

## Maternal Mortality at Karamsad – The only Rural Medical College in Gujarat (January 1994 to December 1997).

D.A. Patel, S. Gangopadhyay, S.B. Vaishnav, R.G. Shrivastava, R. Rajagopalan

*Pramukhswami Medical College, Shree Krishna Hospital, Karamsad, Gujarat*

### Summary

Maternal deaths occurring at Shree Krishna Hospital, P.S. Medical College, Karamsad, during the period 1-1-1994 to 31-12-1997 were analysed. Fifty eight maternal deaths were recorded amongst 1353 live births giving a maternal mortality of 4286/100000 live births. Direct causes were responsible for 63.79% of maternal deaths and indirect for 36.20% of maternal deaths. Haemorrhage (31.03%), sepsis (20.69%) and PET/Eclampsia (13.79%) were common direct causes of maternal deaths while anaemia (17.24%) was the common indirect cause of maternal deaths. The study also delineates the fact that discrepancy of medical care between underprivileged and privileged section and this had an ominous impact on the rural population.

### Introduction

High maternal mortality has serious implications not only to the family, the society and the nation but it also deprives the infant of mother's care. When the mother expires during delivery the child has a 17 fold increased risk of death during the first six months (Sune Bergstrom, 1994).

Maternal deaths are a silent tragedy because these women are poor, underevaluated and considered dispensable. They live and die silently in their huts, in remote villages or on their way to health facilities.

Maternal mortality is an index of reproductive health of the society but it seems that India is lagging far behind to be able to achieve the goal to reduce the maternal mortality rate to 200/100000 live births by 2000 AD.

MMR (4286/100000 Live Births) in the present study reflects the poor quality of reproductive health in

rural Gujarat.

### Aims and Objectives

The aims and objectives of the present study are to analyse the causes of maternal deaths in a tertiary rural hospital catering almost exclusively to the underprivileged rural obstetric patient. The very high maternal mortality particularly the huge difference from that of urban population, prompted us to carry out the present study.

Analysis of maternal deaths is an essential exercise with a view to understand the common complications leading to maternal deaths and is helpful to find out the remedy. This knowledge may help to decrease maternal deaths for the majority of causes are preventable with present day knowledge and technology. Moreover, the required interventions are simple and not expensive.

## Material and methods

A retrospective analysis of maternal deaths over four years was carried out at Obstetrics and Gynaecology Department, S.K. Hospital, P.S. Medical College, a tertiary rural centre at Karamsad.

All the cases of maternal deaths were studied in detail from January 1994 to December 1997. Cases were scrutinised from various aspects likely to be related to maternal death such as, age, locality, parity, socio-economic status, literacy, antenatal registration, admission-death interval and direct-indirect causes of death.

## Results and Analysis

A thorough analysis of maternal deaths that occurred during the period 1994 to 1997 have been carried out. There were a total of 58 maternal deaths out of 1353 live births (MMR 4286/100000 live births).

### Maternal mortality rate at Shree Krishna Hospital, Karamsad. (1994-1997)

**Table-I**

Yearwise maternal deaths and live births and MMR at S.K. Hospital

Year	Maternal	Live births (L.B)	M.M.R./100000 Live births
1994	14	323	4334
1995	12	312	3846
1996	14	326	4294
1997	18	392	4592
Total	58	1353	4286

Table I shows 58 maternal deaths during the period 1994-1997 while the total number of live births were 1353. The number of deaths varied from a low of 12 (during 1995) to a high of 18 (during 1997). It also shows an average MMR of 4286/100000 live births during this period. The lowest and highest MMR were recorded during 1995 and 1997 respectively.

All cases were referred from rural areas unbooked and belonged to low socio-economic status.

**Table - II**  
Age-Parity Distribution of maternal deaths

Age (in years)	Parity			Total
	Primigravida	Multigravida	Grandmultipara	
<20	8	2	—	10
21-30	9	24	4	37
>30	—	7	4	11
Total	17	33	8	58

Table II indicates that the highest number of maternal deaths (37) occurred in the age group of 21-30 years. The number of deaths in the age groups of less than 20 years and more than 30 years were almost the same. About 1/3<sup>rd</sup> of mothers (17) happened to be primigravidae but the majority were multiparous (41).

**Table - III**  
Time of maternal death

Timings of maternal death	No of maternal deaths	Percentage (%)
Antepartum	10	17.24
Intrapartum	02	3.45
Postpartum	43	74.14
Postabortal	03	5.17
Total	58	100.00

From Table III it is clear that the highest percentage (74.14) of deaths occurred during the postpartum period followed by antepartum (17.24%), post abortal and intrapartum period (8.62%).

**Table - IV**  
Types of Deliveries

Types of Deliveries	No. of Maternal Deaths	Percentage
Vaginal deliveries (Home)	17	39.53
Vaginal deliveries (Hospital)	13	30.23
Forceps deliveries	04	9.30
LSCS operations	07	16.28
Laparotomy for ruptured uterus	01	2.07
Obstetric Hysterectomy	01	2.07
Total	43	100.00

Table IV shows the type of deliveries in 43 postpartum patients. 39.53% of mothers had home deliveries and 30.23% had hospital vaginal deliveries. Commonest mode of operative delivery was LSCS (16.28%) followed by forceps delivery (9.30%). Laparotomy for ruptured uterus and obstetric hysterectomy was performed in one case each.

**Table - V**  
Admission - Death Interval

Admission-Death interval	Number of Maternal Deaths	Percentage (%)
< 24 hours	41	70.69
1-3 days	09	15.52
> 3 days	08	13.79
Total	58	100.00

Table V shows a very high percentage (70.69) of maternal deaths occurring within 24 hours of admission in the hospital while 15.52% expired within 1-3 days interval and 13.79% after 3 days of admission.

reflecting the continued presence of numerous lacunae existing in our health care delivery system. An overwhelming majority of deaths have occurred in multiparous patients by the time they have reached the

**Table - VI**  
**Analysis of causes of maternal Mortality**

Cause of death	1994	1995	1996	1997	Total	Percentage
Atonic PPH	07	01	04	03	15	25.87
Puerperal Sepsis	00	03	03	03	09	15.52
Eclampsia	01	03	01	02	07	12.07
Septic Abortion	01	00	00	02	03	05.17
Severe PIH	00	00	00	01	01	01.72
Rupture Uterus	00	01	00	00	01	01.72
D.I.C.	00	00	00	01	01	01.72
Severe Anaemia	04	01	02	03	10	17.24
Cerebral Malaria	00	01	02	01	04	06.90
Jaundice	00	01	01	00	02	03.45
Heart Disease	00	01	00	00	01	01.72
Bronchial Asthma	00	00	00	01	01	01.72
T.B.	00	00	01	01	02	03.45
Mismatched BT	01	00	00	00	01	01.72
Total	14	12	14	18	58	100.00

Table VI indicates detailed analysis of the causes of maternal mortality. The chief causes of maternal deaths were

- (1) Haemorrhage - 31.03%
- (2) Sepsis - 20.69%
- (3) Hypertension - 13.79%
- (4) Medical disorders - 34.48%.

#### Discussion:

The very high maternal mortality rate in this institute appears to be due to several reasons. Firstly, its unique geographical location is a hindrance to timely and qualified medical attention and referral, resulting in delayed intervention that is well reflected in the number of maternal deaths occurring in less than 24 hours of admission. Secondly, the health of mothers during pregnancy is badly affected by high parity, illiteracy and socio-economic deprivation. Finally, this institute functions truly as a tertiary rural centre and therefore deals with exclusively high risk patients in good numbers in comparison to so called "normal deliveries" and may hence explain this apparently high institutional maternal mortality rate.

Table - I shows a relatively constant rate of absolute number of maternal deaths over the past four years

21-30 age group (Table - II). As expected postpartum period was found to be the most dangerous period (Table - III). High number of home vaginal deliveries in our study is significant of a rural community. Operative interventions (in 1/3rd cases of maternal deaths) are mostly carried out late in the course of parturition and prove to be too dangerous (Table - IV). 70.69% of deaths has occurred within 24 hours of admission and most of them are admitted in moribund conditions (Table - V). Table - VI displays the causes of maternal death dominated by medical disorders, haemorrhage, sepsis and hypertension. Table - VII shows comparative study of MMR and percentage of maternal deaths due to haemorrhage and sepsis by other authors. Though deaths due to PET/Eclampsia (13.70%) has declined compared to FOGSI - WHO study (25.5%), (Rohit Bhatt, 1997), haemorrhage and sepsis are still the major causes of maternal deaths.

Table – VII:  
Comparative figures of MMR/100000 By different authors

Author	Period of study	MMR/100000 live births	Haemorrhage %	Sepsis %
Goswami A. and Kalita H. Gauhati Medical College Hospital. (1996)	1987-94	1234	28.20	16.79
Rohit Bhatt FOGSI-WHO study. (1996)	1992-94	572	19.8	20.6
Jyothi Shetty and Prema D'Cunha, Fr. Mullar's Hospital, Manglore. (1998)	1991-96	303.5	25.9	11.1
Juneja and Rai Sucheta, Kriplani Hospital, New Delhi. (1993)	1988-92	371	18.2	20.3
Shrotri and Chaudhari Sasoon, Gen. Hospital, Pune. (1994)	1984-92	460	19.2	12.3
Sunanda Kulkarni et al, HQH Hospital, Bellary. (1996)	1988-95	1721.8	23.7	20.7
Present study, P.S. Medical College & S.K. Hospital, Karamsad	1994-97	4286	31.03	20.69

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