



## A PROSPECTIVE OBSERVATIONAL STUDY OF MATERNAL OUTCOME OF ALL REFERRED OBSTETRIC CASES ADMITTED IN OBSTETRICS AND GYNECOLOGY DEPARTMENT OF A TERTIARY CARE CENTRE IN SOUTH GUJARAT

<b>Dr Dwitiya Mody</b>	Resident doctor, Department of obstetrics and gynaecology, Government medical college, Surat
<b>Dr Khushboo Verma</b>	Assistant professor, Department of obstetrics and gynaecology, Government medical college, Surat
<b>Dr Bhoomika Chaudhari</b>	Assistant professor, Department of obstetrics and gynaecology, Government medical college, Surat
<b>Dr Anjani Shrivastava</b>	Associate professor, Department of obstetrics and gynaecology, Government medical college, Surat

### ABSTRACT

**Objective:** To check the effectiveness of referral system in South Gujarat, To check the type of referral centre, to analyse the cause of referral, To study the maternal outcome in all referred cases. **Materials**

**And Methodology: Study Design:** Prospective observational study **Study Population:** All obstetric referred cases admitted in labour room in Obstetrics and Gynaecology department of New Civil Hospital Surat over 1-year period after official approval from Ethical Committee. Data related to baseline characteristics, reason for referral, type and distance of referring centre and maternal outcome were analysed. **Result:** Out of 250 referred obstetric cases, 60% were registered at NCHS. 52% were referred from primary health centre followed by from CHC (12%). 70% cases referred from Surat district. 91% patients were transferred in 108. 50% patients are antenatal at time of referral. Most common cause of referral is hypertensive disorder of pregnancy (14%) followed by anaemia (9%). Out of 250 patients, 34% underwent LSCS. 36 patients required OBICU admission. 68 patients required blood transfusion. 10 cases were near miss which is 10% and there was 6 maternal mortality. **Conclusion:** To establish effective and timely referral system, peripheral health care system needs to be strengthened by means of proper trained and skilled staff, essential equipment, blood banks, good transportation facility, etc

**KEYWORDS :** Referral centres; Causes of referral; Maternal outcomes; Tertiary health care; South Gujarat.

### INTRODUCTION:

Women die every year in India<sup>1,2</sup> which contribute 20-25% of all maternal deaths in the world. One estimate show that with one maternal death, 15% pregnancies develop complication which necessitates tertiary obstetric care<sup>3</sup>. The referral system is a core factor in health care delivery systems. It plays a crucial role in antenatal care and childbearing by providing access to emergency obstetric care, antenatal and delivery care in primary level facilities.<sup>4</sup> The term referral is used to indicate the recommendation of a health care provider at one level of the health system, having limited resources (medications, equipment, skilled professional) to manage a clinical condition for the assistance of an improved resourced facility which is of similar or higher level to assist in or take over the management of patient.<sup>5</sup>

World Health Organization (WHO) states that, "Referral is a process in which a health worker at one level of the health system, having insufficient resources (drugs, equipment, skills) to manage a clinical condition, seeks the help of a better or differently resourced facility at the same or higher level to assist in."<sup>6</sup> Referral is a process by which a health worker transfers the responsibility of care temporarily or permanently to another health professional or social worker or to the community<sup>7</sup>

The objective of antenatal care is to detect high risk cases as early as possible from large group of antenatal patients and arrange for them skilled care. Therefore antenatal care, the primary aim of which is to achieve at the end of pregnancy a healthy mother and a healthy child should be provided to every woman.

Improving Maternal Health is one of the Sustainable Development Goal and a vital component towards achieving Continuum of Care. Gujarat has made considerable progress over the last decade in Maternal and Child Health by providing accessible qualitative health services especially for

rural areas, out reached areas and the poor. Maternal Mortality Ratio (MMR) of Gujarat has reduced from 172 per 1 lakh live births in year 2001 – 2003 to 70 per 1 lakh live births in year 2017 – 2019 (SRS).<sup>8</sup>

Global scenario Worldwide, there are two major types of health facilities ex. primary care facilities and hospitals in most of the countries. Health care systems of every country are designed in such a way to encourage patients to first attempt to get care at the primary level, and then to approach a higher level of care according to the need. This protocol minimizes the costs for the caretaker/patients.<sup>9</sup> Indian scenario Likewise, in India, based on the need and availability of resources the patients are referred from lower to higher level and vice-versa, but at ground level, different scenarios are observed.<sup>10</sup>

In India, several innovative emergency referral transportation services are provided through the public system or public-private partnerships.<sup>11-13</sup> The '108' call centre based ambulance system is a free of cost emergency response system, known to be one of the largest public private partnership (PPP) initiatives across India functioning in 20 states and two union territories.

Gujarat government is aiming at strengthening the referral system in all over Gujarat to reduce maternal mortality and morbidity. Effective and timely referral is important as the sudden onset of obstetric complications are needed to be avoided. In south Gujarat, Surat is a centre of all referral from urban and rural health centre. Districts in south Gujarat from where cases are referred to civil hospital, Surat

- SURAT
- BHARUCH
- NAVSARI
- NARMADA
- VALSAD
- TAPI
- DANG

**MATERIALS AND METHODOLOGY:**

This prospective observational study was carried out in obstetrics gynaecology department of our New civil hospital, Surat, enrolling 250 referred obstetrics cases admitting in labour room and intensive care unit of our institute 8 months from March 2021 to October 2022.

Measuring tools required are age of patient, address, presenting complaints, history of events during current pregnancy including antenatal care, obstetric history, past history, menstrual history, general, systemic, abdominal, vaginal examination finding at admission, details noted in reference slip, i.e. referring centre reason for referral, treatment given, mode of transportation, investigation at NCHS, need for interventions (LSCS, blood transfusion, obstetric hysterectomy, laparotomy, OBICU admission, assisted ventilation), details of delivery (vaginal/LSCS), maternal outcome (ongoing pregnancy, abortion, preterm delivery, full-term delivery, mortality)

**RESULT:**

This prospective observational study was carried out in obstetrics gynaecology department of our New civil hospital, Surat, enrolling 250 referred obstetrics cases admitting in labour room and intensive care unit of our institute 8 months. In present study, highest cases – 106 out of 250(42.6%) were at term at time of referral 148 patients out of 250 which is 59.20 % of all cases come between age group of 20-30 years.

**Table: 1 Distribution according to booking status**

Registration Status		Total No. Of Patient	Percentage Of Patient
Booked	At NCHS	150	60.00%
	Outside	63	25.20%
Unbooked	37		14.80%

Out of 250 patients referred to NCHS, 85.20% cases were booked and had taken previous antenatal visits at NCHS or any other government or private hospital where 14.8% cases (37) were unregistered and had not taken any ANC visit. As medical facilities have been improvised day by day, ratio of patients getting ANC visit is increasing day by day. In these 213 booked cases, 150 patients had taken ANC at NCHS while 63 cases had taken ANC visits in periphery.

**Table :2 Distribution according to type of referring facility**

Type	No Of Patient	Percentage Of Patient
PHC	131	52.40%
CHC	31	12.40%
UHC	10	4.00%
SDH	25	10.00%
DH	22	8.80%
Private	31	12.40%

In present study, majority of cases were referred from PHC (52.4%), followed by CHC (12.4%), SDH (10%), DH (8.8%) and UHC (4%) in government facilities. 12.4% cases (31) were referred from private sector. 235 cases(94%) were referred with availability of referral slip. 83 referrals (33.2%) prior information about referral and detail of case were given to NCHS OG department for better management of the patient

**Table:3 distribution according to district**

District	No Of Patient	Percentage Of Referral
Surat	175	70.00%
Tapi	33	13.20%
Valsad	4	1.60%
Navsari	29	11.60%
Bharuch	5	2.00%
Maharashtra-Dhuliya, Nandurbar	4	1.60%

Majority of cases are refereed from within the health centres of Surat district. (175 cases-70%) Surat NCHS is also a referral centre for nearby districts like Tapi (13.2%), Navsari (11.6%), Valsad (1.6%). Around 2% cases are referred from Jhaghadiya of Bharuch district. As Dhule and Nandurbar are in Maharashtra state, still we get referral from it. (1.6 % cases)

**Table:4 distribution according to distance**

Distance(Km)	No Of Patient	Percentage Of Patient
<20	94	37.60%
20-40	64	25.60%
40-60	46	18.40%
60-100	9	3.60%
100-150	33	13.20%
>150	4	1.60%

In present study, 94 cases out of 250 were referred from centres within 20 kms of distance. Only 4 cases were referred from distant more than 150 kms (from Maharashtra). As health centres are increasing with the development of health infrastructure, patients have to travel less than the past to get their health benefits.

**Table:5 distribution according to mode of transport**

Mode Of Transport	No Of Patient	Percentage Of Patient
108	229	91.60%
Private	10	4.00%
Other	11	4.40%

Due to 108 facility, 91.6 % cases (229 cases out of 250) were referred with use of 108 ambulance.

**Table:6 distribution according to gestational status**

Gestational Status	No Of Patient	Percentage Of Patient
Antenatal	125	50.00%
Intranatal	80	32.00%
Postnatal	45	18.00%

In present study, 125 cases were antenatal, 80 were intra natal and 45 were postnatal patients.

**Table:7 distribution according to cause of referral**

CAUSE OF REFERRAL	No of patients	percentage
Preeclampsia/Eclampsia	36	14%
Anaemia	23	9%
Nonprogress Of Labour	14	6%
Thrombocytopenia	13	5%
Prom/Pre prom	13	5%
Gynaecologist Not Available	13	5%
Postpartum Haemorrhage	12	5%
Meconium Stained liqour	12	5%
Antepartum Haemorrhage	11	4%
Preterm Labour	11	4%
Foetal Distress	11	4%
Previous LSCS	10	4%
Sickle Cell Positive	10	4%
Oligo/ Polyhydroamnios	9	4%
Abortion	9	4%
Intra uterine foetal death	8	3%
Ectopic Pregnancy	5	2%
Multiple Gestation	4	2%
Infections: Malaria/Dengue	4	2%
Heart Disease	3	1%
Bowel/Bladder Injury	2	1%
Uterine Inversion	1	0%

In present study, maximum cases are referred for preeclampsia and eclampsia, those are 36 cases out of 250 cases (14%). High risk referrals like antepartum haemorrhage (11 out of 250 cases) and postpartum haemorrhage (12 cases out of 250), inversion of uterus (1 case out of 250) are referred to higher centre due to needful of multidisciplinary approach,

availability of OBICU, Blood transfusion, OT etc. After that most common cause is anaemia correction. (23 cases out of 250 cases-9%). In peripheral health centre, there is scarcity of blood and blood bank so from periphery, patients are referred to NCHS for anaemia correction. In south Gujarat, sickle cell disease/trait is very prevalent. 10 cases out of 250 cases are referred for management of sickle cell crisis in pregnancy.

In present study, 141 cases out of 218 were delivered as vaginal delivery, 1 instrumental delivery and 76 cases was opted for LSCS.

**Table:8 distribution according to outcome of mother**

	No. Of Patient	Percentage
Vaginal Delivery	141	64.68%
Instrumental Delivery	1	0.46%
Lscs	76	34.86%
Blood Transfusion Required	68	27.20%
Obicu Admission	36	14.40%
Assisted Ventilation	3	8.33%
Vasopressure Support	4	11.11%
Death	6	16.67%

**Out of 250 cases, 25 cases were near miss which is 10%**

Out of 250 cases 36 cases required OBICU admission. In these 36 cases, 10 patients (30%) admitted for eclampsia. 7 cases were admitted for PPH, 1 case for abruptio placenta, 3 cases for placenta previa, 5 cases for ruptured ectopic pregnancy, 10 cases for other causes (bladder injury-2, postpartum ileal injury, sickle cell crisis-2, ANC with large fibroid, severe anaemia-2, inversion of uterus postdelivery, with congenital heart disease,)

From OBICU, 6 maternal mortalities occurred.

#### DISCUSSION:

In present study, total 250 obstetric referral cases are studied. Most common cause of referral is hypertensive disorder of pregnancy which is compared to Jagruti Anavadia et al<sup>14</sup>, which is followed by anaemia of pregnancy. Hypertension was also a common reason for referral in studies by Rathii et al. and Shilpa et al<sup>15-16</sup>

50% cases were referred antenatally. 37% cases were referred from within 20 kms. Due to 108 facility, 91.6% cases were transferred in 108 which is similar to Jyotsana\*, Lalit D. et al<sup>17</sup>. 94 % cases were referred with referral slip. 33% high risk referrals were telephonically informed prior to referral.

70% cases were referred from within Surat district which is comparable to Jagruti Anavadia et al<sup>14</sup>.

Out of 250 referred cases, 35% underwent LSCS while in Shweta A Khade et al<sup>18</sup> study, it is 74%. Most common indication of lscs is previous lscs with negative consent for VBAC.

14% of all referred cases needed OBICU admission which is comparable to Jagruti Anavadia et al<sup>14</sup> (19%)

#### CONCLUSION:

Timely referral with proper filled referral slip and telephonic information about the critical referral cases can reduced maternal mortality and morbidity.

Strengthening the peripheral health centre and availability of skilled staff is necessary to identify the high risk pregnancy, so that the initial preliminary essential treatment can be given, and maternal complication due to delayed treatment can be reduced.

Health education in rural area, proper antenatal care from 1<sup>st</sup>

trimester from primary health centre, availability of services of skilled birth attendants at the time of child birth, preparedness of emergency lscs, well organized first referral center with better transportation facility, availability of blood round the clock, anesthetic facilities and availability of specialist in the field of obstetrics at the referral unit will definitely reduce maternal morbidity and mortality

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