



HeartRescue Global

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Interventions for Reducing Delays in
Obstetrical Emergencies in Low-
and Middle-Income Countries
and their Potential Lessons for
HeartRescue Global



ACKNOWLEDGEMENTS

This analysis was produced by RTI International in partnership with the Medtronic Foundation. For over 50 years, RTI has been committed to improving the human condition by turning knowledge into practice. The Medtronic Foundation focuses on expanding access to quality health care among underserved populations worldwide, as well as supporting health initiatives in communities where Medtronic employees live and give.



EXECUTIVE SUMMARY

The obstetric emergency “three delays framework” holds promise for informing interventions for acute CVD events, which are similarly time sensitive. The evidence from obstetric emergency interventions indicates that multifaceted interventions are often needed to simultaneously address demand-side and supply-side factors causing delays in care.

The range of factors causing delays in emergency obstetric care appear to be similar to those causing delays in acute CVD emergencies. These include patient and family fears about medical costs or lack of funds needed to pay for emergency transport or emergency care, patient and family lack of knowledge about when to seek emergency care, lack of timely and reliable emergency transport services, distrust of the healthcare system, lack of access to appropriate health care staff and services, health care referral processes that move too slowly when emergencies arise, and concerns about timely intervention and quality of care once the patient enters a healthcare facility.

EXECUTIVE SUMMARY (CONT.)

Understanding how interventions are organized to improve care for obstetric emergencies can help to inform the HeartRescue Global project. This can include stimulating thinking about how to adapt the obstetric interventions to the particular country, community, and health care system contexts addressed in HeartRescue Global, or by helping to refine the interventions being implemented by HeartRescue Global. The interventions found useful for reducing delays in care for obstetric emergencies include:



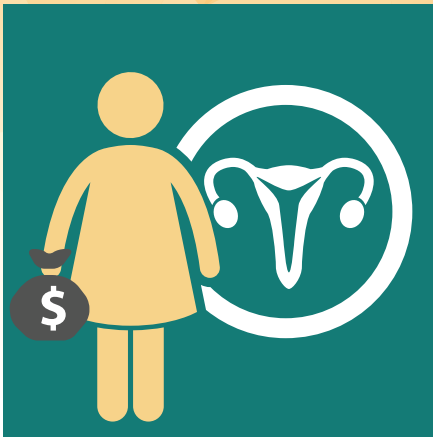
Qualitative research at the patient and family level in the community to identify the range of reasons for delays in seeking care and ways to eliminate or reduce the delays



Community health workers (CHWs) and other frontline health care workers providing education to women and their husbands or male partners and other family members about complications of childbirth that require emergency medical care and when to seek medical help in those situations



Financial assistance provided for emergency medical care to alleviate financial constraints and fears faced by families; this can include funds provided by governmental, health insurance, charitable, or community sources



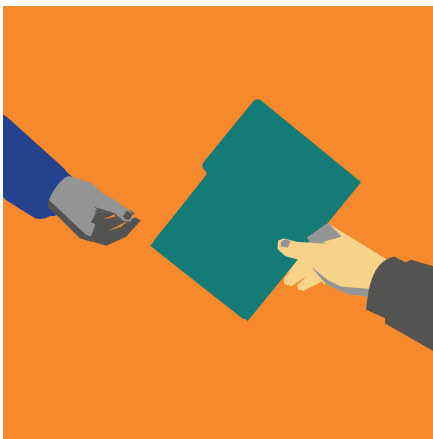
Income generation schemes for women to enable them to become financially independent and better able to make decisions about their reproductive health



Motorcycles or motorbikes for emergency transport as alternatives to ambulances to speed responses when rapid emergency transport may otherwise be difficult



Clinical protocols and intermediate level health care facilities for monitoring high risk patients and responding more quickly when obstetric emergencies arise



Developing systems for more rapid referrals from community health centers to hospitals when needed for obstetrical emergencies



Hospital staff or frontline health care workers identified and specially trained as patient and family liaisons to facilitate referrals and ease obstetric emergency patients' hospital admissions and treatment processes



Improving training of staff in hospitals and EMS for obstetric emergencies, and providing appropriate supplies and equipment, to both improve the speed of providing appropriate medical treatment and at the same time to improve public trust in the quality and effectiveness of medical services



Multi-faceted interventions that simultaneously address a number of the demand-side and supply-side factors that contribute to the delays



INTRODUCTION

Challenges for improving obstetric emergency care in low- and middle-income countries have been categorized using a conceptual framework of three types of delays: 1) delay in the patient and family decision to seek care for the emergency; 2) delay in reaching appropriate emergency care; and 3) delay in receiving adequate emergency health care after arriving at a medical facility.¹ Women with severe types of obstetrical complications who experience delays in any of these three areas risk serious medical consequences and sometimes death.

This focus on reducing delays in care for very time-sensitive obstetrical emergencies is similar to the HeartRescue Global project's focus on reducing delays in emergency care for acute cardiovascular disease (CVD) events, including ST-elevation myocardial infarction (STEMI) and out of hospital cardiac arrest (OHCA). This policy brief reviews the interventions developed to reduce the three delays in obstetrical emergency care and considers their potential lessons for HeartRescue Global.

Interventions to reduce the three delays in obstetrical emergency care include two types: 1) demand side interventions focusing on the patients and their families (reducing delays in seeking care); and 2) supply side interventions (improving emergency transport, referral processes, and the quality of emergency care services). In the following sections, this policy brief reviews both types of interventions for obstetrical emergencies and then concludes with a discussion of their potential lessons for HeartRescue Global.



DEMAND SIDE INTERVENTIONS

Demand side interventions for obstetric emergencies include health promotion, health education for patients and their families, community advocacy, family planning, financial assistance, and income generation for women. Ideally, demand side interventions will target multiple factors that may delay or inhibit care seeking behavior in the particular community and healthcare system context, with the goal of increasing utilization of emergency healthcare services. Barriers to seeking emergency care are often complex, including social status, symptomology, distance to healthcare facilities, financial and opportunity costs, previous negative healthcare experiences, and perceived low quality of care.¹

This section reviews six studies on demand side interventions: the Manoshi program; two literature reviews on financial incentives; an intervention in The Gambia; a study in Haiti; and the Maternity Worldwide program.

The Manoshi program was an intervention in Bangladesh in 2008 and 2009 that included educating community health workers (CHWs) who conducted home visits and worked in delivery centers (DCs) to assist women in labor by identifying complications and initiating contact with emergency services in obstetric care (EmOC) facilities when needed.² The CHWs were trained in courses ranging from 6 to 18 days, depending on their backgrounds, and they were required to attend refresher courses on an ongoing basis. This was reported to bolster availability of useful knowledge in the community and improve liaison between patients and the local medical care system. Previously, about 70% of women in the urban slums gave birth at home with untrained traditional birth attendants, which meant higher risks for complications and delays in referral to emergency services when needed.²

DEMAND SIDE INTERVENTIONS (CONT.)

Manoshi included home visits by CHWs and delivery services provided free of cost in DCs established in the slums.² The CHWs provided information to pregnant women, their family members, and community members on the danger signs of obstetric complications, when and where to seek emergency care, treatment of minor illnesses, and referral for obstetric complications. Manoshi staff documented that families' financial constraints were a major obstacle to timely access to EmOC services, so the program provided financial support for medicine, blood transfusion, and transportation costs for poor pregnant women who could not seek EmOC services in a timely way due to lack of money. Manoshi developed and maintained its emergency care referral process through partnerships with government hospitals, private hospitals, and NGO hospitals.

A cross-sectional household interview study of Manoshi included 450 randomly selected, complicated obstetric cases. It found that the median time for making the decision to seek care was significantly shorter in the case of life-threatening complications among those women referred from a DC versus from home (0.9 hours versus 2.3 hours).² For high risk but non-life-threatening complications this delay was longer overall, but also shorter for women referred from a DC versus from home (3.1 hours versus 6.1 hours).²

Of women who sought treatment for obstetric complications, about 64% reached the medical facility within an hour and almost 80% received treatment before an hour.² These results suggested that accessing healthcare facilities and getting treatment (the second and third delays) were not the main problem in these urban areas in Bangladesh. Instead, the main problems were with the first delay for the decision to seek care.

Financial assistance from the Manoshi program was found to reduce the time of the first delay for seeking care (0.9 hours vs. 2.2 hours).² The program included sliding scale payments for women who utilized emergency services. The study also found that delays in care-seeking were higher among women who did not participate in income generation.

The overall range of reasons found in the Manoshi study for the first delay included fear of medical care, inability to judge the severity of obstetrical complications, traditional beliefs, and financial constraints.² The husbands were also found to play a major role in the decision to seek care. Thus, in addition to emphasizing the roles of the DCs and financial assistance, the study concluded that more emphasis should be given to raising awareness of obstetrical complications through couple or family-based education to dispel fears of medical care to accelerate the decision to seek EmOC.²



DEMAND SIDE INTERVENTIONS (CONT.)

Thaddeus and Maine conducted a literature review and concluded that financial barriers are not a primary contributor to delays when compared to other common obstacles.¹ In contrast, **Hurst et al.** conducted a systematic review and concluded that financial incentives can be an effective tool to improve obstetric outcomes.³ In their review, three out of five studies that included a financial component demonstrated a positive change in healthcare utilization indicators among women in low- and middle-income countries.³

A study in The Gambia included qualitative interviews with women who had experienced obstetric complications.⁴ The study determined that lack of knowledge about identifying an emergency situation and when to reach out to emergency services for help was the second most common contributor to perinatal deaths. The study emphasized the importance of patient and family education as a critical element in reducing delays in seeking emergency obstetrical care.

A study in rural areas of Haiti included an intensive series of qualitative interviews regarding 12 maternal deaths following births at home.⁵ These interviews were used to conduct both verbal autopsies, to identify the medical causes of deaths, and social autopsies to identify non-medical factors contributing to the death. The interviews included husbands, mothers, friends, neighbors, and traditional birth attendants (TBAs). The results indicated that delayed or never-made decisions to seek hospital care meant that emergency medical treatment was not provided. This first delay was reported to be due to a number of factors, including perceptions of lack of adequate medical staff or adequate facilities at the nearest hospital, the expected high costs of care (including costs for transportation, medical services, meals, fees, and bribes), the emotional stresses of travel to the hospital, and the dubious benefits of unclear quality of care.⁵



DEMAND SIDE INTERVENTIONS (CONT.)

The authors found that perceptions of quality of care were affected by at least four factors:⁵

- Provider competence
- Provider-woman information exchange
- Interpersonal relations
- Mechanisms to ensure continuity of care and appropriate referrals

These women in Haiti were faced with a health care system with both real and perceived breakdowns in several of these factors.⁵ The interviews revealed a general lack of faith in modern obstetrical care in Haiti, resulting from either previous experience or from experiences of friends or relatives. This was a major factor in the cost/benefit decisions of the women and their families regarding whether or not to seek emergency medical care. This also led to a downward spiral where the decisions to seek care and to overcome transportation problems were eclipsed by a lack of confidence in the medical system, while at the same time the earlier delays in seeking care often leave hospitals with little time to provide lifesaving care that could improve community confidence in the quality of care.⁵ Interrupting this downward spiral would require upgrading the ability of medical facilities to provide high quality care, along with referrals to more sophisticated facilities when needed.



DEMAND SIDE INTERVENTIONS (CONT.)

Maternity Worldwide is an advocacy and service delivery organization working to improve access to safe childbirth in a number of low- and middle-income countries.⁶ It utilizes an integrated approach with the three delays framework to address each of the issues that women face when trying to access safe childbirth.⁶ They identified the following factors as contributing to the first delay, in the decision to seek care:

- Low status of women
- Poor understanding by women and their families of the complications and risk factors in pregnancy and when to seek medical help
- Previous bad experiences with health care staff or the quality of medical care
- Acceptance of maternal death
- Financial implications

Maternity Worldwide tailors their programs to the needs of women in each country or community in which they work.⁶ For the first delay they provide community education to both women and men on pregnancy, childbirth, and newborn healthcare so they know when to seek medical help. They also facilitate income generation schemes for women to enable them to become financially independent and better able to make decisions about their reproductive health.

SUPPLY SIDE INTERVENTIONS

Supply side barriers are focused on the second and third delays, including lack of emergency medical response and transport services and delayed or inadequate treatment once patients arrive at medical facilities. At the same time, these factors may also affect demand by increasing patient and family member distrust of medical systems and services, and thus impede emergency care seeking behavior. As a result, interventions that strengthen both emergency response and transport systems (supply side) and patient trust (demand side) may have particular promise for reducing all three delays and thus improving emergency obstetrical care and patient outcomes.

Shortages of well-trained emergency personnel and well-equipped ambulances are one challenge in the continuum of care needed to adequately triage and treat women experiencing obstetric emergencies. Often the first emergency-response is the local emergency medical services (EMS) team and emergency transport vehicles, including ambulances. Low- and middle-income countries face challenges with road problems, ill-equipped emergency vehicles, and untrained first responders. One approach to overcome these problems is use of motorbike or motorcycle EMS nurses or paramedics, since motorcycles are cheaper to acquire and maintain than ambulances, can traverse more difficult rural or mountainous terrain, and are also often faster in reaching emergency patients in densely populated urban areas where road traffic congestion can impede or delay the larger ambulances.

This section reviews six studies on supply-side interventions: Hoffman et al.; Sharma and Brandler; Thaddeus and Maine; Nahar et al.; Hussein et al.; and Maternity Worldwide.

Hoffman et al. studied the effectiveness of motorcycle ambulances at rural health clinics in Malawi for reducing obstetric emergency treatment delays.⁷ They found that use of motorcycles was more cost effective than four-wheeled vehicles and reduced delays by 2.0-4.5 hours. Similar studies in Burundi and Sierra Leone also noted the effectiveness of motorcycles in reducing delays in emergency obstetric treatment.^{8,9} The EMS motorcycle interventions outperformed traditional ambulance services both in terms of overcoming poor road infrastructure and road traffic overcrowding.

Sharma and Brandler noted that patients in low- and middle-income countries often lack personal transportation and can thus be dependent on ambulance services during emergencies, despite the fact that ambulance services are frequently unreliable.¹⁰ Improving the speed and reliability of first response vehicles is therefore important in many countries for reducing delays for emergency obstetric care.



SUPPLY SIDE INTERVENTIONS (CONT.)

At the same time, arriving at the correct medical facility in a timely manner is only one step in ensuring adequate emergency obstetric care. It is equally important to ensure that emergency obstetric patients are able to get rapid and high quality care once they arrive at the facility. **Thaddeus and Maine** emphasized that a patient who makes a timely decision to seek emergency care can still face medical delays due to poor quality and limited availability of medical services in many countries.¹ As a result, some important supply side interventions often include training skilled birth attendants, ensuring proper equipment and medication are available for emergency obstetric cases, and training emergency medical responders.

Referral support and strong partnerships with local hospitals were also found to be critical elements of interventions for addressing delays in obstetric emergencies. **Nahar et al.** documented the benefits of implementing referral support in Bangladesh through partnerships with local hospitals where dedicated, trained staff were able to expedite patients for admissions and treatment.²

SUPPLY SIDE INTERVENTIONS (CONT.)

Hussein et al. conducted a systematic literature review of interventions focused on the second delay, for timely arrival at a health care facility after the decision to seek care has been made.¹¹ They identified a number of underlying causes that could be involved in this delay, including the distribution of health facilities and health care staff trained to treat obstetric emergencies, travel time for patients and their family members, transportation challenges, communications problems, and costs to the patients and their families. They found a range of interventions had been applied across multiple countries to address these problems:

- Communications interventions, including improved access to telephones, adaptations to emergency vehicles for communications, and telemedicine
- Providing improved emergency transport services
- Financing and incentive schemes to reduce or share the costs faced by women and their families for emergency transport, that could be from governmental, charitable, or community sources
- Clinical guidelines or protocols for improved monitoring of women at high risk for obstetric complications and for more rapid response by frontline health care workers for referrals to the appropriate level of emergency care when complications arise
- Service delivery modifications, including intermediate-level maternity units to bring medical facilities closer to women in need of emergency services, maternity waiting homes, emergency response teams, referral centers, and outreach clinics
- Recruiting and training health workers and community members to act as advocates and companions for patients during referrals, transport, and admissions to medical facilities



SUPPLY SIDE INTERVENTIONS (CONT.)

Maternity Worldwide has identified the following factors as contributing to delays in reaching care:⁶

- Distance to health centers and hospitals
- Availability and cost of transportation
- Poor roads
- Difficult geography that causes transportation problems, such as mountainous terrain or rivers

In response, **Maternity Worldwide** provides a range of different interventions for this second delay, depending on the needs of a particular country or community.⁶ These can include developing health centers in rural areas, providing outreach workers who visit villages to improve access to care, building waiting houses next to health centers for expectant mothers to stay in before their due date so that when they go into labor health care assistance is available nearby if they experience complications, and providing motorbike ambulances where transport is difficult to improve access to health centers.



SUPPLY SIDE INTERVENTIONS (CONT.)

Maternity Worldwide also identified the following factors as contributing to the third delay, for delays in receiving adequate emergency obstetric care:⁶

- Inadequate health care facilities
- Lack of medical supplies
- Inadequately trained medical staff
- Poorly motivated medical staff
- Inadequate health care referral systems

Maternity Worldwide provides a range of different interventions for this third delay, again depending on the needs of a particular country or community.⁶ These can include training local midwives who are more likely to remain practicing in rural areas, training nurses, doctors, and other health care professionals to provide safe obstetrical care, and improving referral systems between health centers and hospitals for women with obstetrical complications.

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