

A Narrative Review on Barriers of Maternal Referral Process: Causes and Solutions

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Abstract: Referral management is an integral part of clinical practice. However in low resource settings referrals are often delayed. Rural women are at higher risk of dying from pregnancy and its complication. 94% of global maternal deaths occur in low resource setting and India alone accounts for 12% of maternal deaths. Most of maternal deaths can be prevented by strengthening the referral system of country. WHO categorizes 3 type of referral delays: delay in seeking care, delay in reaching care and delay in getting adequate care. There are various factors which are responsible for these delays. The factors are categorized in two categories 1. Health system factors. 2. Client factors. Using two case studies of maternal referrals (from low resource state in India), this article shows how these factors are responsible for referral delays and ultimately maternal death. Existing referral system can be modified by timely identification of signal functions, adherence to established guidelines or standards, timely, free or low cost transportation, adequate documentation, staff accompaniment and prompt care by competent healthcare providers in the receiving facility.

Keywords: Maternal Mortality, Referral Delays, Health Care System

Case 1

A 26 yr. old primipara mother is referred to tertiary care center from district hospital who gave birth in community health center 6 hours ago. At the time when she was brought to tertiary care center, she was unresponsive, still resuscitation was performed but she was unresponsive and was declared dead by on duty Doctor and reason was shock due to inversion of uterus as she was not brought timely to tertiary care center. Her husband gave history that she delivered in Community Health Center 6 hours ago and after delivery bleeding started and she was referred to district hospital in ambulance but when they arrived in District hospital they were informed that obstetrician is not available and she was then referred to medical college as previous ambulance went back after dropping them in District hospital and no ambulance was there in district hospital at that time so relatives arranged private vehicle and all this took one and half hour. Women died on the way and when she was brought to medical college, she was declared dead. This is clear case of referral delay due to lack of coordination between health care facilities and unavailability of transport for referral.

Case 2

Twenty - two - year - old female, 32 weeks pregnant referred to medical college from district hospital with heavy vaginal bleeding she was admitted for few hours in district hospital and tried to managed there but then referred to medical college. No record of treatment or diagnosis was mentioned in referral slip. Immediate OT was arranged 2 units blood was transfused before OT. Emergency cesarean done, baby was still born and mother died half hour after surgery.

The above two cases took place in two different districts of Uttarakhand and referred to tertiary care center. Uttarakhand is a state with population over 1 crore and have 13 districts. The maternal mortality ratio is 99 (SRS MMR Bulletin 2016 - 2018) per lakh live birth. The case of maternal referrals described above work as pegs to start the conversation

around referral delays and lack of communication and coordination. The following two issues that are exacerbated by lack of resources in developing country contexts. In these two cases there were many factors which contribute to maternal deaths and those were basically referral delays, lack of coordination with higher facility, lack of emergency transport and poor application of referral protocol.

1. Introduction

According to a WHO's report on maternal mortality trends, about 295000 women died during and following pregnancy and childbirth in 2017. Similarly, the 2019 WHO maternal mortality fact sheet reported that approximately 810 women die daily from pregnancy related complications. The vast majority of these deaths (94%) occurred in low resource settings and most could have been prevented. Sub Saharan Africa and South Asia accounts for 86% of maternal deaths globally. In particular South Asia accounts for 20% maternal deaths, with 163 maternal deaths per lakh live births. Among South Asian countries India is home to the highest maternal deaths (35000 maternal deaths), estimated globally in 2017. In percentage, the country accounts for 12% of global maternal deaths, next only to Nigeria.¹

According to the estimates of sample registration system (SRS) of India, the Maternal Mortality Rate has significantly dropped from 400 per 1 lakh live births in early 1990s to 230 per lakh live birth in 2008 and 130 in 2016. Recent estimates of SRS have witnessed a steady decline in the MMR from 113 to 97 per 100000 live birth 2018 - 2020. Even the overall MMR of India has drastically declined, the rate of decline in MMR is not uniform across the states. EAG (Empowered action group) States contributes approximately 75% of India's total estimated maternal death. Seven out of 8 Empowered action group states including Bihar, Madhya Pradesh, Chhattisgarh, Odisha, Rajasthan, Uttar Pradesh, and Uttarakhand still have a long way to achieve the target SDG i. e. of 70 on per 10, 000 live birth. Uttarakhand has MMR of 99% which is 2% above India's MMR and 29% far away from SDG.²

Maternal deaths are concentrated in remote rural areas and are among least to be recorded. A review of more than 1000 maternal death in an Empowered action group states in India found that pregnant women or post - partum women were required to travel an average of 13 km from home to reach a health care facility. On average women spent 5 hours at the first health care facility before being referred out to other higher facilities. One third of all women died in transit. The majority of deaths in 10 Indian States (84%) were among women who sought care either at health facilities, during facility to facility referrals, while returning from a health facility or at home after returning from health facility.³

The WHO estimates that most of (88% - 98%) maternal deaths can be prevented with timely access to existing, emergency obstetric intervention. This produces a triple return on investment, saving women and preventing still births. Maternal referrals play a crucial role in improving maternal health outcome. However most Indian states do not follow the standardized referral protocol which leads to poor maternal health outcome, mistrust between health care provider and patient, and undocumented referrals.

Referral System

According to WHO, "referral is defined as a process in which a health care worker at a one level of the health care system, having limited resources (drugs, equipment, skills) to manage a clinical condition, seeks the assistance of a better or differently resourced facility at the same or higher level to assist in or take over the management of, the client's case.

In order to refer the patients properly from centers, three levels have been considered, first and the most initial level of the health system is primary care i. e. primary health center. The second level of the system is secondary hospital care i. e. community health center and district hospital, and finally the third level which is the highest level of care offers specialized facilities for the treatment of patients i.e. medical college or multi - specialty hospital.

A referral system consists of four main areas: initiating facility, receiving facility, health system, supervision and capacity building. The facility that starts the referral process is called the initiating facility, while the facility that accepts the referred case is called the receiving facility. Supervision and capacity building can be done by facility managers and supervisors at all levels, to monitor the effectiveness and efficiency of all referrals made in their facilities or area.⁴

When patients arrive, the initiating facility provides adequate treatment and stabilizes patient conditions based on the standard protocol of care. If a referral is required, the initiating facility will fill a referral form, communicate with the receiving facility, make referral arrangements, and provide information to patients or their family about the referral and will make the entry in referral register.

The receiving facility anticipates the arrival and receives the patients with their referral form; then the receiving facility provides treatment and follow - up for the patients, plans rehabilitation, document and sends back the referral form and feedback to the initiating facility on the appropriateness

of referral. Each facility also requires a referral register to track and monitor all of the referrals made and received. Supervision and capacity building is responsible for monitoring referral, ensure back referral, feedback and training for facility staff feedback to central level.

All levels of the health care system need to be functioning appropriately, including the primary healthcare system. They need to be very clear about their role, responsibilities, and limitations, having readily available standards protocols of care for conditions for that level of service, and having suitable means of communication and transport.

Maternal Referral System

Appropriate referral is a WHO standard for improving quality of maternal and newborn care in in healthcare system. Maternal health refers to the health of women during pregnancy, childbirth, and in postpartum period.⁵

WHO has defined a framework that consists of eight standards that should be assessed, improved, and monitored within the health care system. One of those standards, Standard 3 is directly related to maternal and newborn referral.

Standard 3

"Every woman and newborn with condition (s) that cannot be dealt with effectively with the available resources are appropriately referred"

Quality statements

3.1. Every woman and newborn is appropriately assessed on admission, during labor and in the early postnatal period to determine whether referral is required and the decision to refer is made without delay.

3.2. For every woman and newborn who requires referral, the referral follows a pre - established plan that can be implemented without delay at any time.

3.3. For every woman and newborn referred within or between facilities, there is appropriate, information exchange and feedback to relevant health care staff.

Barriers in Maternal Referral System

According to Thaddeus and Maine (1994), there are three delay models that women face when trying to access care that contributes to maternal death. These delays are (a) delay on the decision to seek care, (b) delay on reaching at a healthcare facility, (c) delay on receiving of adequate care. Several factors contributing to these delays include socioeconomic or cultural factors, accessibility of facilities, and quality of care. One more delay is a community's delay to take responsibility and to be accountable for maternal death can also contribute to maternal mortality.⁶

Factors Responsible for Referral Delays

Factors which are responsible for delays in maternal referral system are categorized as (i) Health system factors (ii) Patient factors.

Health system factors - These are the factors which are related to inability to access the health facilities and inability of health care provider to manage the maternal condition and refer her appropriately.

- 1) **Transportation arrangement** and its cost specially in low resource countries and in developing countries. Several studies shows that ambulance is not available or an inadequate transport is arranged for referral which is not medically equipped.⁷ As also mentioned in above mentioned case no.1, in which relatives have to arrange public transport which do not have any medical facility thus compromising with the life of mother. Sometimes ambulance is available but drivers are not present as they are on leave and no substitute is there.
- 2) **Competency of staff to manage condition appropriately** - poor skills of health worker in lower levels of care, no training of health care worker regarding emergency obstetrics management of sick pregnant women and timely referral, shortage of staff in facilities, lack of quality in managing the cases.⁸
- 3) **Lack of communication between the facilities** -It has been observed in the previous studies and in above case mentioned that there was no previous pre referral communication between the facilities which leads to wastage of time and resources also as sometime there is no bed availability in referred facility, sometimes they don't have doctor there.⁹ Lack of feedback about the appropriateness of referral or follow up about current condition of pregnant women, many hospitals don't follow the standard protocols of referral
- 4) **Poor standards and monitoring system** - No uniformity in defining cases of complications and indications for referral, poor referral system as there is no system to refer patients from higher facility to lower facility.⁸
- 5) **Referral documentation** - inadequate or no documentation regarding referrals, lack of referral slips, lack of maintenance of referral records, no documentation of reason why the case is referred.¹⁰
- 6) **Poor network infrastructure** - poor mobile network especially in rural areas, poor telecommunication infrastructure. This contribute to lack of pre referral communication to receiving facility.¹¹
- 7) **Poor health care infrastructure** - facilities are not well equipped or sometimes don't have the basic equipment, lack of medical supplies, and essential utilities like electricity, toilet and clean water.¹²

Client factors - Client factors are related to client consideration or decision to follow the referral. These factors are basically related to delay in making decision to seek care.

- 1) **Poverty** - Inability of the family to pay the transportation charges up to hospital, medicine bills of hospital.
- 2) **Environment** - Poor condition of the roads or unavailability of roads especially in tribal and rural area due to which women has to walk for kilometers, bad weather, long distance to the facility
- 3) **Lack of knowledge** - lack of knowledge in family members regarding danger signs and complications,

belief that hospitalization would definitely lead to cesarean - section.

- 4) No knowledge regarding hierarchy of facilities and their limitations, why facility is referring them to higher center.
- 5) **Culture and decision making authority** - involvement of head of the family or male involvement in the decisions making regarding referral or hospitalization, dependence of women on family members regarding decision, lack of support for care of siblings and other family members at home.¹³

Solutions for Improving the Quality of Referral

- 1) **Communication and coordination between the referral facilities** - there should be standard protocol of referral which should be implemented in all facilities. Before sending mother to higher center, it should be well communicated about her condition, treatment and investigation done so that receiving can prepare itself for the emergency. The higher facility should also provide the feedback so that lower facility can improve in further.
- 2) **Improvements in transportations** - there should be free of cost or low cost transportation and it should be 24x7 available for pregnant women. In Madhya Pradesh Janani Express Yojna scheme that provides 24/7 emergency transport services in India. Patients can use a call center to request a vehicle to take them to the hospital for emergency cases and drop them back home after treatment.¹⁴ An efficient, low cost transport system provides women with positive referral experience.
- 3) **Improving the quality of care** - quality of care can be improved by capacity building of health care workers by periodic trainings on complication and their management. Training adequate number of maternity care providers and ensuring an equitable distribution can reduce the challenges confronting quality maternal and newborn referrals.¹⁵
- 4) **Use of technology** - The use of technologies should also be used to monitor the effectiveness of the referral system. For example, the Sistem Informasi Jejaring Rujukan Maternal and Neonatal (SIJARIEMAS) Referral Exchange System in Indonesia provides a feature to monitor referral communication that can be done by PSC Call Center staff or Health Office staff. Mobile apps can be used to provide support and guidance to health care providers.¹⁶
- 5) **Health insurance schemes** - health insurance schemes for poor can help to overcome from the first delay i. e. delay in seeking care due to poverty. Some health insurance programs Janani Suraksha Yojana (JSY) in India supports poor woman to deliver at health facilities without any expenditure on drugs, hospital stay and they also get cash entitlement.⁸
- 6) **Community engagement** - active community engagement is essential in overcoming socio cultural barriers. It has been evidenced that involving men or women's partners is beneficial because men can escort women if they understand why women are referred or when they if they have knowledge about complications or danger signs.¹⁷

2. Conclusion

While the world celebrated a 38% drop in MMR between the years 2000 and 2017, the low and lower - middle - income (LMICs) were still reeling under a disproportionate burden of shouldering 94% of all global maternal deaths¹. Although most of the pregnancy and childbirth complications are unpredictable, they are preventable or treatable. Nearly 75% of all maternal deaths can be attributed to severe bleeding (post - childbirth), infections (post - childbirth), preeclampsia and eclampsia, complication of delivery as well as unsafe abortion¹⁸. Most of the maternal deaths could be prevented with the help of early identification of high - risk pregnancies, timely referral, quick and efficient transport facilities, availability of blood and maternal education, proper implementation of government policies with community participation, proper coordination and communication and strengthening of referring centers can help to reduce maternal mortality and thus promoting overall safe motherhood. strengthening primary care with adhering to strict regulations and innovations are necessary for improvement in existing referral systems.

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Conflict of Interest

None

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