of obstetrics and gynecology at Kalafong Hospital, a regional teaching hospital in the University of Pretoria Health Sciences complex. He also serves on the National Committee for the Confidential Enquiries into Maternal Deaths and the National Perinatal Morbidity and Mortality Committee, and compiles and edits their Saving Mothers reports. He is also responsible for the perinatal care (Saving Babies) and child health care (Saving Children) surveys in South Africa. His main research interests are in obstetrics, medical audits, health systems, and effective methods of outreach. His initial research work focused on developing and evaluating effective interventions, but now concentrates on developing effective methods of implementing interventions and effecting change. His current major research project is in integrating maternal and child health care and defining the key interactions that effect change.

South Africa is a middle-income country that has a health paradox; it has mostly good coverage of effective maternal and child interven-

tions (e.g. antenatal care 94%, skilled birth attendance 84%, immunization 93%, contraceptive prevalence 63%), but has poor maternal and child indicators [1]. It is one of only 12 countries among which child mortality has increased over the Millennium Development Goals period, starting in 1990, and is now estimated to be between 69 and 99 per 1000 live births [1]. The maternal mortality ratio is unknown, but it is estimated to have increased from 121 per 100 000 live births in 1990 to 237 per 100 000 live births in 2008 [2]. Why? Obviously South Africa has a major HIV epidemic and this will certainly affect mortality rates, but is that the whole story?

Saving lives is dependent on ensuring that effective interventions have full coverage throughout the targeted area, but that alone is not sufficient; for any intervention to be effective it must also be performed correctly, i.e. there must be quality of care. Quality of care can be measured by various types of audit. South Africa has adopted the concept of quality of care audits and has 3 national maternal and child audits, namely Saving Mothers [3], Saving Babies [4], and Saving Children [5].

These reports have clearly identified the diseases causing deaths, but have also identified the health system failures. For maternal deaths, the assessors felt that over 80% of the maternal deaths due to postpartum hemorrhage and those directly related to anesthesia were clearly preventable and, overall, 38% of maternal deaths were clearly avoidable within the health system [3]. Four out of 5 of the clearly avoidable maternal deaths were due to complications of hypertension, obstetric hemorrhage, pregnancy-related sepsis, and non-pregnancy related infections [3]. The most common healthcare-provider avoidable factor recorded was not adhering to standard protocols [3]. Close to 80% of the maternal deaths occur equally in district and regional hospitals. In the case of perinatal deaths, over half of the deaths due to intrapartum asphyxia were thought to be probably avoidable [4]. These audits have clearly identified the lack of quality of care and skills. The recommendations originating from these reports all stressed the need to improve the skills of doctors and midwives.

The science of how to implement interventions and how to improve knowledge and skills has been rapidly expanding. Knowledge of and adherence to guidelines can be increased by printed educational materials, outreach visits, continuing medical education and workshops, influencing opinion leaders, and audit with feedback [6]. These training techniques are all associated with small but significant improvements in the knowledge and quality of care of patients. All should be used on a regular basis to reinforce the guidelines to all healthcare providers in the maternity units.

Improving skills is more difficult to achieve. Emergency events are usually rare or happen at inconvenient times and thus the skills in managing them cannot be easily taught. This has necessitated the move to using mannequins to improve skills of healthcare providers. The use of mannequins has been shown to improve individual clinical

skills when tested in clinical scenarios in South Africa [7] and also in the actual clinical circumstances [8].

Improving knowledge and clinical skills is not enough; to be effective the knowledge and skills have to be used in a team setting. The teams can vary in size and composition, but in all cases there is a team. If the team does not work together, the management of the emergency will be suboptimal. Enquiries into maternal deaths have identified common errors: confusion in roles and responsibilities; lack of cross-monitoring; failure to prioritize and perform clinical tasks in a structured coordinated manner; poor communication; and lack of organizational support [9].

Simulation training (or fire-drills) consists of creating a clinical scenario in a labor ward, antenatal ward, or clinic and using either a person acting as a patient or using a mannequin. The participants go through the process of managing that obstetric emergency. An observer evaluates the activities of the team on a checklist and gives the team a score. After the exercise the observer gives feedback to all the participants. The checklist evaluates the clinical skills and knowledge of the team but also evaluates leadership, communication, and documentation within the team. The team must involve all relevant healthcare providers and in the case of obstetric emergencies must involve doctors and midwives. In these scenarios it is often the teamwork where the process goes awry, as is the case in real life.

All units that have reported improvements in outcomes of obstetric emergencies have implemented the training programs within their own units and have trained almost all of their staff and have introduced simulation exercises [8]. The simulation training has had an added advantage of improving interprofessional cooperation [8].

To rectify the inadequacies identified in managing obstetric emergencies, South Africa has developed a training program based on the Life Saving Skills Manual [10], a program developed by the Royal College of Obstetricians and Gynaecologists and their International Office, called Essential Steps in Managing Obstetric Emergencies (ESMOE). It was developed by a partnership of clinicians from obstetric departments in all medical schools and members of the various professional bodies (including the South African Society of Obstetricians and Gynaecologists), and was supported by the National Department of Health and other stakeholders. Three additional modules have been developed: managing complications of abortion; managing HIV/AIDS in pregnancy; and obstetric anesthesia emergen-

cies. ESMOE has been included in the strategic plan of the Department of Health. Monitoring and evaluation will be performed using maternal near-miss to maternal death ratios.

Scale up of the program is being achieved by 3 approaches:

- Ensuring the program is part of undergraduate training for all medical and nursing students;
- Ensuring all interns go through the course before starting their community service year;
- Ensuring all maternity units run fire-drills at least monthly. This is to be achieved by training both medical officers and senior midwives in ESMOE so that they can conduct fire-drills in their institutions.

It is hoped that this approach will reduce the number of avoidable maternal, neonatal, and child deaths.

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