

## Referral in maternal and newborn healthcare

### Rethinking mechanisms to provide life-saving care

A woman who has just given birth and is beginning to hemorrhage may die within two hours if she is not treated for this obstetric complication. This timeframe should be sufficient for her to reach the emergency obstetric and neonatal care (EmONC) she needs. But if she lives in a resource-limited setting—where 99 percent of maternal deaths occur—simply getting to a health facility could be a considerable struggle. And if she makes it to the facility, how many other patients will be waiting before her? Will the facility be equipped to treat serious complications like hers? Will there even be a clinician at the facility?

With the increasing focus on the continuum of home-to-hospital maternal and newborn care, the importance of referral systems—i.e. the transfer of patients from one care provider to another provider or level of care—has become more widely recognized in the past five years. Columbia University’s Averting Maternal Death and Disability (AMDD) Program works to bring attention to the crucial role that referral plays in reducing maternal and newborn morbidity and mortality.

The factors that affect referral can be complex and nearly always depend on local context. For example, a district hospital in one country may be equipped to effectively treat pre-eclampsia, but a district hospital in another might refer patients with the same condition to a more sophisticated regional hospital. The chain of referral can also be dynamic over time. For example, during the rainy season, a standard referral protocol might require adjustment if roads are flooded.

The field of maternal health has long used the framework of the “**3 delays**”<sup>1</sup> to understand barriers to care and to identify points of intervention:

- **Delay #1** happens when a birth attendant or family member is slow in recognizing a danger sign or slow in deciding to seek medical attention.

- **Delay #2** occurs in reaching a facility. This delay is predominantly determined by physical and financial accessibility to health services, including the geographic locations of facilities, road conditions, and the availability and cost of transportation.
- **Delay #3** takes place once the woman has arrived at a health care facility if the appropriate staff or medications are not available, equipment is not present or is broken, or if a supply of blood is not available and needs to be donated by a friend or family member. Costs (official and unofficial) charged for emergency services may cause additional delays, as the family scrambles to gather funds.

### The Challenge

The referral system plays a critical role in effective maternal health programs, but creating an effective referral system is complex. While policymakers and practitioners increasingly recognize the value of a well-developed referral system, implementing an effective one can be challenging. The evidence on how to design, implement, and sustain emergency referral systems in developing countries is sparse, and there are few good evaluations that detail the impact of interventions to improve referral systems.

Moreover, referral is often narrowly conceptualized as a transportation issue. It can more effectively be addressed when understood as a systems issue; it is critical for bridging and linking levels of care for mothers and newborns with life-threatening complications, and it is embedded in the larger social context.



## AMDD'S Contribution to Referral

AMDD brings the insights of systems science to advocate for new ways to think about the design of emergency referral systems and how to address emergencies beyond maternal and newborn health.

A systems science approach recognizes health systems as dynamic systems. Infrastructure, human resources, communication channels among facilities, and new technologies interact with changes at the community level (including cultural shifts on matters such as preference for institutional delivery) to yield new implementation challenges and opportunities.

A systematic approach to referral and its corresponding policies, guidelines, and networks, ensures a continuum of care for patients. In this way, referral is the essential glue holding together the movement of people, information, and skills across the health system. With reliable referral, certain functions of emergency obstetric and neonatal care and basic clinical skills can be delegated or decentralized so they are closer to the community. At the same time, specialized skills will be concentrated at higher levels with improved accessibility. These complementary strategies can optimize the system's resources.

AMDD researches, identifies, and helps to implement appropriate referral strategies in resource-poor settings. Its work on this issue includes:

- Helping countries with high maternal mortality to **conduct facility-based needs assessments** of referral systems in emergency obstetric and newborn care. With those data, ministries of health can analyze referral readiness, determine where emergency transport vehicles should be prioritized, and identify low-functioning hospitals and strategic health centers that should be upgraded to deliver more life-saving care.
- **Conducting in-depth research** in Tanzania in partnership with the Ministry of Health and Social Welfare and the Ifakara Research Institute to assess infrastructure and systems for emergency referrals and to understand community and health workers' perceptions of pregnancy and delivery risks, obstetric emergencies, costs and quality. AMDD and

partners are now feeding the results of this formative research into collaborative planning processes in each district as the first step in developing comprehensive approaches to improving emergency referral.

- **Mapping referral resources with a mixed methods approach** in Bihar, India in partnership with CARE-USA and CARE-India, and in Ethiopia in partnership with John Snow, Inc.'s "Last 10 Kilometers Project." These mapping exercises aim to identify local resources and gaps as well as to understand current referral practices and attitudes about referral among health workers and the community. The information gathered is then fed back into a consultative process with stakeholders to develop localized referral innovations.
- **Implementing an audit** in Ghana of obstetric and newborn cases referred from 12 health centers to four district and regional hospitals, in partnership with the Ghana Health Service. Findings suggest that the audit contributed to decreasing the number of cases that required referral from district hospitals to the regional hospital by addressing staffing and transportation issues. Facilitation of referral—calling ahead to alert the receiving facility, having a health worker escort the patient, using referral slips and providing feedback—improved at virtually all of the participating facilities.
- **Developing geographic information systems (GIS)** to demonstrate simulated options to strengthening the referral system. Innovative work in Ethiopia showed the extent to which reconfiguring referral networks and upgrading strategically located facilities could increase access to emergency services (within a two-hour timeframe).

Through all of these efforts, AMDD aids ministries of health and other programs to better understand their referral context, and to make informed decisions about how to promote timely referral and optimal deployment of human, financial, and technical resources to health facilities.

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### Notes

<sup>1</sup>In the mid-1990s, AMDD's predecessor maternal mortality project at Columbia University developed the "3 Delays" model.