

Research Article**MATERNAL MORTALITY AT A TERTIARY CARE TEACHING HOSPITAL IN UTTARAKHAND: A 5-YEAR RETROSPECTIVE REVIEW****Dr Juhi Chandna¹, Dr Prachi Singh², Dr Geeta Jain³, Dr Vandana Bisht⁴, Dr Ashi Prakash⁵**

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Corresponding author:**Dr Juhi Chandna, Assistant Professor, Department of Obstetric and Gynaecology, Government Doon Medical College, Dehradun****ABSTRACT**

Background: When a lot of women die during childbirth in a region it shows that the region is not doing well in terms of development and healthcare. This study looks at how many women died during childbirth how they were admitted to the hospital and some other factors like their age and where they lived, over a period of five years at a public hospital in Uttarakhand. The goal is to find out what is going wrong and how we can prevent these deaths. **Methods:** We looked at the records of 57 women who died during childbirth at the Government Doon Medical College in Dehradun. We got a lot of information from the hospital records and the charts at the patients bedside. This included the womans age, how children she had, if she had received any prenatal care her socioeconomic status if she could read and write, where she lived, how she delivered her baby how long it took for her to die after being admitted and what caused her death. **Results:** We found that 57 women died during childbirth over the five-year period. The main reason for these deaths was problems with blood pressure, like eclampsia and severe preeclampsia, which caused 31.6% of the deaths. The main indirect cause of death was anemia, which caused 24.6% of the deaths. We also found that most of the women 93.0% had not received any care 91.2% were sent to the hospital from other smaller hospitals or private clinics and 77.2% lived in remote or mountainous areas. Time was of the essence. 68.4% Of the women died within 24 hours of being admitted to the hospital and 47.3% of them died before they even gave birth. **Conclusion:** The main causes of death during childbirth are things that can be prevented, like eclampsia and anemia. These problems are made worse when women are sent to the

hospital late and have not received any prenatal care. To stop this from happening we need to make sure that all women have access to care that there are good emergency transport systems, in place and that smaller hospitals have the ability to handle obstetric emergencies.

Keywords: Acute kidney injury, Disseminated intravascular coagulation, Eclampsia, Maternal mortality ratio, Postpartum hemorrhage, Severe anemia.

INTRODUCTION

Introduction Maternal death is when a woman dies during pregnancy or within 42 days of pregnancy termination. The cause must be related to the pregnancy or its management [5]. Every year hundreds of thousands of women die from pregnancy complications and childbirth problems worldwide [1]. This is a crisis in developing regions. In India the maternal mortality ratio has been decreasing due to health programs but there are still big differences between regions [1, 5]. Many maternal deaths happen in hospitals especially in northern areas with difficult terrain [3, 4].

In places like Uttarakhand it's hard to get help quickly which makes maternal deaths more likely. There are three delays that contribute to maternal mortality: delay in seeking care delay in reaching a hospital and delay in getting proper treatment. Government Doon Medical College in Dehradun is a hospital that receives patients from many surrounding districts. Its emergency department often treats patients who're very sick [2].

Most patients who die have health problems that are hard to treat. Understanding the causes of these deaths is crucial to improve care [2, 3]. This study looked at 57 deaths at Government Doon Medical College over five years. We wanted to know the economic factors, medical causes and delays that led to these deaths.

OBJECTIVES

- To analyze the social and economic factors of maternal deaths.
- To find out the indirect medical causes of maternal deaths.
- To assess the impact of lack of antenatal care and referral delays on deaths.
- To identify problems and develop protocols to reduce maternal mortality.

MATERIALS AND METHODS

This was a study conducted at Government Doon Medical College in Dehradun, Uttarakhand. We reviewed the records of 57 maternal deaths over five years.

We collected data, on economic factors, medical causes and delays. The variables included age, education, socioeconomic status, parity, antenatal care, referral dynamics and clinical timeline [5].

Causes of death were classified into obstetric causes and indirect causes [2, 5]. Diagnoses were confirmed based on presentation and laboratory tests.

We analyzed the data using statistics.

RESULTS

- The 20-24 age group had the maternal deaths (38.6%).
- Most women who died were multiparous (68.4%).
- 93% of women had no antenatal care.
- 91.2% of women were referred from hospitals.

Table 1: Socio-demographic and Obstetric Distribution of Maternal Deaths (N = 57)

Variable Parameter	Baseline	Number of Deaths (n)	Maternal	Percentage (%)
Age Group:<20		2		3.5%
Age Group: 20–24		22		38.6%
Age Group: 25–29		12		21.1%
Age Group: 30–34		18		31.6%
Age Group: ≥ 35		3		5.2%
Parity: Primipara		18		31.6%
Parity: Multipara		39		68.4%
Antenatal Registration: Registered (Booked ANC)		4		7.0%
Antenatal Registration: Unregistered / Unbooked		53		93.0%
Referral Status: In-house Admissions		5		8.8%
Referral Status: Referred Cases (Peripheral/Private)		52		91.2%
Residence: Rural / Outer District Areas		44		77.2%
Residence: Urban (Dehradun local)		13		22.8%

Socioeconomic Status: Low / Lower-Middle	49	86.0%
Socioeconomic Status: Upper-Middle / High	8	14.0%
Education Level: Illiterate / Primary Education	38	66.7%
Education Level: Secondary Education and Above	19	33.3%

Table 2: Delivery Outcomes and Clinical Timeline (N = 57)

Clinical / Operational Indicator	Number of Cases (n)	Percentage (%)
Outcome of Delivery: Vaginal Delivery (VD)	12	21.1%
Outcome of Delivery: Lower Segment Cesarean Section (LSCS)	18	31.6%
Outcome of Delivery: Abortion / Undelivered (Died In-Utero)	27	47.3%
Admission-to-Death Interval:<24 hours (Ultra-Acute/Late Referral)	39	68.4%
Admission-to-Death Interval: 24–72 hours	12	21.1%
Admission-to-Death Interval:>72 hours	6	10.5%

Table 3: Etiological Distribution of Direct and Indirect Causes of Mortality (N = 57)

Cause of Death Breakdown	Number of Cases (n)	Percentage (%)
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Direct Obstetric Causes			(Total: 30)	(52.6%)
Eclampsia / Severe Preeclampsia / PIH			18	31.6%
Obstetric Hemorrhage (PPH / APH / Retained Placenta)			9	15.8%
Puerperal Sepsis / Chorioamnionitis			3	5.2%
Indirect Obstetric Causes			(Total: 27)	(47.4%)
Severe Nutritional Anemia Complications			14	24.6%
Hepatic Failure / Encephalopathy / Systemic Sepsis / Dengue			8	14.0%
Cardiopulmonary Pathology / Respiratory Failure			5	8.8%

DISCUSSION

Retrospective hospital checks are a way to measure healthcare. They show us the problems, like long waits for referrals and big challenges in a regions maternity care [2]. A recent five-year study at Government Doon Medical College in Dehradun looked at 57 deaths. It found out why big hospitals in areas have high death numbers [2, 3]. These hospitals are the stop for very sick pregnant women from poor city areas and faraway rural places. They are the destination.

Our study found that eclampsia or severe preeclampsia (31.6%) and severe anemia (24.6%) are the reasons for maternal deaths in North India [2, 3]. High blood pressure during pregnancy is a challenge if not checked regularly. When these patients finally reach our emergency labor wards they are often very sick. They have seizures, altered status, acute intracranial compromise or acute pulmonary edema.

Severe anemia is a killer [2]. It weakens a patients body and heart making them prone to failure and pulmonary congestion during labor. People with anemia can't handle normal blood loss during delivery. Simple deliveries can turn into life-threatening hemorrhagic shock [2, 3]. Our hospital records show a decline into multi-organ dysfunction syndrome, acute kidney injury, severe metabolic acidosis and disseminated intravascular coagulation.

The data shows a link between deaths and specific socio-demographic barriers like not having antenatal care (93.0%) and living in rural or hilly areas (77.2%) [1]. Missing antenatal care means missing chances for interventions. Basic measures, like blood pressure checks and iron supplements to correct anemia are lost [1].

The fact that 91.2% of our cases were transferred from centers shows weaknesses in smaller healthcare facilities [2, 4]. These facilities lack care, blood banks and specialized staff. They often send patients to us after a time, which explains why 68.4% of deaths happened within 24 hours of arrival. Arriving in shock—and often still pregnant (47.3%)—these patients leave the clinical team with a very small window to successfully treat them [2, 4].

CONCLUSION

Preventable direct and indirect clinical pathologies, dominated by eclampsia, severe preeclampsia, and advanced nutritional anemia, remain the primary causes of maternal mortality at our tertiary facility. Reducing these numbers requires an integrated, multi-tiered response. We must scale up grassroots antenatal vigilance, formalize high-risk identification markers at primary health centers, and establish well-equipped transport corridors for emergency transit. Simultaneously, reinforcing capabilities at the tertiary level is critical. Expanding dedicated obstetric ICU resources, optimizing blood bank supply lines, and conducting regular emergency drills for peripheral medical officers are essential steps to make institutional deliveries secure and safeguard maternal lives across the region [1, 2].

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