

Inter-facility referral & emergency care: a critical component of maternal & newborn survival

Himani Pandya¹, Sharad Iyengar²

¹BDS, MPH, Independent Consultant

² MD, DNB (MCH), Senior Coordinator, Action Research & Training for Health (ARTH)

Referral is defined as the coordinated movement of health care seekers from basic to more sophisticated and advanced level of health facilities which are qualified to deal with the medical condition. (1) An effective referral system involves a close coordination between multiple tiers of health care system and ensures that a patient who seeks medical attention for a condition, receives equitable and appropriate, high quality and low-cost care.

According to WHO, a good referral system helps to ensure that:

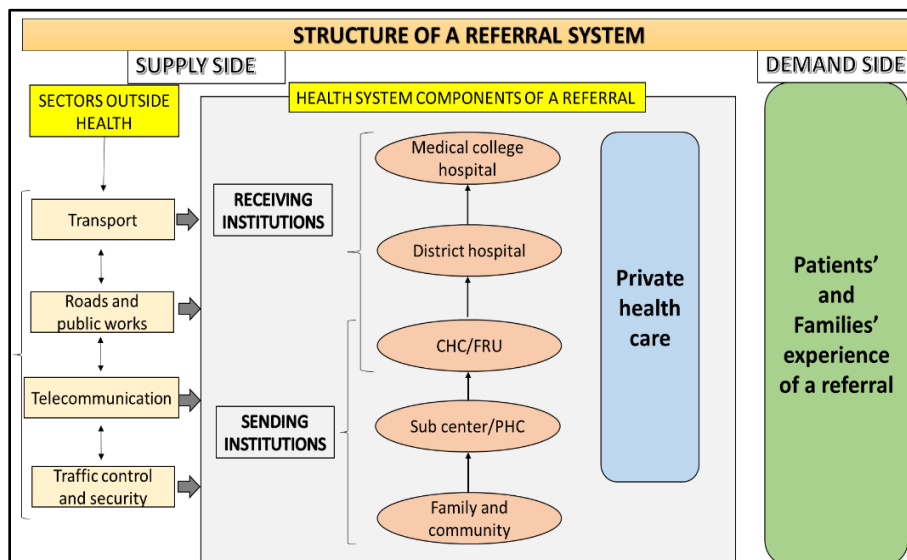
- ✓ Patients receive optimal care at the appropriate level at an affordable cost with good quality.
- ✓ Primary health facilities are well equipped and able to provide the required basic level of care before referral to a higher facility.
- ✓ Patients are able to reach the right level of higher facility on time through efficient transport systems that can provide care en-route.
- ✓ Hospitals are well resourced to provide the optimal tertiary care without delay.

Robust referral systems are considered to be the backbone of maternal and newborn health care programmes. (2) A well-functioning referral system is critical for pregnant women and newborns owing to a slim window of opportunity to intervene. For instance, in case of post-partum haemorrhage, a woman might have a window of only two hours between the onset of PPH and death. This window is lesser for a sick newborn with birth asphyxia or respiratory distress. (3) It is within this narrow window of opportunity that all components of a referral system must interact with each other and to the best of efficiency within the shortest time, if a life has to be saved.

This document analyses the dynamics of referral and emergency care within a health system, and compiles evidence on some of the challenges faced by emergency obstetric-newborn referral system in India based on evaluation studies conducted thus far. It further highlights a few evidence-based solutions that have been suggested or tested at a local as well as global level, to strengthen referral systems and to inform policy planning and development of guidelines.

Dynamics of a referral system

Traditionally, referral systems have been narrowly understood as something to do merely with an emergency transport system such as an ambulance that helps patients to move in-between facilities. Over the past few years, more research has helped to uncover a referral system's complex and dynamic structure and process. It not only involves a hierarchical vertical dimension spanning multiple layers of a health system pyramid (E.g., subcentre, PHC, CHC, district hospital and medical college) but also includes a horizontal dimension wherein multiple health system components such as clinical service delivery, equipment and infrastructure, financing, monitoring and evaluation, human resources, leadership and accountability need to interact smoothly.



Moreover, the involvement of sectors outside the domain of health system such as roads and public works, communication technology (eg mobiles), emergency transport systems (ambulances), traffic control and security (police) along with social and cultural aspects of community and families, add a *multi-sectoral dimension* to referral. (3) With blurred and overlapping boundaries, these components need to interact and collaborate effectively with each other, if a maternal or newborn emergency has to be dealt with successfully. Moreover, the functioning of these components could be influenced by local context which therefore must be considered while designing referral guidelines and policies.

Policy landscape in India

The Janani Suraksha Yojana (JSY) and Janani Shishu Suraksha Karyakram (JSSK) have served as flagship programmes for delivery of maternal and neonatal health services as part of National Health Mission (NHM) since 2005-06 – they include referral for complications. As part of JSSK, women and newborns are entitled to receive free emergency care at a public health referral facility of their choice. Till date, referral has been addressed in various national policy documents to a variable extent including the five year plans, Child survival and Safe Motherhood programme (CSSM), Reproductive and Child Health (RCH) 1 and 2, Programme implementation Plans (PiPs), National Health Policy 2000, ASHA guidelines 2005, FRU guidelines 2005, NRHM framework 2005, EMONC training guidelines 2006, 24x7 PHC guidelines 2006, SBA training guidelines 2007, Indian Public Health Standards (IPHS) 2007, Operational guidelines for maternal and newborn health (2010) and JSSK guidelines 2011. (4)

Various aspects of referral have been documented in these documents. They include designating public health facilities according to the level of care provided, identifying facilities to act as specialized referral institutions, setting up local transport alternatives, setting referral linkages between primary, secondary and tertiary facilities, establishing or upgrading communication systems, training ASHAs, ANMs and TBAs in identifying obstetric emergencies for referral, strengthening FRUs to provide EMONC, and setting IPHS standards for facilities. A good example of multi-sectoral collaboration emerged with the launch of 108 and 104 ambulances which involves the health sector and private organizations, notably GVK EMRI. It has successfully established a vast network of referral ambulances in India which now serve as the commonest mode of transport for majority of patients in India needing emergency care.

Challenges facing emergency obstetric and newborn referral in India

Considerable research has been done in the past few years on emergency referral systems for maternal and newborn care, trying to understand the determinants, and factors that act as barriers to establish an efficient referral system. However, there still remains a dearth of good quality evidence from India on approaches to improve and strengthen referral systems, especially from trials and implementation research.

A weak emergency referral system has been identified as a key bottleneck that prevents the achievement of expected MMR targets, if the health system fails to provide comprehensive care for the women and newborns with emergencies that contribute to severe morbidity and need advanced level of care. Maternal death audits conducted in various parts of the country suggest that most mothers that died, underwent multiple referrals or were provided poor quality emergency obstetric care. (5, 6)

A few common issues reported by various evaluation studies conducted across India have been presented below. They have been divided to three categories according to Thaddeus and Maine's framework on 3 delays to obstetric care from supply side viz issues at sender institution (delay 1), issues with transport or on the way (delay 2) and issues at the receiving institution (delay 3). A fourth category which addresses the demand side of a referral system ie. patients' needs and experiences has also been added. Additionally, a few cross-cutting issues such as communication and monitoring have been discussed.

1. Challenges at sending institutions (*Delay 1 – delay in identifying a danger sign and deciding to refer*)

A successful referral system starts with appropriate identification of the patient's danger sign within a short period of its onset depending on where the patient is located (home/Sub-centre/PHC). This needs adequate number of well-functioning and strong peripheral institutions (senders/primary care facilities) which act as the first contact point for a patient when the need for seeking emergency medical attention arises. PHCs and CHCs serve as important components of a district health system and these institutions must have a combination of trained health workers (both doctors as well as nurses and midwives) and sufficient infrastructural capacity to identify the patient's danger sign, provide stabilizing treatment and to refer to the right level of higher facility without delay.

Various issues contributing to delay 1 which have been reported include:

- ***Low skills and confidence of health workers (especially nurses in absence of doctors) in identifying complications and making the right clinical decisions.***

Despite the bulk of deliveries occurring at peripheral health facilities, health workers especially at PHCs and CHCs are not adequately trained and supported to identify and stabilize obstetric and neonatal emergencies. Thus, a lot of cases that could have been managed at peripheral health facilities are sent to tertiary centres. (6-9) A cross sectional study from three districts in Madhya Pradesh reports poor competence of birth attendants at JSY facilities in EMONC. (10) Low confidence and large gaps in knowledge of rural health care providers on emergency treatment for obstetric complications in pregnancy and pre-referral first aid were reported by a KAP survey from Himachal Pradesh and Andhra Pradesh. (11) SBA training was effective to some extent, however it remains questionable as to how much of the learning is translated to action.

- **Confusion over the clinical criteria for referral in the absence of any guidelines/SOPs, mostly resulting in undue delays or unnecessary referrals**

In the absence of clinical guidelines on referral, health workers stay confused about whom to refer, when to refer and what pre-referral treatment should be provided to sustain the patient until higher care is received. For instance, all primi gravidas were referred by the health workers with the fear of unexpected complications thus resulting in over referrals to tertiary institutions. (Sampark intervention - unpublished) There still remains a lack of operational referral guidelines for EMONC in health facilities, that lay out standard operating procedures for the actors and institutions involved in this system. These guidelines are currently under development by the Ministry of Health and Family Welfare (MOHFW) and are expected to be released soon.

- **Sub-optimal or no pre-referral treatment/stabilization provided before referring -**

Once a decision to refer has been made, most health workers directly send the patients to higher centres without providing any stabilization treatment. By the time patients reach higher facility, their condition has already worsened and chance of survival diminishes further.

2. Challenges on the route *(Delay 2 – delay in reaching the higher facility on time)*

Once the patient's condition has been recognized and a decision to refer has been made on time, it is of utmost importance that the family complies with the advice and the patient is able to reach the higher facility through readily available transport which can also provide essential en-route care.

The launch of 104 and 108 transport or ambulance services has addressed this delay to a large extent. However, interstate variations in utilization of 108 for emergency obstetric and neonatal referrals still remain. There is a dearth of evaluation studies to assess the effectiveness of this service and its potential contribution to addressing mortality due to emergencies. Some issues reported thus far include lack of fully functional round the clock referral transport, break-down of ambulances, difficult geographical conditions and terrain, inadequate number of vehicles leading to delays in arrival (upto 2-3 hours in some cases) and poor en-route care. (5, 12) Pilot evidence also shows poor availability of transport for the return journey and patients having to pay the driver for inter-facility transfers. (Sampark - unpublished).

Furthermore, issues with ambulances having to travel long distances could also be attributed to sparse distribution and distant location of BEMONC and CEMONC health facilities. Many states in India still do not fulfil WHO's minimum requirement of 4 BEMONC facilities and 1 CEMONC facility per 500,000 population, distributed geographically. (13) Lastly, questions still remain on how to reduce the increasing burden on these ambulances and whether to rationalize the use of 108 ambulance since many inter-facility referrals transported include normal deliveries, which could potentially reduce availability for those with complications. (12) Public Private Partnership models such as Haryana Swasthya Vahan Seva (HSVS) and Janani Express in Madhya Pradesh utilize local private taxi operators at subsidized rates – they appear to hold promise. (14, 15)

3. Challenges at receiving institutions *(Delay 3 – delay in receiving treatment after reaching the higher facility)*

A well initiated referral remains unsuccessful if a patient is not able to receive appropriate care on time even after reaching a higher institution. Some of the issues contributing to third delay are:

- **Bypassing mid-level facilities (CHCs/FRUs)** has been reported as a common issue, leading to underutilization of mid-level facilities and crowding at tertiary institutions thereby diverting resources away from priority patients and poor quality of care. Bypassing could be due to advice by health workers of sender institutions who do not know where to refer, or the patient's own preferences. It might also reflect lack of trust in mid-level facilities' ability to provide EMONC. Evidence from Gujarat and Madhya Pradesh shows that the availability of signal functions for EMOC at a health facility was inversely related to the odds of bypassing by patients thus calling for a need to strengthen the capacity of CHCs and FRUs to provide better quality of BEMONC and EMONC. (16, 17) This is supplemented by pilot evidence from Rajasthan where patients preferred to seek health care directly at district hospitals and believed that health workers at mid-level facilities were not capable of providing appropriate care. (Sampark-unpublished)

In this direction, guidelines by MOHFW spell out explicitly that CHCs designated as FRUs are supposed to provide a full set of CEMONC to patients. However, FRUs remain weak in providing CEMONC and serve as merely sending facilities as they mostly refer obstetric and neonatal emergencies to district hospitals. (9, 18) Weak mid-level facilities also contribute to delay 3 by leading to multiple referrals. Audits of maternal deaths from UP reveal that most women who died had to go through multiple referrals (2 to 3) due to poor capacity of FRUs. (5)

- **Poor quality of clinical care and lack of resources at CEMONC facilities such as district hospitals** including lack of obstetric triage, no prioritization of emergency patients, poor infrastructure and equipment to conduct lab investigations and unavailability of blood for transfusion and sometimes, lack of specialists. (45) For instance, in MP, mothers who died from PPH had to spend almost 6.75 hours at a CEMONC facility before they died, reflecting on the quality of care provided. (9)

Experiences of patients and their families in navigating through a referral system

None of the supply side interventions to strengthen referral systems are effective unless users of health services and their families are satisfied with the quality of care. Various demand side, non-clinical aspects of a referral system include ways in which users are supported in navigating through a referral process, respectful and empathetic care by health providers, food and hygiene, counselling and communication with patients and families to manage expectations, emotional support during stress of referral, involving families and improving their awareness on danger signs and ensuring that they can approach the right facility to seek care for that emergency. (19, 20)

Studies report various challenges faced by patients and their families such as:

- **Poor infrastructure at health facilities** such as lack of electricity, beds and drinking water, poor hygiene, prolonged waiting times before being seen by a nurse or doctor, lack of counselling and communication by health workers on patient's condition and difficulty in maintaining privacy in health facilities. (21, 22)
- **Abusive care and neglect** by staff at both sending and receiving facilities. (21, 23)
- **Low awareness amongst women and family members** about different danger signs during pregnancy, delivery and post-partum period where decision making to seek medical care was largely dependent on male members of the family. (24) Pilot evidence also shows that due to lack of awareness about danger signs and poor communication from health workers, patients and their families were confused and stressed in terms of why were they referred, what to expect at higher facility, whether they could afford a higher level care and whether the patient will be saved or not. (Sampark – unpublished)
- **Heavy out of pocket expenses** paid by patients at various points of a referral such as for inter-facility transport, at district hospitals for lab investigations, blood bank, medicines, doctor's and nurses' fee etc. (22) (Sampark - unpublished)

Other systemic issues

- **Poor communication systems:**

Urgency of an obstetric/neonatal emergency requires a formalized network of communication between multiple units of a referral system including the sender institution, referral transport (call center and vehicle), receiving institution and the patient. (2) This ensures that both the health facilities have communicated with each other regarding patient's condition, pre-referral treatment provided, preparation done before patient's arrival, feedback on progress, appropriateness of the referral and instructions for follow up. Additionally, the referral transport call centre and vehicle need to be connected to health facilities and the patient to ensure timeliness of travel and en-route condition. Various means such as radio, telephones, video, email and website-based communications have been tested in other countries.

In our context, we currently do not have any formalized means of communication except for the 108/104 call centre which connects the caller (patient/health worker) and the transport vehicle. Moreover, sender institutions do provide a referral note to patients at the time of referral, but it might provide either irrelevant or incomplete information. Furthermore, there is no system of feedback from receiving institutions to the sender institutions regarding patient's treatment, progress, outcome and whether the referral was appropriate or not.

- **Monitoring the effectiveness of referral services - If a referral fails, who is accountable?**

From a standpoint of health information systems, we cannot determine whether a referral was effective or not, unless we measure and review various aspects of a referral through a standardized set of pre-determined tools and indicators. Monitoring referral systems can assist district health managers to ascertain how well are various components of a health system performing and whether the patient received appropriate care or not. Evidence so far highlights critical gaps in monitoring of referral systems such as poor record keeping through referral registers, poor quality information in referral forms filled by sender institutions, lack of routine audits for quality of referral care and of standardized indicators. (6)

There is a critical need for measures to be taken in this direction such as maternal and perinatal death surveillance, conducting referral audits and review meetings between sender and receiving institutions to review successes and failures, setting standardized referral registers/referral forms, health facility assessments to map EMONC preparedness and using data on standardized monitoring indicators such as geographic distribution of EMONC facilities and population coverage, met need for EMONC, rate of utilization of different facilities for EMONC, direct obstetric case-fatality rate, perinatal outcomes and C-section rates. (25, 26)

Way forward – How can we fix the gaps to strengthen referral systems for obstetric and newborn care in India?

As a way forward, JSY facilities need to be backed up by a strong and robust referral system, if an improvement in maternal and neonatal health outcomes is intended. Policy planning and guideline development in India may consider the following key questions on strengthening referral systems.

Key questions to inform policy and programmes on referral systems

What is our vision for an effective obstetric and neonatal referral system in India?

1. How can peripheral health facilities be strengthened to improve the quality of EMONC (timely identification and stabilization before referral) and deliver services closer to patient's home?
2. How can health workers (at both sender and receiving institutions) especially nurses be capacitated and supported to provide better EMONC, take the right clinical decisions with confidence? Can this begin with medical and nursing students at pre-service level?
3. How to improve communication between sender and receiving institutions about patient's condition, treatment provided, feedback on progress, instructions on follow up and appropriateness of the referral?
4. How do we monitor the effectiveness of referral systems at a district level? Who is accountable if the health system is not able to manage an emergency adequately?
5. How can we support our patients during an obstetric/neonatal emergency condition, provide respectful care and improve their experience of navigating hospitals?
6. How can we improve our existing transport systems to reduce the second delay and ensure that patients reach the right facility on time?
7. How can we improve awareness of danger signs at a family/community level?
8. How can we provide affordable care - minimize direct and indirect out of pocket expenses?
9. How can we ensure collaboration between sectors and leverage their resources to improve referral systems – regulation of private sector, better use of technology, m-health, transport, public works etc?

Various interventions to reduce the three delays and strengthen referral systems for obstetric and newborn care have been tested in India as well as other low resource settings globally. (summarized in the table below). These interventions can serve as an evidence base required to set out the pre-requisites of an effective referral system and inform policy planning and guideline development in India. However, they need to be tested and adapted in an Indian context.

Evidence based interventions to strengthen referral systems:

S. No	Barriers		Interventions	Supporting evidence
1.	Issues at sender institutions	Weak peripheral facilities, low capacity and skills of health workers to detect obstetric emergencies, provide pre-referral treatment and refer on time	-Build capacity of nurses and mid-wives at primary level to independently detect and manage danger signs and provide pre-referral treatment.	Rajasthan (27)
			-2 days skills refresher training and emergency drills for health workers (role play) with supportive supervision	Karnataka (28)
			-Education and training in BEMONC through virtual classrooms, improve skills of midwifery tutors in nursing colleges.	Jhpiego, Bihar (29)
			-CEMONC training for MOs at FRUs	Jhpiego, FOGSI in 2 states, India(30)
	Lack of referral guidelines and SOPs on referral	-2 days Advanced life support in Obstetric and PPH – training of health workers	Tanzania	
		-Combined community mobilization, TBA training and training health providers on EMONC, death audits, facility assessments.	Global Network's EMONC trial - South Asia (including India) and Africa(31)	
		-Incentivizing health workers in rural areas to deliver EMONC.	South east Asia (32)	
		-Use of mobile phones to empower capacity of nurses, contact doctors, patients and transport	Africa(33)	
Poor infrastructure at peripheral facilities	-Upgrading of peripheral facilities on EMONC to improve infrastructure, supervision and QI cycles to improve quality of care and signal functions.	Bangladesh Africa(31, 34-36)		
	-Single use obstetric emergency medical kits in low resource settings	Kenya(37)		
2.	Issues en-route	Inadequate number of functional CEMONC facilities closer to communities	-Establish maternity waiting homes closer to CEMONC facilities.	Africa(38, 39)
			-Using GIS mapping and modelling to understand population's access to EMONC and referral system, travel times and EMONC facility distribution	Ethiopia (40)

			-Improve emergency response referrals via a radio system linking hospital, PHC and referral vehicle	Madhya Pradesh (15)
		Delays with transport	-Use of community transport systems	Zambia (SMGL)(35)
			-Local transport workers' union - drivers trained,	Sierra Leone (41)
			-Emergency transport funds established by community groups	Nigeria(25, 42)
3.	Issues at receiving institutions	Sub-optimal quality of clinical care provided by health workers	Task shifting for CEMONC – - Train MOs to conduct caesareans	South East Asia and Africa (43)
			- Training of MOs in Life saving anaesthetic skills (LSAS) for EMOC.	Gujarat (44)
		Lack of specialists and infrastructure – blood bank, functional OT	- Contracting private obstetricians through PPP to provide skilled birth attendance and EMOC	Chiranjeevi yojana, Gujarat(45, 46)
		Poor obstetric triage at hospitals	-Use of colour coded cards to differentiate between routine and emergency patients on arrival	Rajasthan(47)
			-functional splits in hospital (separate wards for priority and routine patients)	UK and Nepal(48, 49)
4.	Patients, families and community related barriers	Lack of support to patients and families in navigating through referral system	Obstetric care navigation - TBAs or trained lay workers or volunteers accompany women to birthing facilities and navigate their way through the referral, TBAs also act as birth companions.	Guatemala(50) Bangladesh(51) Rajasthan (Sampark - unpublished)
		Low awareness and delay in decision to seek health care	Community health workers and TBAs trained in detection, management and timely referral of complicated obstetric and neonatal cases.	Guatemala (52) Pakistan (53)
			Mobile application (mPAMANECH) that utilizes SMS and hotlines to access information and coordinate referral, helps community volunteers in identification of high risk and complicated cases, make timely decisions.	Kenya (55)
		Socio-cultural barriers	Male involvement in complication readiness for emergency obstetric referrals	Africa (54) India (24)
			Home based life saving skills (HBLSS) training for birth attendants and families to recognize obstetric and newborn emergency signs	Global Network's EMONC trial - South Asia (including India) and Africa.(31)
			Train cadre of community volunteers (Safe motherhood action groups) to identify pregnant women and disseminate messages on safe delivery and danger signs, use radio and social networks to disseminate messages	Zambia (SMGL)(35)
		Heavy out of pocket expenses	Community loan funds Fund raising by village development committees for obstetric care, vouchers for reimbursing transport cost	South east Asia and Africa (32)
5.	Communication system	No communication between sender and receiving institutions regarding patient's condition, progress, treatment provided and appropriateness of the referral	Setting up an obstetric helpline linking villages with health facilities and respond to calls for assistance. (arrange transport and escorts to hospitals to facilitate admission)	WRLH project, India (32)
			Call center/toll free mobile communication to assist with complication and referral guidance, coordination in referral and patient follow up	Bangladesh, Ghana (56,57)
			Ambulance referral forms to better track referrals District ambulance committees set up to work on referral related issues, landline and mobile phones for village health workers.	SMGL, Zambia and Uganda (36)
6.	Monitoring and evaluation of referrals	Lack of monitoring of referrals, no accountability to users or providers.	Pregnancy related referral monitored through standardized indicators collected from monthly records at facilities, referral hospital admission register review and medical notes review of referred patients. (standardized indicators used)	Zambia (25)
			Audits of referral data from 108 ambulance service system data	India (12)
			Maternal death review system with routine facility and community-based audits, findings reported to highest state level officers within 24 hours.	Tamil Nadu(32)
			Support effective maternal and perinatal health surveillance and facility assessment on EMONC readiness through checklists.	SMGL, Zambia and Uganda(36)
			Setting up facility-based death audit systems – audit committee with doctors, nurses and administrators to identify and train committee members on conducting maternal death audits, monthly audit meetings to discuss and take actions.	QUARITE trial (Senegal and Mali) (34)

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