Maternal Death Surveillance: A Prospective Study at NSCB Medical College, Jabalpur

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ABSTRACT
BACKGROUND: Maternal mortality is unacceptably high. About 830 women die from pregnancy- or childbirth-related complications around the world every day. It was estimated that in 2015, roughly 303,000 women died during and following pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings, and most could have been prevented (1). In sub-Saharan Africa, a number of countries halved their levels of maternal mortality since 1990. In other regions, including Asia and North Africa, even greater headway was made. Between 1990 and 2015, the global maternal mortality ratio (the number of maternal deaths per 100,000 live births) declined by only 2.3% per year between 1990 and 2015. However, increased rates of accelerated decline in maternal mortality were observed from 2000 onwards. In some countries, annual declines in maternal mortality between 2000–2010 were above 5.5%. 99% of all maternal deaths occur in developing countries. Maternal mortality is higher in women living in rural areas and among poorer communities. Young adolescents face a higher risk of complications and death as a result of pregnancy than other women. Skilled care before, during and after childbirth can save the lives of women and newborn babies. Between 1990 and 2015, maternal mortality worldwide dropped by about 44%. Between 2016 and 2030, as part of the Sustainable Development Goals, the target is to reduce the global maternal mortality ratio to less than 70 per 100,000 live births.  
METHODS: Our Hospital NSCB Medical College Jabalpur is a 860 Bedded Multi specialty Hospital situated in Mahakaushal Region. It drains vast population from the Jabalpur City as well as nearby peripheral health centers. The average numbers of obstetrics admissions are 2000/month  
A prospective study conducted in the department of OBG at NSCB MEDICAL COLLEGE JABALPUR.  
Detailed data regarding maternal Mortality will be collected from case sheet of concerned patient in our Hospital. The collected data can be analyzed with respect to epidemiological parameters such as relationship with age, parity, locality, socioeconomic status, literacy, place of delivery, stage of pregnancy or labour, admission to death interval, referral status and direct and indirect causes of maternal death.  
RESULTS: The present study is Prospective and Observational study undertaken in the Department of Obstetrics and Gynecology for a period of 15 Months effective from 1st January 2018.  
A total of 129 maternal deaths occurred during 15 months study period from January 2018 to March 2019. Average of MMR over 15 months study period was observed to be 129/1,00,000 live births.  
Most of these (80.62%) were from rural area and 19.37% were from urban area. Of the total 129 maternal deaths, 80 women (62.01%) delivered in the Maternal Child Health whereas 25(19.37%) delivered in DH. Majority of deaths (54.40%) occurred in the postnatal period, followed by antenatal (27.90%) and intranatal period (17.70%).  
CONCLUSION: The analysis of maternal deaths in our study reflects ignorance and poor health education regarding importance of antenatal checkups. The need of the hour is proper functioning of JSY and JSSK scheme under NRHM which encompasses the registration of antenatal cases, identification of high risk cases like anaemia, hypertension etc, their timely treatment, free cashless institutional deliveries, free to and fro transport, cash assistance, general public awareness regarding danger signs, importance of intake of proper iron rich diet, maintenance of personal hygiene and small family size. To prevent mishaps in deliveries, early referrals and prompt transportation services are required. The network of well trained ASHA workers should be strengthened which form link between pregnant women and health system.  
Keywords: NIL.
INTRODUCTION

Maternal death or maternal mortality is defined by the World Health Organization (WHO) as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes."1,2

There are two performance indicators that are sometimes used interchangeably: maternal mortality ratio and maternal mortality rate, which confusingly both are abbreviated "MMR".3 By 2017, the world maternal mortality rate had declined 44% since 1990, but still every day 830 women die from pregnancy or childbirth related causes.4 According to the United Nations Population Fund (UNFPA) 2017 report, this is equivalent to "about one woman every two minutes and for every woman who dies, 20 or 30 encounter complications with serious or long-lasting consequences. Most of these deaths and injuries are entirely preventable."5

UNFPA estimated that 303,000 women died of pregnancy or childbirth related causes in 2015.6 These causes range from severe bleeding to obstructed labour, all of which have highly effective intervention. As women have gained access to family planning and skilled birth attendance with backup emergency obstetric care, the global maternal mortality ratio has fallen from 385 maternal deaths per 100,000 live births in 1990 to 216 deaths per 100,000 live births in 2015, and many countries halved their maternal death rates in the last 10 years.7

Although attempts have been made in reducing maternal mortality, there is much room for improvement, particularly in impoverished regions. Over 85% of maternal deaths are from impoverished communities in Africa and Asia. The effect of a mother's death results in vulnerable families. Their infants, if they survive childbirth, are more likely to die before reaching their second birthday.8

India is among those countries, which has a high maternal mortality ratio. Maternal mortality varies from state to state and region to region in India itself. Maternal mortality ratio is a vital index of the effectiveness of prevailing obstetric services and socioeconomic affluence of a country.9 It also reflects the educational and public health consciousness of a country. Institutional mortality rates are 2-10 times higher as compared with field surveys because most of the seriously ill patients are referred to the nearest tertiary care centre. The Government of India is committed and struggling to tackle the health and mortality statistics of the rural poor, and of the scheduled caste and tribal peoples, which significantly contribute to the global mortality rates of mothers and children under the age of 5 years.

The health of the mother is the corner stone for the health of the entire family and the mother and child must be considered as one unit because the healthy mother always brings forth a healthy baby. In any community mothers and children constitute a priority group reason behind is they not only account for large sector of population they also a “Vulnerable” (or) a special risk group. The risk is connected with child bearing & delivery in case of women and growth, development and survival in case of Infants and children. According to WHO a maternal death is defined as "the death of a women while pregnant (or) within 42 days of termination of pregnancy, irrespective of the duration & site of pregnancy, from any cause related to (or) aggravated by the pregnancy or its management but not from accidental (or) incidental causes.” Global observations show that in developed regions maternal mortality ratio averages at 16 per 100000 live births but in developing regions the figure is 230 for the same number of live births. Further the problem is largely preventable. Worldwide about 800 women die every day from pregnancy-child birth related causes. In 2013, 289000 maternal deaths were happened in the world and 99% of these deaths occurred in developing countries. Since 1990, maternal deaths worldwide have dropped by 45% related to Millennium development Goal (MDG) adopted by international community in 2000. In sub-Saharan Africa, a number of countries have halved their maternal mortality since 1990. In Asia & North Africa, even a greater headway has been made. In India 190/1 Lakh MMR was present in 2013. And India contributes 17% (50000) of the world’s maternal deaths9, MMR with reference to states in India, the southern states Kerala and Tamilnadu have less than 100 per thousand live births among all the states. And the lifetime risk of maternal death in...
india as on 2013 is 1 in 190 whereas the same in usa is 1 in 1800.11

Aims and objectives:

1. To calculate the Maternal Mortality Ratio in our Hospital.
2. To assess epidemiological aspects of Maternal Mortality.
3. To assess the direct and indirect causes of Maternal Mortality.

To identify the avoidable factors leading to Maternal Death.

Materials and Methods:

Our Hospital NSCB Medical College Jabalpur is a 860 Bedded Multi specialty Hospital situated in Mahakaushal Region. It drains vast population from the Jabalpur City as well as nearby peripheral health centers. The average numbers of obstetrics admissions are 2000/month.

The present study is Prospective and Observational study undertaken in the Department of Obstetrics and Gynecology for a period of 15 Months effective from 1st January 2018.

Detailed data regarding maternal Mortality will be collected from case sheet of concerned patient in our Hospital. The collected data can be analyzed with respect to epidemiological parameters such as relationship with age, parity, locality, socioeconomic status, literacy, Place of delivery, stage of pregnancy or labour, admission to death interval, referral status and direct and indirect causes of maternal death.

The collected data will be accurately analyzed with respect to their numbers, causes and contributory factors.

Interpretation of data will aim at identifying trends in Maternal Mortality, demographic and sociogeographic context, risk factors and avoidability of deaths. The focus will remain on those factors which can be prevented and reminded.

The total number of live births during the study period will also be collected. The cause of death ascribed for maternal death will be recorded from the copies of attached death certificate and will be confirmed by the cross checking details from case files.

Conclusion:

The analysis of maternal deaths in our study reflects ignorance and poor health education regarding importance of antenatal checkups. The need of the hour is proper functioning of JSY and JSSK scheme under NRHM which encompasses the registration of antenatal cases, identification of high risk cases like anaemia, hypertension etc, their timely treatment, free cashless institutional deliveries, free to and fro transport, cash assistance, general public awareness regarding danger signs, importance of intake of proper iron rich diet, maintenance of personal hygiene and small family size. To prevent mishaps in deliveries, early referrals and prompt transportation services are required. The network of well trained ASHA workers should be strengthened which form link between pregnant women and health system.

In today’s modern era of medicine most maternal deaths are seen in women from rural areas, less educated, un-booked and patients from low socioeconomic status, who had to travel a lot to reach a tertiary care centre. Also, there is no awareness of warning signs in pregnancy. High risk cases should be identified. Early referral, easy transport, continued skill based training, up-gradation of hospitals, monitoring of health services can reduce maternal mortality.

Observations and results:

The present study is Prospective and Observational study undertaken in the Department of Obstetrics and Gynecology for a period of 15 Months effective from 1st January 2018.

A total of 129 maternal deaths occurred during 15 months study period from January 2018 to March 2019. Most of these (80.62%) were from rural area and 19.37% were from urban area. Of the total 129 maternal deaths, 80 women (62.01%) delivered in the Maternal Child Health whereas 25(19.37%) delivered in DH. Majority of deaths (54.40%) occurred in the postnatal period, followed by antenatal (27.90%) and intranatal period (17.70%).

Direct causes contributed to 67.70% maternal deaths and indirect causes contributed to 32.30% maternal deaths. Among the direct causes of maternal deaths, majority (40.30%) was from eclampsia followed by Sepsis (17.05%). Obstructed labour and antepartum Hemorrhage were the uncommon direct causes responsible for 1.55, 12.40% respectively. Pulmonary
embolism (7.75%) was the most common indirect cause of maternal mortality in our study.

**DISCUSSION:**

A total of 129 maternal deaths occurred during 15 months study period from January 2018 to March 2019. Average of MMR over 15 months study period was observed to be 129/1,00,000 live births.

Most of these (80.62%) were from rural area and 19.37% were from urban area. Of the total 129 maternal deaths, 80 women (62.01%) delivered in the Maternal Child Health whereas 25(19.37%) delivered in DH. Majority of deaths (54.40%) occurred in the postnatal period, followed by antenatal (27.90%) and intranatal period (17.70%).

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Maternal mortality reduction has been the topmost priority for the international community. The Millennium Development Goals 7 and the WHO 1’review the importance of maternal mortality reduction as a healthcare issue. A recent systematic review of the causes of maternal mortality and its geographic distribution has shown that the Indian subcontinent has a significantly higher maternal mortality attributable to sepsis, infection and hemorrhage. Death of mother is a tragic event. In practical life, it has a severe impact on the family, community and eventually, the nation. Reduction of maternal mortality is the aim of millennium development goals.

By increasing public knowledge about pregnancy, including signs of complications that need addressed by a healthcare provider, this will increase the likelihood of an expecting mother to seek help when it is necessary. Higher levels of education have been associated with increased use of contraception and family planning services as well as antenatal care. Addressing complications at the earliest sign of a problem can improve outcomes for expecting mothers, which makes it extremely important for a pregnant woman to be knowledgeable enough to seek healthcare for potential complications. Improving the relationships between patients and the healthcare system as a whole will make it easier for a pregnant woman to feel comfortable seeking help. Good communication between patients and providers, as well as cultural competence of the providers, could also assist in increasing compliance with recommended treatments. 20

In the present study, MMR during the study period was 129 per lac live births. NSCB Medical College, Hospital is a tertiary care centre catering patients from all the districts in Madhya Pradesh. Nevertheless MMR in our hospital is well below the national MMR and MMR reported in other studies like 358.69/lakh live births reported by Saini and Gupta and 690/lakh live births reported by Puri Aet al. 6

**REFERENCES:**


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