

## MULTIPARAMETRIC STUDY OF OBSTETRIC AND GYNECOLOGICAL EMERGENCY CASES REFERRED TO A TERTIARY CARE CENTER

Dr. Rina V Patel, **Dr. Viral M Pandya\***, Dr. Dhaval B Patel, Dr. Hardik D Shah

Department of Obstetrics and Gynecology, V.S. Hospital, Ahmedabad, India

Email: [drviralpandya@gmail.com](mailto:drviralpandya@gmail.com)

### Keywords:

Obstetric emergency, gynaecological emergency, peripheral health centers, emergency care..

### Abstract

**Background:** To analyze the availability of adequate emergency care for obstetric and gynaecological emergencies at health centers at periphery level by a multiparametric study of obstetric and gynaecological emergency cases referred to a tertiary care center.

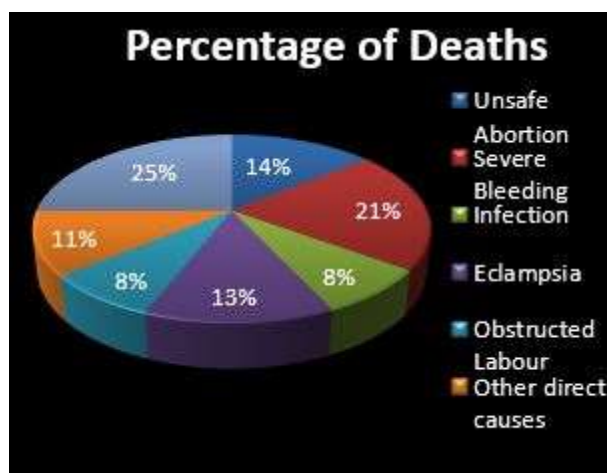
**Methods:** 250 consecutively referred cases to our tertiary care centre from various peripheral and private hospitals were included in the study and prospectively analysed for the cause of emergency obstetric/gynaecological treatment referral, treatment obtained before arrival, time delays during various points of treatment and impact of these factors on the prognosis of the patient

**Results:** Out of the 250 cases studied, 206 were obstetric referrals while 44 were gynaecological cases. The most common obstetric referral was for better management of patients in active labour (n=83). . Other major obstetric causes included abortion and its related complications (n=38), patients having retained placenta (n=29) and foetal malposition (n=28). The most common gynaecological emergency was menorrhagia (n=22). 41% of cases were referred to us from PHCs from sub-urban areas within a 50 km radius of the city.

**Conclusion:** Four areas of need - cost-barriers to treatment (n=92), non-availability of blood, blood components, and blood transfusion monitoring facilities (n=78), unavailability of certain essential and non-essential but important drugs (n=34) and shortage of 24-hour trained staff (n=54) - can be pinpointed from our study, which, if adequately addressed, would greatly increase the life-saving capability of primary and secondary centres.

### Introduction

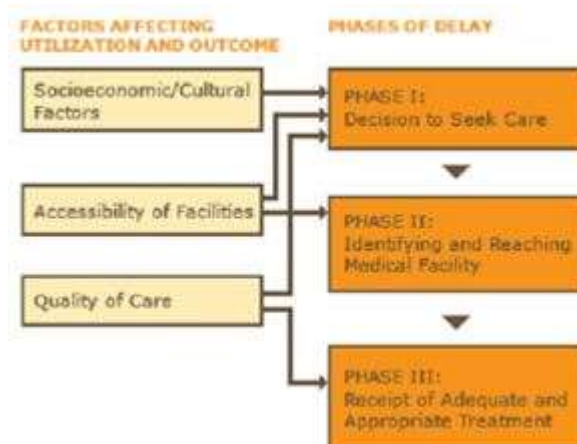
Availability of adequate emergency care for obstetric and gynaecological emergencies is central to achieving National Rural Health Missions (NRHM) goal of reducing MMR to 100 per 1,00,000 live births<sup>[1]</sup>. More than 80% of maternal deaths worldwide are due to five direct causes<sup>[2]</sup> which can be adequately managed at a well-equipped health facility with a well-trained staff. One of the key contributing factors for this situation is the lack of skills among rural general doctors and medical officers in primary health care system to provide high quality Emergency Obstetric Care (EmOC) and MTP services<sup>[1]</sup>. The World Health Organization estimates that at least 88–98% of maternal deaths can be averted with timely access to existing, emergency obstetric care using effective and efficient referral systems<sup>[4]</sup>. In India, the Ministry of Health and Family Welfare in partnership with FOGSI and ICOG has embarked upon implementing the Comprehensive Emergency Obstetric (EmOC) Certificate Program to help our country achieve the goals set as per NRHM.<sup>[1]</sup>



At peripheral health centre level (PHC and CHC) the availability of basic Essential Obstetric Care (EOC) is necessary for the initial management of various obstetric and gynaecological emergencies. Further, district hospitals function as a primary referral centre which should ideally provide EOC as well as additional components of Emergency Obstetric Care (EmOC) like facilities for surgery as well as blood transfusion.

Parenteral Antibiotics	Parenteral Oxytocics
Parenteral Sedatives for Eclampsia	Skills essential for MRP and removal of retained products.
Assisted vaginal delivery	New-born care

The Prevention of Maternal Mortality (PMM) network study has proposed a three delays model<sup>[5]</sup> for referrals in obstetric and gynaecological emergencies. Thus along with providing care at tertiary centres, it has become essential to assess the existing health service facilities in order to gauge lapses or deficiencies and accordingly recommend interventions based on clinical evidence to cut down the delay time to treatment.



### Study model – material and methods

250 consecutively referred cases to our tertiary care centre from various peripheral and private hospitals were included in the study and prospectively analysed for the cause of emergency obstetric/gynaecological treatment referral, treatment obtained before arrival, time delays during various points of treatment and impact of these factors on the prognosis of the patient. Patients who self-referred themselves were excluded from the study.

### Data analysis and discussion

Out of the 250 cases studied, 206 were obstetric referrals while 44 were gynaecological cases. The cases demonstrated significant overlap between their diagnoses, with 67% referred for two or more risk factors.

The most common obstetric referral was for better management of patients in active labour (n=83). Cases of foetal distress due to Meconium Stained Liquor (n=26), Oligohydramnios (n=38), Obstruction and non-progress of labour (n=17) were common, while one case of dystocia and one case of cord prolapse was seen. Patients having severe anaemia (n=82) presented with blood haemoglobin values less than 7 gram%. Maternal pre-eclampsia and eclampsia (n=72) formed the third major group of referrals. Other major obstetric causes included abortion and its related complications (n=38), patients having retained placenta (n=29) and foetal malposition (n=28).

*Table 1: Type of emergency referrals encountered and their causes*

<b>OBSTETRIC (n=206), with overlap</b>	
Prolonged / Obstructed labour and foetal distress	83
Severe Anaemia	82
PIH / Eclampsia	72
Abortion & related complications	38
Retained Placenta	29
Foetal malposition	28
Placental Abruption / APH	23
PPH	23
Septic patient (HIV/HEV/HbsAg)	18
Foetal IUD	16
Ectopic Pregnancy (ruptured / unruptured)	12
Placenta Previa	8
<b>GYNECOLOGICAL (n=44)</b>	
Menorrhagia	22
Vulvar laceration / hematoma	8
Sexual Assault	7
Torsion of Ovarian Cyst	3
Endometritis and PID	2
Pelvic organ prolapse	2

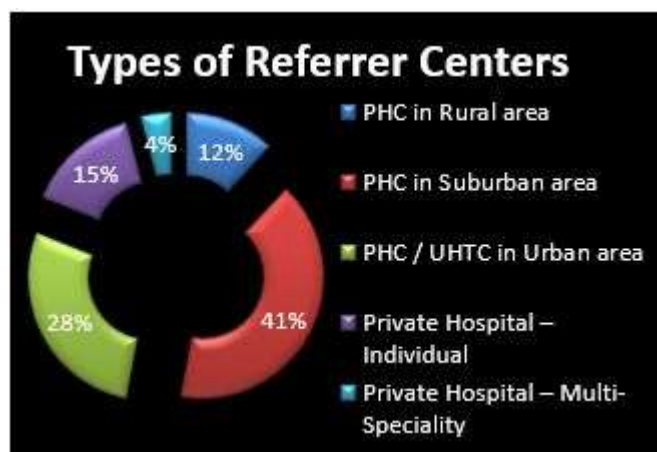
The most common gynaecological emergency was menorrhagia (n=22) which overlapped with anaemia in many cases, with patients presenting in a poor general condition (n=4). Other significant causes included genital lacerations/hematomas (n=8) and medico-legal cases of sexual assault (n=7).

*Table 2: Socio-demographic characteristics of patients*

<b>AGE (n=250) in %</b>		<b>S-E CLASS (n=250) in %</b>		<b>PARITY (n=250) in %</b>		<b>MATURITY (n=208) in %</b>	
<20 years	3.2						
<b>21-25 years</b>	<b>35.2</b>	<b>Lower</b>	<b>72</b>				
<b>26-30 years</b>	<b>28.8</b>	Middle	24	Nulliparous	3.2	<20 weeks	23.1

31-35 years	12	Upper	04	Primipara	38.8	20-28 weeks	12
36-40 years	8.8			<b>Multipara</b>	<b>58</b>	<b>28-37 weeks</b>	<b>54.8</b>
41-45 years	7.2	<b>LOCALITY (n=250) in %</b>				>37 weeks	10.1
46-50 years	2.8	<b>Rural</b>	<b>62</b>				
>50 years	2	Urban	38				

64% of patients were from the age group of 21-30 years. Patients with age above 40 years presented with gynaecological disorders (12%). 72% patients were from lower socio-economic class, mostly coming from rural or sub-urban localities. Nulliparous patients (3.2%) included patients of sexual assault and ovarian cyst torsions, while 58% patients were multiparous. 35% of the obstetric cases presented before the age of viability (<28 weeks).



41% of cases were referred to us from PHCs from sub-urban areas within a 50 km radius of the city. PHCs and UHTCs within city limits referred 28% of the cases while a minority of cases were referred from rural PHCs. 27% patients were referred from private hospitals.

At the referrer centre, 70.8% of the cases were registered patients who had taken treatment from that centre for at least one or more times prior to presenting as an emergency. 33.2% patients were taking regular ante-natal check-up visits at the same centre. 29.3% of the patients presented as emergency cases to the referrer centres. Specific treatment for the patient's condition, along with first aid treatment, was given in 62% of the patients before referral. 16% patients were directly referred to us without any preliminary Rx. Decision to refer the patient was taken under 2 hours in 26% of the cases. 26% patients were referred after 2-12 hours, representing the lag time for investigations and workup of the patient before referral.

**Table 3: Patient status at referrer centre**

REGISTERED PATIENT (n=250) in %		TREATMENT GIVEN BEFORE REFERRAL (n=250) in %	
Yes	70.8	Only First Aid	22
No	29.2	<b>First Aid + Specific Rx</b>	<b>62</b>
		No Treatment given	16
ANC VISITS (n=208) in %		TIME DELAY BETWEEN PRESENTATION AND REFERRAL (n=250) in %	
Adequate	33.2	<2 hours	26
Inadequate	37.5	2-6 hours	6.8
No visits	29.3	6-12 hours	19.2
		<b>&gt;12 hours</b>	<b>48</b>

48% of patients were transferred via well-equipped ambulance with full resuscitation facilities. Transfers from hospitals in remote areas also took place by ambulances having only basic first-aid facilities (12%). 40% of transfers occurred via private vehicles. Trained paramedic personnel administered first-aid treatment in all transfers occurring by ambulance. Transfers from sub-urban and rural centres took more than 6 hours, the root causes for the delay being the larger distance and poor road network connectivity. The cases referred from urban centres and private clinics presented to us within a time gap of 30 minutes to 2 hours.

**Table 4: Transportation**

<b>MODE OF TRANSPORTATION (n=250) in %</b>	
Ambulance with resuscitation facilities	48
Ambulance with basic facilities	12
Private vehicle	40
<b>TREATMENT GIVEN DURING TRANSIT (n=250) in %</b>	
<b>Only First Aid</b>	<b>52</b>
First Aid + Specific Rx	16
No Treatment given	32
<b>TIME DELAY DUE TO TRANSPORT (n=250) in %</b>	
<30 minutes	12.8
30 minutes – 2 hours	38
2 hours – 6 hours	11.2
>6 hours	38

37.9% of the obstetric patients were in active labour on arrival, while 48.1% of the patients were ante-partum. 59% patients arrived in a fair general condition. 23% of patients presented in a poor general condition with their Glasgow Coma Scale readings ranging from 4 to 8. Cases having active internal or external bleeding with severe anaemia presented with hemodynamic shock-like state in a poor general condition. 18% patients in a good general condition included patients with leucorrhoea, pelvic organ prolapse, PID, false labour pains and PID. This indicated that many disorders which are currently misperceived as emergencies, need not be treated urgently, and may require a proper work-up before its appropriate treatment is initialized.

**Table 5: Patient status at tertiary care centre**

<b>PARITY STATUS ON ARRIVAL (n=208) in %</b>		<b>DELAY TO TREATMENT (n=250) in %</b>	
Antepartum	48.1	<15 minutes	6
Intrapartum	37.9	15 minutes – 30 minutes	16
Postpartum / Postabortal	14	<b>30 minutes – 1 hour</b>	<b>54</b>
		>1 hour	24
<b>GENERAL CONDITION OF PATIENT (n=250) in %</b>		<b>MODE OF MANAGEMENT (n=250) in %</b>	
Poor	59	Conservative (medical / OPD basis)	18
<b>Fair</b>	<b>23</b>	<b>Active (transfusion/induction)</b>	<b>58</b>
Good	18	Surgical	24

Patients who arrived in a poor general condition were immediately given first aid treatment, and specific treatment was started for cases like eclampsia and PPH in 6% of cases in less than 15 minutes of arrival at our centre. After

proper triaging, 54% of the patients were administered treatment within the first hour, after urgent work-up of blood investigations and ultrasonography reporting was done. 24% of the cases were treated after adequate assessment. 18% of the cases were treated on an out-patient basis with conservative medical treatment. Immediate surgical management was done in 24% of cases which included cases of ruptured ectopic pregnancy, foetal distress and obstructed labour, placental abruption and APH, traumatic/septic abortion, retained placenta, and ovarian cyst torsion. Rest of the patients were managed actively by providing specific treatment for their disorder like transfusions for severe anaemia, eclampsiolytics for cases of PIH and eclampsia, and injectable higher antibiotics for sepsis and severe PID with endometritis.

After the general condition of the patient stabilized, a questionnaire based survey was conducted to determine the reasons for referral to tertiary care centre. No single reason could be pinpointed for each case, and significant overlap was demonstrable between causes related to human resources, infrastructure and equipment availability as well as patient factors. But the most significant causes included cost-barriers to treatment (n=92), non-availability of blood, blood components, and blood transfusion monitoring facilities (n=78), unavailability of certain essential and non-essential but important drugs (n=34) and shortage of 24-hour trained staff (n=54).

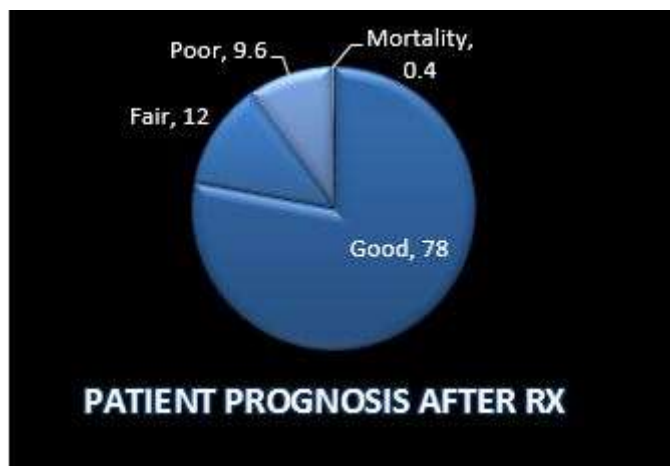
**Table 6: Cause for referral to higher centre (n=250 with overlap)**

HUMAN RESOURCES RELATED		INFRASTRUCTURE & EQUIPMENT RELATED	
Shortage of trained staff	21	Inadequate drug supply	34
Poorly trained staff	17	Lack of beds	32
Poor supervision	6	Shortage of water supply / power supply	44
High workload on the hospital	2	Unavailable diagnostic equipment / facility	65
Absenteeism of appointed staff	14	Equipment available but non-functional / faulty	12
Unavailability of 24-hour emergency staff	33	Non-availability of surgical facility	37
		Non-availability of blood and blood components	78
PATIENT FACTORS			
Cost – related	92		
Poor attitude of nursing staff / dissatisfaction	80		
Sociocultural or religious factors	12		

One patient of severe eclampsia encountered mortality after ICU admission for one week. 9.6% of patients had poor prognosis, which included undergoing life-saving surgery of obstetric hysterectomy for placenta previa & abruption (n=6), pulmonary oedema and ventilator support in ICU after hemodynamic shock and severe anaemia (n=8), and hepatic encephalopathy following HEV (n=2). Foetal demise occurred in one case of cord prolapse (n=1) and three cases of obstructed labour and dystocia (n=3) which can also be considered to be poor prognoses. Salpingo-oophorectomy for torsion and ruptured ectopic pregnancy cases (n=4) also indicate a poor prognosis due to the loss of fertility potential of the patient. All conservatively and actively managed patients had fair to good prognosis with healthy patients and healthy neonates on discharge. 84% of the admitted patients were discharged within 48 hours of admission.

**Table 7: Duration of stay**

<12 hours	16%
12-24 hours	32%
24-48 hours	36%
>48 hours	16%



### Conclusion

Four areas of need can be pinpointed from our study, which, if adequately addressed, would greatly increase the life-saving capability of primary and secondary centres. This would resultantly decrease the burden on tertiary care centres, thus enabling effective triaging of patients and helping provide expert care to the cases which actually need it. Also, exercises to spread adequate awareness regarding warning signs of antenatal period need to be conducted in order to alert the patients and avoid delay in providing appropriate treatment. A K-A-P study followed by educational sessions for expecting mothers would be the ideal way to gauge the impact of intervention on maternal awareness.

### References

1. EmOC – Joint initiative of Ministry of Health and Family Welfare, Govt. of India, FOGSI and ICOG <http://www.emocfogsii.in/>
2. United Nations Population Fund – Emergency Obstetric and New-born care to all in need <http://www.unfpa.org/public/home/mothers/pid/4385>
3. Murray, S. F., & Pearson, S. C. (2006). Maternity referral systems in developing countries: Current knowledge and future research needs. *Social Science and Medicine*, 62, 2205–2215.
4. WHO (1994) *Mother-Baby Package: Implementing Safe Motherhood in countries*. Geneva: WHO/FHE/MSM/94.11
5. Thaddeus S, Maine D (1994) *Too far to walk: maternal mortality in context*. *Social Science and Medicine*, 38, 1091–1110.