

Maternal and perinatal mortality figures in 249 South African hospitals — 1988 - 1992

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Objective. To determine maternal and perinatal mortality ratios in a large number of South African hospitals and assess the differences in mortality figures among the main ethnic groups.

Design. Questionnaire survey involving confidential reports on maternal and perinatal deaths submitted over the 5-year period 1988 - 1992.

Setting. South Africa and Namibia.

Participants. A total of 249 hospitals in the southern African region provided regular monthly mortality statistics. The statistics were presented both as an absolute number of deliveries and as the ethnic distribution of maternal and perinatal mortality.

Outcome measures. For the purpose of analysis, four ethnic groups (whites, blacks, coloureds and Asians) were assessed. Total births, maternal and perinatal death ratios were determined.

Results. The 249 hospitals that took part in this survey represent 30% of all the hospitals in South Africa. There were 570 938 deliveries. Blacks, whites, coloureds and Asians accounted for 77%, 12%, 8% and 3% respectively. Stillbirths numbered 16 874 (3%) and 8 384 (1.5%) neonatal deaths were reported. Perinatal mortality rates (PMRs) among the four ethnic groups were: blacks 52.5/1 000 deliveries, coloureds 36.7, Asians 14.4 and whites 8.0. The average PMR was 44.7/1 000 deliveries.

During the 5-year period, 420 maternal deaths representing a maternal mortality ratio (MMR) of 76 deaths/100 000 live births were reported (blacks 84/100 000, coloureds 113/100 000, whites 13/100 000 and Asians 12/100 000). There was no obvious annual trend within the 5-year period for either PMR or MMR. However, a comparison of MMR for this review period with two earlier reports (1970 - 1979 and 1980 - 1982) shows a drop in MMR from 125/100 000 to 76/100 000 live births.

Conclusions. The MMRs and PMRs found by us, though not representative of South Africa as a whole, are

encouraging, being among the lowest ratios reported by similar studies across Africa. Substantial differences were found in both MMRs and PMRs among the principal ethnic groups in South Africa, and we attribute them to the disparity in socio-economic levels.

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The death of any woman as a result of pregnancy or pregnancy-related conditions remains one of the major challenges for obstetricians. The magnitude of this health service problem, as it affects various areas of South Africa, has previously been highlighted by several authors.¹⁻⁶ All these studies report deaths occurring in single hospitals, except for the extensive research done by the late Professor E. Boes,³ which summarised data from 290 hospitals from all South African provinces over a period of 10 years.

The present report is a continuation of her programme, and analyses statistics submitted by co-operating hospitals since her death. It reviews maternal and perinatal mortality during a 5-year period from January 1988 to December 1992. The focus was on three fundamental issues: (i) to inform health professionals and policy formulators of the current rates of maternal and perinatal death; (ii) to establish the extent to which mortality rates differ among the ethnic groups in South Africa; and (iii) to consider whether the improvements in social and welfare services since 1970 have been matched by an appropriate reduction in maternal mortality rates (MMRs).

Materials, methods and definitions

The data analysed in this report have been extracted from information on the number of births, maternal and perinatal deaths obtained from hospitals which had participated in the Boes surveys.^{2,3} Although the total number of hospitals participating in our study remained almost the same as in the abovementioned research, it must be mentioned that some hospitals have sent only sporadic reports and that, soon after 1988, the Cape Province organised its own maternal death survey and stopped sending in reports.

The reporting forms were designed to cover important patient information such as cause of death, autopsy details and fetal outcome. In addition, reports also delineated patients in terms of their ethnic groups. The regional locations and the number of participating hospitals were as follows: (i) the provincial areas of South Africa (212); (ii) the former independent states and Namibia (19); and (iii) the self-governing national states (18).

Each participating hospital provided monthly statistics of all pregnancy outcomes, irrespective of whether the patients were booked or unbooked.

In this report, the following definitions have been adopted, in conformity with recommendations by the World Health Organisation:⁷ (i) perinatal mortality rate (PMR) — the sum of fetal deaths and early neonatal deaths per 1 000 births. The minimum gestational age chosen by us for this study was 28 weeks and the minimum weight 1 000 g; (ii) early neonatal

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death — the death of the newborn during the first 7 days of life; (iii) maternal death — the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of pregnancy or its management, but not from accidental or incidental causes; and (iv) MMR — the total number of maternal deaths from both direct and indirect obstetric causes per 100 000 live births.

Results

From 249 hospitals that took part in the survey, the total number of births reported was 579 938. The number of births attributed to each of the four ethnic groups is shown in Fig. 1. Further analysis of the pregnancy outcomes revealed that approximately 3% (16 874) of all the fetuses ended as stillbirths while an additional 1.5% (8 384) resulted in early neonatal deaths (Table I). The PMR for each of the ethnic groups is shown in Table II, as is the rate expressed as a regional average. The rate of perinatal deaths was highest among the blacks followed by the coloureds, and was lowest among the whites. However, the PMR did not show any obvious annual trend when the national average was calculated for each of the 5 years under review (Table III).

Table I. Stillbirths and early neonatal deaths among various ethnic groups (%)

	Stillbirths		Early neonatal deaths	
	No.	%	No.	%
Blacks	15 233	90.3	7 483	89.3
Coloureds	1 155	6.8	597	7.1
Whites	366	2.2	185	2.2
Asians	120	0.7	119	1.4
Total	16 874	100	8 384	100

Table II. PMR for each ethnic group and the average figures

	Stillbirth rate	Early neonatal death rate	PMR (/100 000)
Blacks	34.8	17.7	52.5
Coloureds	24.0	12.7	36.7
Whites	5.3	2.7	8.0
Asians	7.3	7.1	14.4
Average	29.6	15.1	44.7

Table III. PMR by year, 1988 - 1992

Year	Births	Perinatal deaths	PMR (/100 000)
1988	197 286	8 461	42.9
1989	29 919	916	30.6
1990	110 154	5 062	46.0
1991	124 178	5 764	46.0
1992	108 401	4 939	45.6

During the period analysed, 420 maternal deaths were reported. The number for each of the ethnic groups, as well as the calculated mortality ratios, are shown in Table IV.

Table IV. MMRs among various ethnic groups in southern Africa, 1988 - 1992

	Deaths	MMR (/100 000)
Blacks	356	84
Coloureds	53	113
Whites	9	13
Asians	2	12
Total	420	76

The overall ratio for the hospitals surveyed was 76 deaths per 100 000 live births. When the figures were further analysed, the MMR did not show any discernible trend over the 5-year period (Table V).

Table V. Annual MMRs, 1988 - 1992

Year	Live births	Deaths	MMR (/100 000)
1988	191 748	145	76
1989	29 235	26	89
1990	106 847	76	71
1991	121 338	103	85
1992	104 896	70	67
1988 - 1992	554 064	420	76

Discussion

Two relatively recent studies have reviewed maternal death ratios and their determinants in Africa. One of them, using the database of the WHO's Maternal Health And Safe Motherhood Programme, quotes community-based and hospital-based reports in 31 African countries.⁸ The ratios we calculated from their data vary between 21/100 000 in Libya and 1 285/100 000 in Ivory Coast. The other research, undertaken at the United States Geographic Institute,⁹ mentioned ratios between 40/100 000 in Sao Tome - Principe and 2 000/100 000 in Ethiopia. Both authors have stressed the impossibility of obtaining reliable data for any given country in the absence of a national system of reporting and analysing maternal deaths. The same goes for South Africa. Bearing in mind this reservation, we would still like to point out that our figures, when compared to those shown above, appear to be among the lowest in Africa.

The differences between the MMRs of various ethnic groups in South Africa were emphasised by Van Coeverden de Groot in 1986.⁸ Blacks and coloureds are the groups with the worst reproductive outcome (Tables I, II and IV) but, more importantly, they represent the poorest socio-economic groups in southern Africa. In other words, it is pertinent to emphasise that the factors which influence maternal mortality are not only clinical but also social, political, economic, educational and managerial.

The downward trend in the MMR from a national average of 124/100 000 in the 1970 - 1979 period to 83/100 000 in the period 1980 - 1982² and more recently 76/100 000 (Table VI) is encouraging, more especially since the WHO's MMR estimate for the entire southern African subcontinent stood at 270/100 000 live births.¹⁰ It is difficult to assess the true significance of this decrease though, given that the hospitals sampled by us are substantially different from

those surveyed by Boes in 1970 - 1979 and 1980 - 1982. Anyway, there is little cause for euphoria in our figures because the death of 76 women for every 100 000 live deliveries still remains unacceptably high.

Table VI. The trend in MMRs since 1970^{2,3}

	Live births	Maternal deaths	MMR (/100 000)
1970 - 1979	2 379 244	2 980	125
1980 - 1982	971 791	812	83
1988 - 1992	554 064	420	76

Perinatal mortality appears to attract far less attention than maternal deaths. Apart from some estimates of infant mortality rates that are released periodically by the Department of Health,¹¹ there are no figures with which to compare the findings of this review. What is apparent is that the PMR for the black population is considerably higher than for the other ethnic groups. That said, perinatal mortality levels in South African blacks still compare favourably with figures from other African countries.¹²

In conclusion, the MMRs and PMRs found in our survey of 249 South African hospitals — though not truly representative of the entire nation — are among the lowest when compared with other studies undertaken in Africa.

Substantial differences were identified in both maternal and perinatal mortality levels among the main ethnic groups in South Africa, and we attribute them to the disparity in socio-economic levels.

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