

Major threats to childbirth in developing countries

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Biological, psychological or social elements may constitute a threat to childbirth. In developing countries, major threats to childbirth mainly caused by restricted health service budgets may be overcome by the introduction of appropriate screening tests, implementation of evidence-based medicine protocols, and a primary health-care approach to maternity services.

Childbirth is an event that is influenced by the practices and priorities of the society in which the birth occurs. The past decade has heralded several changes in childbirth, both in developed and developing societies. South Africa is unique in that it has a very well developed private health sector and a disproportionately larger developing public sector. It is the public sector that faces the major threats to childbirth. There have been several new developments aimed at reducing these threats. They include changes in governmental policies, continuing professional development, the introduction of rapid screening tests (for syphilis, human immunodeficiency virus (HIV) and rhesus typing), the introduction of vaginal birth after caesarean section (VBACS), the introduction of an audit system into maternal deaths and the possible introduction of information technology, such as telemedicine. These developments are addressed in this article.

FREE ANTENATAL SERVICES

The provision of adequate antenatal care is regarded as potentially one of the most effective interventions in reducing maternal and perinatal morbidity and mortality. July 1994 heralded the introduction of free health care for pregnant women in South Africa.

Wilkinson et al (1997) found that this policy led to an increase in the total number of antenatal visits in the Hlabisa Health District. They also reported that patients registered for antenatal care at an earlier gestation stage ($P=0.018$). In order to comment on the effectiveness of this new policy, the maternal and perinatal morbidity and mortality associated with its implementation needs to be carefully

evaluated.

REDUCED ANTENATAL VISITS

Berglund and Lindmark (1998) have shown that in developed countries, a reduction in antenatal visits is possible without increasing the need for specialist consultation, emergencies or less favourable outcomes. Similar findings have been shown in developing countries. Munjanja et al (1996) in Zimbabwe found that the number of antenatal visits can be reduced without adverse implications for certain pregnancy variables, such as hypertension, preterm delivery, maternal morbidity and mortality.

Van Coeverden de Groot and Howland (1988) also report on a programme of limited antenatal visits with no deterioration in perinatal morbidity or mortality. Further studies of such a nature are warranted and the results of a large World Health Organization (WHO) randomized trial on the standard number of antenatal visits and reduced visits is awaited. In developing countries, a policy of reduced antenatal visits (without adverse effect on maternal and perinatal outcome) would be welcome, considering the 'policy' of cost containment.

EDUCATION

The quality of maternal care influences maternal and perinatal morbidity and mortality. Thus continuing medical education of all health-care givers is vital. In KwaZulu/Natal (KZN) a 'flying doctor' programme has been introduced, whereby obstetricians visit rural hospitals on a regular basis to guide and educate health-care givers.

Similarly obstetric midwives and nurses at certain KZN community clinics are visited by an obstetric registrar from the academic hospital on a weekly basis to facilitate education. The estab-

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lishment of posts for regional obstetricians may help in providing specialist services to district hospitals and clinics on a regular basis.

RAPID HIV TESTING

In developing countries, acquired immunodeficiency syndrome (AIDS) constitutes an epidemic. In 1997, 2.3 million people died from AIDS worldwide. In South Africa the seroprevalence of HIV in antenatal patients was 16% nationally, with variation in the seroprevalent rate depending on the region. KZN had a 26% HIV seroprevalence among its antenatal patients.

In KZN HIV testing is routinely offered to antenatal patients in the urban sectors. The potential advantages of doing this include patient education on HIV, implementation of protocols to optimize HIV prevention or to help reduce vertical transmission, continuation of ongoing research and help in the development of management protocols for HIV-positive individuals.

The traditional method for HIV testing involves at least two visits — the first visit for patient counselling and obtaining the blood sample, and a second visit for checking the blood result and post-test counselling. This method of testing may be too costly for some patients, as transport to health-care facilities is not always available and affordable in developing countries. Some patients do not return for their results. In addition, anxiety while waiting for an HIV result is not unexpected.

The introduction of on-site rapid HIV testing in developed countries has been met with enthusiasm because of its potential advantages. The tests available include the Single Use Diagnostic System (SUDS) HIV-1 rapid assay, Dipstick HIV - 1+2, and Capillus (UK) HIV-1/HIV-2 tests. Results may be interpreted with minimal formal training of staff. The tests usually yield results within 10 minutes. SUDS is reported to have a sensitivity of 99.9% and a specificity of 99.6% compared with the standard enzyme immunoassay (Kassler et al, 1995). A negative result on SUDS does not require further confirmation (Kassler et al, 1997).

Kassler et al (1997) report that rapid HIV testing with same-day results and counselling is feasible, preferred by clients and results in an increase in the number of patients learning their serostatus without increasing costs or reducing counselling and testing effectiveness. Their study at a sexually transmitted diseases clinic in Dallas showed that 88% of patients preferred the rapid test.

McKenna et al (1997) report on rapid HIV testing and counselling for voluntary testing in Lusaka, Zambia. They found that 92% of patients preferred to receive results on the same day and more than 99% of the programme attendees considered voluntary HIV testing in a positive manner. The sensitivity and specificity of the rapid test algorithm were both 99.4%.

At the obstetric unit at King Edward VIII Hospital (KEH) in KZN, a study on the accuracy of rapid HIV testing has been recently completed. The results of this trial are awaited — and if the results show that the test confers reasonable sensitivity and specificity, the introduction of rapid HIV testing should benefit our obstetric unit as well as other local clinics/hospitals.

RAPID TESTING SYPHILIS

It is well recognized that untreated syphilis can lead to adverse pregnancy outcomes and increased risk of abortions, stillbirths, prematurity, congenital syphilis and perinatal death.

In developing countries the prevalence of seroactive syphilis is high. In KZN, Dietrich et al (1992) reported a prevalence of 7.6%, while in the Western Cape region a prevalence of greater than 10% was reported by Coetzee et al (1994).

The mainstay of management lies in the implementation of appropriate preventive strategies. It has been shown by Hira et al (1990) in Zambia that a decentralized syphilis screening programme in primary health-care clinics can be successful, with a substantial reduction in syphilis-associated adverse pregnancy outcomes.

Screening for syphilis is of paramount importance for regular antenatal clinic attendees as well as for unbooked pregnant patients, who generally arrive at a health-care facility for the first time when in labour or if a problem is suspected. In developing countries, unbooked patients represent a common finding for various reasons, including lack of female education, poor socioeconomic status and poor accessibility to health-care facilities. Mlisana et al (1992) found that 30.7% of unbooked pregnant patients at KEH are syphilis seroreactive and that 11.5% of babies born to mothers with positive syphilis serology have congenital syphilis.

Fonn (1996) reports that in the rural setting, the average time taken to obtain the result for a syphilis screening test is 13 days. Thus the need for a rapid screening syphilis test is great especially in the case of the unbooked mother. The early availability of a syphilis test result would ensure earlier institution of the appropriate man-

agement protocol, an important concept in the management of sexually transmitted diseases.

The availability of a rapid syphilis screening test has been met with enthusiasm in developing countries. In South Africa, Delpont and van den Berg (1997) report 90.5% detection of syphilis in patients with a rapid plasma reagin (RPR) titre of 1:8 or more, with a specificity of 98.5%, using the rapid test to screen for syphilis. With lower RPR titres sensitivity was reduced to 52.2% but specificity was 98.4%. Considering that a RPR titre of 1:8 or more generally indicates active syphilis, the test helps to identify patients in need of immediate treatment.

It appears that the rapid test may have a role to play in developing countries in the context of rural clinics and unbooked mothers. Ideally an RPR would be required in addition.

The reasons for the poor performance of the rapid screening test include the use of undiluted serum, lack of use of a mechanical shaker, and difficulty in interpretation of the agglutination pattern. One needs to balance the drawbacks of routine syphilis screening (cost, turnaround time for result, patient compliance) against the possible advantage of rapid syphilis testing, which is the detection and earlier institution of appropriate therapy.

RAPID ANTI-D SCREEN FOR RHESUS TYPING

Ascertainment of the rhesus status of pregnant women constitutes a routine and integral investigation during antenatal care. It was clearly shown by Thornton et al (1989) that administration of postpartum anti-D immunoglobulin has led to a significant reduction in the incidence of rhesus isoimmunization and rhesus haemolytic disease of the newborn.

Rhesus typing necessitates the use of specialized equipment and is costly. Furthermore, in developing countries the test is usually processed at a referral centre rather than at each individual clinic or hospital. Considering the existing problems of a high percentage of unbooked patients, poor communication and poor transport facilities, it is common for results to be obtained too late for appropriate intervention to be taken.

The rapid anti-D screen is a screening test that is simple to perform and yields immediate results. At KEH it was found to yield a sensitivity of 99.13% and a specificity of 100% in a cohort of 600 patients (Misra et al, 1993). The test was found to be safe, accurate and cost effective. Currently at KEH, only patients with a

rhesus-negative test have a venous blood sample taken for a confirmatory test. This policy of rhesus screening has been adopted by most of the clinics drained by KEH.

Thus the use of the rapid anti-D screen should impact positively on quality of antenatal care, perinatal outcome and on cost containment.

VAGINAL BIRTH AFTER CAESAREAN SECTION

The increase in caesarean section rate is currently recognized as an international problem. In developing countries, especially Africa, the incidence of primary caesarean sections is high. At KEH, which is a tertiary referral centre, the current caesarean section rate is 25%. This is largely attributed to the high prevalence of fetopelvic disproportion in African women and the nature of obstetric emergencies managed at our institution.

A policy of offering VBACS (provided there is no contraindication, there is appropriate fetomaternal surveillance and operating facilities with appropriately skilled staff) would be welcome for various reasons, two of which are extremely important. First, African women tend to have many pregnancies and they generally consider an abdominal delivery to be culturally unacceptable, thus failure of antenatal care attendance and labouring at home are not uncommon practices — both of which can have disastrous results. Second, lack of a VBACS service would result in a further increase in the caesarean section rate with a concomitant increased risk of maternal morbidity and mortality. Although the perinatal morbidity and mortality may remain unchanged or even improve, the risks of maternal morbidity and mortality need to be carefully reflected upon.

A recent meta-analysis on trial of labour after caesarean section in sub-Saharan Africa by Boulvain et al (1997) shows a success rate of 69%, which is comparable to that achieved in developed countries. Maternal mortality was found to be 1.9/1000 (95% confidence interval [CI]; 0–43). Uterine rupture and scar dehiscence occurred in 2.1% (95% CI; 1.0–3.2). The perinatal mortality rate was 58/1000 (95% CI; 38–80), which is not increased compared with perinatal mortality rates reported in sub-Saharan Africa. The authors infer that a trial of labour does not expose the fetus to undue risks.

In the context of above it is important that a caesarean section only be performed if it is indicated and that VBACS be offered provided it is practically possible and not contraindicated. Adapting to such a policy would not only be culturally acceptable, but also economically advantageous.

CONFIDENTIAL ENQUIRY INTO MATERNAL DEATH

Maternal mortality is a tragedy that affects developed and developing countries. An even greater tragedy is that more than 98% of the deaths occur in developing countries, with a maternal mortality rate that ranges from 51 to 800 per 100 000 live births (Figure 1).

The establishment of a National Committee on Confidential Enquiries into Maternal Deaths (NCCEMD) by the National Department of Health in South Africa represents a welcome initiative toward tackling the grave problem. It is only through identification of women at high risk of maternal death, detection of problems at various levels of health care, and the institution of recommendations made by the assessors, that one can hope to significantly alter the maternal rate. The First Interim Report on Confidential Enquiries into Maternal Deaths in South Africa (Pattinson, 1998) identified the major causes of maternal death to be:

- Hypertensive conditions in pregnancy (20%)
- Non-pregnancy related infected deaths, mainly AIDS (18%)
- Obstetric haemorrhage (14%)
- Early pregnancy deaths, mainly septic abortions (12%)
- Pre-existing maternal diseases (11%).

Specific recommendations have been made with regards to the problems identified.

TERMINATION OF PREGNANCY

Septic abortions constitute a significant cause of morbidity and mortality in many countries where termination of pregnancy is not allowed on patient request. Before 1996, the abortion laws were restrictive in nature. Thus the results

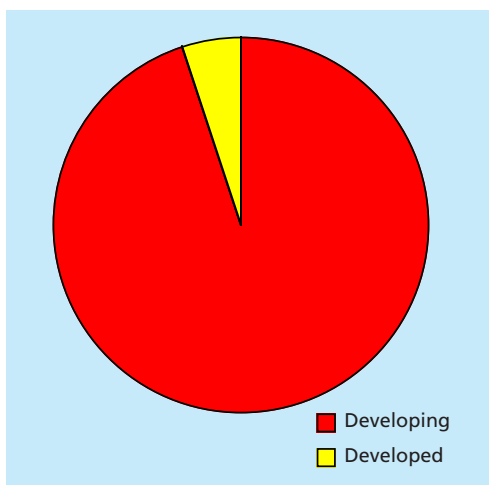


Figure 1. Maternal mortality — percentage contribution by developed and developing countries.

reported by Rees et al (1997) are not surprising. They deduced in a multicentre national study that about 44 686 (85% CI 35 633–53 709) women/year are admitted with an incomplete abortion (ICA). They further concluded that an estimated 425 (95% CI 78–735) females die per year because of the complications of an ICA. Fifteen per cent (95% CI 13–18) of women are also believed to suffer severe morbidity.

Thus the introduction of the new choice under the Termination of Pregnancy Act 1996 ought to have some influence on the previously quoted morbidity and mortality. The important issues that need to be considered, however, are that termination of pregnancy facilities be easily accessible, that the population ought to be educated on the availability of such services, and that the services should not be abused as a contraceptive method.

TELEMEDICINE

Recent advances in information technology have seen the emergence of telemedicine. In developed countries, teleradiology, home uterine activity monitoring, ambulatory blood pressure monitoring and video telemedicine are becoming increasingly popular, available and practical. It has been shown by Naef et al (1998) that the home blood pressure monitoring device is easy to use and gives reasonable results.

Malone et al (1997) have shown that ultrasound interpretation of live video telemedicine is comparable to videotape review. In developing countries, as many health-care centres are situated in remote areas, and transport to referral centres is costly and often not readily available, the introduction of telemedicine ought to be advantageous to the population. It may also be economical as it can reduce the number of referrals to a tertiary institution; furthermore, the quality of care at tertiary institutions may be improved because of a fewer number of patients. Currently, we have the facility of faxing computerized tomogram scan pictures between tertiary institutions and to tertiary institutions from secondary institutions. This is practical and reduces the need to refer all patients to a specialized unit for assessment.

CONCLUSION

The above represent some of the recent developments in developing countries including South Africa. It must be borne in mind that the problems associated with childbirth are further compounded by reduced female literacy and poverty. Thus the important issues need to be appropri-

ately addressed, as it only then that developing countries may hope to come on par with their developed counterparts. **HM**

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KEY POINTS

- Threats to childbirth may be of a biological, psychological or social nature.
- HIV and AIDS are a major threat in developing countries.
- Cost-effective care and investigations with ongoing audit are of paramount importance to improve maternal and perinatal outcome in developing countries.