



## Maternal mortality at a referral centre: a five year study

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**OBJECTIVE(S):** To assess the maternal mortality rate at a referral center in a metropolitan city.

**METHOD(S):** A retrospective study of 30 maternal deaths over a period of five years from 1<sup>st</sup> July, 2000 to 30<sup>th</sup> June 2005.

**RESULTS:** Over the study period there were 26,444 deliveries, giving a maternal mortality rate of 113.44. Postpartum hemorrhage was the leading direct cause and anemia the leading indirect cause. Most women died within 24 hours of admission. The age group of 20 to 30 years was crucial. Most deaths were in unregistered cases transferred from outside.

**CONCLUSION(S):** The maternal mortality rate is much lower than the national MMR of 407 yet most deaths could have been avoided with the help of quick, efficient and well-equipped transport facilities and by promoting overall safe motherhood.

**Key words:** maternal mortality, postpartum hemorrhage, anemia.

### Introduction

Maternal mortality is defined as the death of any woman while pregnant or within 42 completed days of termination of pregnancy irrespective of the duration or site of pregnancy from any cause related to or aggravated by pregnancy but not from accidental or incidental causes. Maternal mortality rate is defined internationally, as the maternal death rate per 100,000 live births.

### Materials and Methods

Thirty cases of maternal mortality over a period of 5 years from 1<sup>st</sup> July, 2000 to 30<sup>th</sup> June, 2005 were analyzed with special emphasis on parity, cause of death time, interval from admission to death and antenatal care.

### Result

There were 30 cases of maternal mortality amongst 26,444

deliveries over the period of study giving an MMR of 113.44.

Of the 30 deaths four or 13.3% were due to pregnancy induced hypertension (PIH). Nationally PIH accounts for 21.92% of the deaths. Hemorrhage accounts for 70.83% of deaths in the current study, 18 of the 30 deaths were due to (PPH) and 2 due to pulmonary embolism and 2 due to ante partum hemorrhage (APH). Nationally, hemorrhage accounts for 21.49% of the deaths. Septicemia accounted for 3.3% of the cases, as compared to the national figure of 7.01%. Rupture uterus accounted for 2 (6.67%) death as compared to 2.19% nationally.

Most of the patients that died of hemorrhage were also anemic. Anemia as an indirect cause accounted for 55.3% (16/30) of the deaths, as compared to 24.13% of the deaths nationally. Hepatic disorders accounted for only 1 case, i.e. 3.3% as compared to the national figure of 4.17%. Two patients died as a result of pulmonary embolism accounting for 6.67% in the present study as compared to 1.75% in the national study. Other causes like inversion of the uterus etc. leading to maternal mortality were not seen but accounted for 21.49% of the deaths nationally (Table 1).

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Table No. 1

	Oshiwara Maternity Home 2000-2005	Number All over India 1988-97 (Percent)
<b>DIRECT</b>		
PIH	4 (13.3 %)	21.49 %
Hemorrhage	20 (66.7%)	21.49 %
Septicemia	1 (3.3%)	7.01 %
Rupture	2 (6.67%)	2.19 %
Pulmonary Embolism	2 (6.67%)	1.75 %
Hepatic disorders	1 (3.3%)	11.4 %
<b>INDIRECT</b>		
Anemia	16 (53.3%)	24.13 %

Of the 30 deaths 21 were multigravidas and 9 primigravidas.

The majority of deaths 17 were in the age group of 20-24, 8 were in the age group of 25-29, 4 were, over the age of 30 years, and only one was in the age group of 15-19 years.

Of the 30 deaths 4 were registered with us. 23 were registered elsewhere and transferred. Only three patients were unregistered. Twenty-one of the 30 women came from the lower socio-economic strata and 1 from the home for the unmarried pregnant women.

Seven of the 30 patients died ante partum and 22 postpartum. There was one intrapartum death. Of those that had delivered, 14 had delivered normally, one by forceps extraction, and 7 by cesarean section. Eighteen of the 22 had live births while 4 had stillbirths.

Twenty (66.66%) deaths occurred in the labor ward, while 10 (33.33%) died after being transferred to the intensive care unit.

Three women died within 30 minutes of admission, 14 between 30 minutes and 6 hours, 7 between 6 and 24 hours and 6 after 24 hours of admission.

10% of the patients had no antenatal care while 50% had only one antenatal visit and 35% had 2 or more.

53.3% of the women had a Hb of less than 8g/dL on admission. Three of the 30 were not given any blood transfusions while 19 patients were given one or two units of blood and five were given three or more units of blood. One woman was given only fresh frozen plasma and two were given packed cells.

## Discussion

The maternal mortality rate at teaching hospitals in India is very high and varies from 3778 (Allahabad U.P.) to 215 (Trivandrum, Kerala) per 100,000 live births. Dr. R. V. Bhatt, 2000 shows an MMR of 30.9 per 100,000 births in over 41000 private sector deliveries <sup>1</sup>. In India 100,000 maternal deaths occur yearly and 1 death every 5 minutes, leading to the country having a maternal mortality rate of 407 per 100,000 deaths.

Who estimates show that out of the 529,000 maternal deaths globally each year, 36,000 (25.7 per cent) are contributed by India, the highest by a single country <sup>2</sup>.

MMR in Bangladesh in its various hospitals varies from 760 at Dhaka (Dr. A.K.M. Anowarul Azim), to 1615 at Chittagong (Dr. Sayeda Noorjahan Bhuiyan) and at Sri Lanka 95 <sup>1</sup>.

In 1986 the MMR in China was 25. This improvement of MMR was due to universal education of the people in MCH care, raising age of marriage and using family planning in a 1 to 2 child family and universal maternal care.

A vast majority of maternal deaths are preventable. (WHO 1990) High maternal mortality rates indicate poor quality maternal and child health (MCH) care and non-availability of MCH care <sup>3</sup>. This tragedy has immense effects on the family, especially on the child. When a mother dies during delivery the child has a 17-fold increase in the risk of death during the first six months (Sune Bergstrom, 1994) <sup>4</sup>.

MCH is essential as regular ANC check-ups can help detect and correct anemia. More than half of the pregnant women in India i.e. at least 13 million women suffer from anemia during pregnancy. 1 in 5 of all maternal deaths is attributed to anemia. (19% of the cause of maternal mortality as per statistics of Registrar General of India 1992) <sup>5</sup>. This correlates to our present study where 53.3% of the women were anemic.

As most of the patients that died were transferred cases and four died before blood could be made available it becomes apparent that many of the deaths that occurred could have been avoided if they were transferred earlier. In our study 56.67% of the patients died within 6 hours of admission further highlighting the need for adequate and quick transport facilities. Mukherjee et al <sup>6</sup> reported that 40% died within 6 hours of admission.

From our study it is seen that it is necessary even in urban areas to channel the working of emergency obstetric care as

envisaged in the RCH phase II in India. The basic obstetric care for all, and early detection of complications and management of emergency obstetric care services need to be seriously looked into in the urban areas as well.

Even facilities in the urban hospitals are grossly inadequate with the shortage of anesthetists, pathologists and blood banks. This prevents early intervention and adequate emergency obstetric care. Reduction in maternal mortality achieved by smaller countries like Bangladesh, Sri Lanka and Singapore is commendable and we should follow their modules to achieve similar results.

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