

Obstetric Mortality in a Nigerian General Hospital

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ABSTRACT

Background: The aim of the study was to evaluate the progress towards achieving a 50% reduction in maternal mortality by the year 2000 at a referral hospital.

Methods: A retrospective review of births and maternal deaths over an 18-year period from 1981 to 1998.

Results: There was a 30% reduction among booked women in the period 1990-1998 compared to 1981-1989 while only 8% reduction was achieved among referred women. Infection and hypertensive disorders remained the leading causes of death but the contribution of haemorrhage declined due to improved blood transfusion services.

Conclusion: Further improvement in maternal survival can be achieved by training health personnel involved in maternity care to recognise or anticipate complications early and refer.

KEY WORDS: Maternal mortality; Maternal survival; Infection.

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INTRODUCTION

In recognition of its enormity and impact, maternal mortality has been the focus of international action in the past decade following the "call to action" in 1987¹. Within Nigeria, it has caused great concern with many articles reporting varied maternal mortality ratios as well as recommendations for their reduction²⁻⁷. The aim of the study was to evaluate maternal mortality in a general hospital before and after the launch of the Safe Motherhood Programme in Nigeria in 1990.

Materials and Methods

Maternal deaths were identified from the ward registers of the obstetrics and gynaecology unit of the Federal Medical Centre, Umuahia, Abia State. Covering the period January 1 1981 to December 31st 1998. Causes of mortality were conditions classified in chapter 15 of the *tenth revision of the International statistical Classification of Diseases and Related Health Problems (ICD10)*⁸. The 18-year period under review was divided into two nine year periods to enable an analysis of time trends and maternal mortality ratios were calculated per 100,000 total births. More than one

factor may have led to death but the apparently dominant condition was listed as the cause of death. This was based on clinical judgement, as post-mortem examinations were not done. Women who received antenatal care in the general hospital were classed as "booked" while those referred from other institutions were classed as "referrals"

Statistical analysis was performed using EPI-INFO version 6.02 software.

RESULTS

There were 21,244 deliveries and 27 maternal deaths among booked women and 4742 births associated with 226 maternal deaths among referrals. Table I displays the time trends in both groups. The relative risk of death for referred compared to booked women was 37.5 (95% CI = 25.19 - 55.82). There was a 30% reduction in maternal mortality for booked patients compared to 8% for referrals. Neither reduction was statistically significant.

Causes Of Death

Table II shows that puerperal sepsis, hypertensive disorders of pregnancy, haemorrhage and uterine rupture accounted for 88% of deaths. There was one death due to pulmonary embolism and three attributed directly to anaesthesia (two of them in booked patients). The indirect causes of death were anaemia (11 cases), hepatitis (5), Acquired Immune Deficiency Syndrome (2), cardiac disease (2), chronic renal disease (1), diabetic keto-acidosis (1). The cause of death could not be determined in 25 cases.

Table I. Trends in maternal mortality ratios

| | Booked | | | Referrals | | |
|-----------|-------------|-------------|------|-------------|-------------|------|
| | % of births | % of deaths | *MMR | % of births | % of deaths | *MMR |
| 1981-1989 | 85.3 | 13.9 | 137 | 14.7 | 86.1 | 4942 |
| 1990-1998 | 72.4 | 5.3 | 96 | 27.6 | 94.7 | 4545 |

*MMR -maternal mortality ratio (deaths per 100,000 deliveries)

Table II. Trends in the contribution (%) of the major causes of death

| Major causes of death | 1981-1989 | 1990-1998 |
|-----------------------|-----------|-----------|
| Puerperal sepsis | 25.3 | 31.6 |
| Eclampsia | 13.9 | 17.9 |
| Haemorrhage | 24.1 | 15.8 |
| Uterine rupture | 13.9 | 12.6 |
| Pre-eclampsia | 4.4 | 10.5 |

DISCUSSION

The leading causes of death were infection, hypertensive disorders and haemorrhage findings

similar to that of other developing countries^{9,10}. Although haemorrhage remained a leading cause of death, its contribution declined whereas those of infection and hypertensive disorders increased. Unlike developed countries, pulmonary embolism was not a significant cause of mortality¹¹.

The goal of the safe motherhood initiative was the reduction of maternal mortality ratio by 50 per cent by the year 2000. Among booked patients there was progress towards this goal with a 30% reduction in mortality ratio. This decline was mainly due to a reduction in the number of deaths from haemorrhage following the introduction of improved blood transfusion services in the mid 1980s. The significance of this is highlighted by the result of only one maternal death from blood loss among booked women from 1986 to 1998 in contrast with eleven deaths from 1981 to 1985 and demonstrates the effectiveness of specific interventions in reducing maternal mortality.

On the other hand, there was only an 8% reduction in maternal mortality among women who were referred. However, there was a significant reduction in mortality from haemorrhage as a result of the improved blood transfusion service highlighted above. The main obstruction to improved survival in this group was late presentation with advanced complications such that outcome was poor even with appropriate intervention. Possible reasons for this include late presentation to the institution from which they were referred and/or underestimation or non-recognition of complications/risk factors in women presenting earlier. The prevalence of puerperal sepsis also suggests that aseptic techniques in labour and delivery may have been suboptimal.

We have avoided the term "unbooked" because most pregnant women in the city receive some form of maternity care (including antenatal care) from health professionals in the public and private sectors. The priority is no longer just ensuring that they have access to modern obstetric care but seeing to it that the care they receive is optimal. Undoubtedly, socioeconomic factors impose restrictions on the ability of women to seek medical attention early but it is imperative that medical personnel do not contribute to mortality and morbidity through substandard care. Hence, health professionals licensed to provide maternity care should be trained and retrained to ensure they administer standard care

throughout the antenatal, perinatal and postnatal periods. In addition, minimum standards should be set (and monitored) for institutions providing maternity care whether in the public or private sector.

The results of this review suggest that priority areas are the early referral of women with hypertensive disorders in pregnancy and attention to aseptic techniques during labour and delivery. Longer-term strategies include universal education to overcome adverse socio-cultural beliefs and practices and improving the socioeconomic status of women.

REFERENCES

1. Mahler H. The safe motherhood initiative: A call to action. *Lancet* 1987; 1:668-70.
2. Harrison K'A. Childbearing, health and social priorities. *Br J Obstet Gynaecol* 1985;92(suppl 5):1-119
3. Adetoro OO. Maternal mortality - twelve-year survey at the University of Ilorin Teaching Hospital (U.I.T.H.) Ilorin, Nigeria. *Int J Gynaecol Obstet.* 1987; 25:93-98.
4. Okaro JM, Umezulike AC, Onah HE, Chukwuali LI, Ezugwu OF, Nweke PC. Maternal mortality at the university of Nigeria Teaching Hospital, Enugu, before and after Kenya. *Afr J Reprod Health* 2001; 5: 90 7.
5. Audu LR, Ekele BA. A Ten year review of maternal mortality in Sokoto, northern Nigeria. *West Afr J Med* 2002; 21: 74 6.
6. Adamu YM, Salihu HM, Sathiakumar N, Alexander GR. Maternal mortality in northern Nigeria : a population-based study. *Eur J Obstet Gynaecol Reprod Biol* 2003;109: 153 9.
7. Okonta PI, Okali UK, Otoide VO, Twomey D. Exploring the causes of and risk factors for maternal deaths in a rural Nigerian referral hospital. *J Obstet Gynaecol* 2002; 22: 626 9.
8. World Health Organisation. International Statistical Classification of Disease and Related Health Problems, Tenth Revision. Geneva: WHO, 1992.
9. Fikree FF, Midhet F, Sadruddin S, Berendes HW. Maternal mortality in different Pakistani sites: ratios, clinical causes and determinants. *Acta Obstet Gynecol Scand* 1997; 76:637-645.
10. Spies CA, Bam RH, Cronje HS, Schoon MG, Wiid M, Niemand I. Maternal deaths in Bloemfontein, South Africa - 1986-1992. *South Afr Med J* 1995; 85:753-755.
11. Her Majesty's Stationery Office. Report on confidential enquiry into maternal deaths in the United Kingdom for 1988-90 London: HMSO, 1994.