

# HEART

HEALTH & EDUCATION ADVICE & RESOURCE TEAM

## **Helpdesk Report: Increasing facility-based deliveries and providing referral transport for women in childbirth in Asia**

**Date:** 26 September 2014

**Query:** Produce a report on approaches to:

- i) increasing the proportion of deliveries which take place in health facilities; and**
- ii) providing referral transportation for women and children in to access healthcare for childbirth and for emergency obstetric care.**

**The focus is on Asia and particularly South East Asia.**

### **Content**

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### **1. Overview**

#### **Increasing facility-based births**

Moving closer to health services prior to labour was identified as a way to improve access for those in remote areas by Wendy Holmes, Burnet Institute of Development Studies (Section 6). Maternity waiting homes are included as an option in the safe motherhood programme. Assessment of two homes in Timor-Leste were found to be unsuccessful in increasing health facility births for remote women (Wild et al, 2011). A Cochrane review finds insufficient evidence to determine the effectiveness of maternity waiting facilities for improving maternal and neonatal outcomes (van Lonkhuijzen, 2012). A report assessing the concept in Lao suggests that major barriers to minority ethnic groups would need to be addressed (Eckermann & Deodato, 2008).

Assessment of a pilot in Lao found that eliminating user fees associated with delivery at the point of services tripled facility-based delivery rates (Boudreaux et al, 2014). In Cambodia a voucher and Health Equity Fund scheme was reported to increase births in public health facilities (Van de Poel, 2013; Ir et al, 2010;). Voucher schemes in Bangladesh (Rob et al, 2009-10) and Pakistan (Agha, 2011a,b) were found to be successful. Evaluation of a conditional cash assistance programme in India was inconclusive (Devadasan et al, 2008).

A systems approach, with funding from the World Bank, was found to increase facility-based deliveries in the Philippines. The strategy prioritised the creation of community-based

women's health teams. Payment to a trained birth assistant within a health team incentivised referral to a health facility (Huntington et al, 2011).

An Indian state-led public private partnership where the state pays accredited private obstetricians to perform deliveries for poor/tribal women was found to increase deliveries from 40-89% in one study (De Costa et al, 2014). However, a different study found that the programme was not associated with changes in the probability of institutional delivery (Mohanani, 2013). This study took into account the self-selection of women. Possible explanations for the result include poor quality of services provided by private maternity hospitals; and despite the support of the programme – institutional deliveries remain associated with large transportation costs, informal payments or other expenses that make programme benefits small relative to the full cost of institutional delivery.

A behaviour change communication initiative in Bangladesh used pictorial cards to warn of pregnancy danger signs during routine antenatal visits. Knowledge of these danger signs was found to increase from 8.9% to 34.2% and women with this knowledge were estimated to be 1.13 times more likely to have institutional deliveries (Rahman & Anwar, 2013).

### Referral Transport

A systematic review found some evidence to suggest that community-based loan funds for transport during obstetric emergencies in developing countries have positive effects (Nwolise et al, 2014). A systematic review assessing the effects of referral interventions enabling pregnant women to reach health facilities found community mobilisation interventions may reduce neonatal mortality but the contribution of referral components cannot be ascertained (Hussein et al, 2012).

A CARE Village Emergency Referral System in Cambodia reports some anecdotal success (CARE and USAID, 2014. See also Cambodia Ministry of Health, 2009). A mini-truck tractor provided to townships in Myanmar for emergency maternal transfer in 2006 was reported to be useful where roads leading to health facilities were present (WHO Regional Office for South East Asia, 2014). Villages near river banks and railroad sides preferred either boat or train for transport. Underuse and misuse were noted. Some underuse was because of geographic location but a few depended on empowerment and motivation. There were also maintenance issues.

An emergency obstetric transportation service in Madhya Pradesh, India, was successful as part of a public private partnership (Sidney et al, 2014). The state contracted and paid private agencies to provide emergency transportation at no cost to the user. 35% of women utilised the service to reach a facility. Uptake was highest among women from rural areas (44%), scheduled tribes (55%), and poorly educated women (40%). A publicly financed and managed referral transport service model in Haryana State, India, was assessed for cost effectiveness and found to be operating at an efficient level (Prinja et al, 2013).

## 2. Relevant literature reviews and key papers

### Linking families and facilities for care at birth: What works to avert intrapartum-related deaths?

Leea ACC, Lawn JE, Cousens S, Kumara V, Osrind D, Bhutta ZA, Wall SN, Nandakumarf AK, Syed U, Darmstadt GL. (2009). *Int J Gynaecol Obstet.* 2009 October ; 107(Suppl 1): S65–S88.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3428847/pdf/ukmss-47785.pdf>

This systematic review discusses:

- Evidence for and cost-effectiveness of community mobilisation

- Evidence for financial strategies including elimination of user fees, community-based health insurance schemes, community loans, conditional cash transfers, voucher schemes, contracting out and pay for performance; and costs of strategies to increase demand for obstetric care.
- Evidence for community referral transport systems including improved communication systems, public-private partnerships, community-based emergency transport systems; and costs.
- Evidence for and cost of maternity waiting homes

Meta-analysis shows that high intensity, participatory community mobilisation programs resulted in a 2-fold increase in institutional births and prevented 1 out of 3 early neonatal deaths. There is limited program experience that financial strategies, community referral and transport systems, and cell phone technologies increase use of skilled obstetric care and may reduce maternal case fatality. These strategies are promising and require further evaluation of their impact on perinatal outcomes, cost-effectiveness, and sustainability. Maternity waiting homes may also have potential, although well-designed evaluations are needed to evaluate their effect on perinatal-maternal outcomes and acceptability in different regions. Risk screening, while previously rejected, deserves re-evaluation to determine the potential validity and impact of refined algorithms. New questions need to be asked of these “old” strategies.

### **Maternity waiting facilities for improving maternal and neonatal outcome in low-resource countries**

van Lonkhuijzen L, Stekelenburg J, van Roosmalen J. (2012). The Cochrane Library 2012, Issue 10

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006759.pub3/pdf>

#### Background:

A maternity waiting home (MWH) is a facility within easy reach of a hospital or health centre which provides emergency obstetric care (EmOC). Women may stay in the MWH at the end of their pregnancy and await labour. Once labour starts, women move to the health facility so that labour and giving birth can be assisted by a skilled birth attendant. The aim of the MWH is to improve accessibility to skilled care and thus reduce morbidity and mortality for mother and neonate should complications arise. Some studies report a favourable effect on the outcomes for women and their newborns. Others show that utilisation is low and barriers exist. However, these data are limited in their reliability.

#### Objectives:

To assess the effects of a maternity waiting facility on maternal and perinatal health.

#### Search methods:

We searched the Cochrane Pregnancy and Childbirth Group’s Trials Register (27 January 2012), CENTRAL (The Cochrane Library 2011, Issue 4 of 4), MEDLINE (1966 to January 2012), EMBASE (1980 to January 2012), CINAHL (1982 to January 2012), African Journals Online (AJOL) (January 2012), POPLINE (January 2012), Dissertation Abstracts (January 2012) and reference lists of retrieved papers.

#### Selection criteria:

Randomised controlled trials including quasi-randomised and cluster-randomised trials that compared perinatal and maternal outcome in women using a MWH and women who did not.

#### Data collection and analysis:

There were no randomised controlled trials or cluster-randomised trials identified from the search.

**Main results:**

There were no randomised controlled trials or cluster-randomised trials identified from the search.

**Authors' conclusions:**

There is insufficient evidence to determine the effectiveness of maternity waiting facilities for improving maternal and neonatal outcomes.

**The effectiveness of community-based loan funds for transport during obstetric emergencies in developing countries: a systematic review**

Nwolise CH, Hussein J, Kanguru L, Bell J, Patel P. (2014). Health Policy and Planning, 2014; 1-10.

<http://www.ncbi.nlm.nih.gov/pubmed/25138377>

**Objective:**

Scarcity and costs of transport have been implicated as key barriers to accessing care when obstetric emergencies occur in community settings. Community-based loans have been used to increase utilisation of health facilities and potentially reduce maternal mortality by providing funding at community level to provide emergency transport. This review aimed to provide evidence of the effect of community-based loan funds on utilisation of health facilities and reduction of maternal mortality in developing countries.

**Methods:**

Electronic databases of published literature and websites were searched for relevant literature using a pre-defined set of search terms, inclusion and exclusion criteria. Screening of titles, abstracts and full-text articles were done by at least two reviewers independently. Quality assessment was carried out on the selected papers. Data related to deliveries and obstetric complications attended at facilities, maternal deaths and live births were extracted to measure and compare the effects of community-based loan funds using odds ratios (ORs) and reductions in maternal mortality ratio. Forest plots are presented where possible.

**Results:**

The results of the review show that groups where community-based loan funds were implemented (alongside other interventions) generally recorded increases in utilisation of health facilities for deliveries, with ORs of 3.5 (0.97–15.48) and 3.55 (1.56–8.05); and an increase in utilisation of emergency obstetric care with ORs of 2.22 (0.51–10.38) and 3.37 (1.78–6.37). Intervention groups also experienced a positive effect on met need for complications and a reduction in maternal mortality.

**Conclusion:**

There is some evidence to suggest that community-based loan funds as part of a multifaceted intervention have positive effects. Conclusions are limited by challenges of study design and bias. Further studies which strengthen the evidence of the effects of loan funds, and mechanism for their functionality, are recommended.

**The Effectiveness of Emergency Obstetric Referral Interventions in Developing Country Settings: A Systematic Review**

Hussein J, Kanguru L, Astin M, Munjanja S. (2012). PLoS Medicine 9(7), e1001264

<http://www.plosmedicine.org/article/fetchObject.action?uri=info%3Adoi%2F10.1371%2Fjournal.pmed.1001264&representation=PDF>

**Background:**

Pregnancy complications can be unpredictable and many women in developing countries cannot access health facilities where life-saving care is available. This study assesses the

effects of referral interventions that enable pregnant women to reach health facilities during an emergency, after the decision to seek care is made.

#### Methods and findings:

Selected bibliographic databases were searched with no date or language restrictions. Randomised controlled trials and quasi experimental study designs with a comparison group were included. Outcomes of interest included maternal and neonatal mortality and other intermediate measures such as service utilisation. Two reviewers independently selected, appraised, and extracted articles using predefined fields. Forest plots, tables, and qualitative summaries of study quality, size, and direction of effect were used for analysis.

Nineteen studies were included. In South Asian settings, four studies of organisational interventions in communities that generated funds for transport reduced neonatal deaths, with the largest effect seen in India (odds ratio 0.48 95% CI 0.34–0.68). Three quasi experimental studies from sub-Saharan Africa reported reductions in stillbirths with maternity waiting home interventions, with one statistically significant result (OR 0.56 95% CI 0.32–0.96). Effects of interventions on maternal mortality were unclear. Referral interventions usually improved utilisation of health services but the opposite effect was also documented. The effects of multiple interventions in the studies could not be disentangled. Explanatory mechanisms through which the interventions worked could not be ascertained.

#### Conclusions:

Community mobilisation interventions may reduce neonatal mortality but the contribution of referral components cannot be ascertained. The reduction in stillbirth rates resulting from maternity waiting homes needs further study. Referral interventions can have unexpected adverse effects. To inform the implementation of effective referral interventions, improved monitoring and evaluation practices are necessary, along with studies that develop better understanding of how interventions work.

### **What kinds of policy and programme interventions contribute to reductions in maternal mortality? The effectiveness of primary level referral systems for emergency maternity care in developing countries**

Hussein J, Kanguru L, Astin M, Munjanja S. (2011). EPPI-Centre.

<http://r4d.dfid.gov.uk/PDF/Outputs/SystematicReviews/Maternal-mortality-2011Hussein.pdf>

#### Background:

Many pregnancy complications are unpredictable and many women in developing countries live far away from where life saving care is available. Referral interventions aim to address these problems. Referral systems are multi-dimensional and have many components, but this study focuses on those which enable women to reach an appropriate health facility after a decision to seek help is made.

#### Objective:

To assess the effects of interventions for timely emergency obstetric referral to higher levels of care in developing countries and to identify explanatory factors.

#### Results:

Of 19,484 hits, 19 papers met the inclusion criteria. The included studies were randomised controlled trials (RCTs) or quasi-experimental studies in rural settings in Africa, Asia or South America. Interventions were organisational or structural in nature, or contained both characteristics. The studies did not show statistically significant reductions in maternal mortality. Reductions in neonatal death were noted in four RCTs comprising multiple components, including generation of transport funds in community groups (OR 0.69 95% CI 0.53, 0.90). Sub-group analysis revealed no reduction in stillbirths in the complex RCTs (OR 0.85 95% CI 0.67, 1.08) but stillbirths decreased in studies of maternity waiting homes (OR

0.52 95% CI 0.34, 0.80). There was some evidence of increased utilisation of health facilities and health professionals. The included studies did not allow assessment of factors explaining the effects of the interventions.

#### Conclusions:

The effects on health outcomes of referral interventions which improve women's ability to reach appropriate care during an obstetric emergency are unclear. Conclusions are limited by difficulties in isolating the effects of multiple components and factors related to the design of some studies. The authors recommend continued inclusion of referral interventions within maternal and newborn health programmes and as part of wider health system improvements, but urge implementers to improve practices in monitoring, research and evaluation of these interventions.

#### **Reaching emergency obstetric care: overcoming the 'second delay'**

Holmes W, Kennedy E. (2010). COMPASS.

[http://www.transaid.org/images/resources/5%20-%20Reaching\\_emergency\\_obstetric\\_care\\_2009.pdf](http://www.transaid.org/images/resources/5%20-%20Reaching_emergency_obstetric_care_2009.pdf)

Emergency transport systems commonly in use in developed countries are not feasible or affordable in many resource-poor settings due to the high costs of equipped vehicles and skilled personnel, particularly in areas of low population density and poor infrastructure. However, there are some examples of effective coordinated emergency networks in the region. These are often partnerships between health and other government sectors, the private sector and the community.

There are a number of examples in Pakistan, including the Rescue-15 project, a collaboration between the police, private sector and community, based in Islamabad. The project, which provides free services including first aid and transfer to hospital 24 hours a day, is managed by the police department with contributions from NGOs and the private sector. The fleet includes three equipped ambulances and three doctors provided by NGOs, with communication through radio sets fitted to all vehicles, patrol cars and motorbikes. Financial contributions, provided by the police department, NGOs and the community, cover salaries and ongoing costs. Similarly, the Edhi Ambulance Service is provided free or at minimal cost through private and community donations, supporting a fleet of ambulances (including helicopters and airplanes) that cover even remote areas.<sup>116</sup> The Faisalabad Obstetric Flying Squad was established by the Mother and Child Welfare Association in 1988, providing free emergency transport to the referral hospital, which covered the costs of the program. Emergency calls were made to the hospital from where ambulances equipped with resuscitation equipment and trained health providers were dispatched. Extensive engagement with the community and training of TBAs and Lady Health Workers was also undertaken to increase awareness of the service and address some of the socio-cultural barriers to seeking hospital care. Between 2 and 5% of all obstetric admissions to the hospital were through the Flying Squad, and women of low socioeconomic status were the predominant users. There is no reported data on maternal health outcomes, but an evaluation of the program in 1993 concluded that integrating the referral system into the general operations of the hospital was one of the main facilitating factors and that such a model could be replicated in similar settings.

In Indonesia, the public emergency transport service '118' provides an ambulance system in five of the biggest cities in the country, with a call centre in Jakarta that receives 50-75 calls a day to dispatch 26 ambulances and 12 motorcycles. Calls are not charged and transport fees cover 50% of the costs, if the patient can afford to pay. The program is also funded from income generated by paramedical training courses provided by the organisation. In Madagascar, emergency calls are dispatched by the police and fire departments, with 30% of referrals for obstetric complications.



In India, an innovative public-private partnership was established in 2005 between state governments and the Emergency Management and Research Institute (EMRI, see [www.emir.in](http://www.emir.in)) to provide pre-hospital emergency care and transport. The system comprises a network of medically equipped vehicles, skilled personnel and wireless communication managed by a central call centre that can be reached by a single toll-free number. The system responds to all emergency calls 24 hours a day, including in rural areas, with a reported average arrival time of 20 minutes in urban areas and 30 minutes in rural areas. Around one third of calls are for obstetric emergencies. Pre-hospital care and transport are free of charge, and agreements have been signed with over 6800 hospitals to provide free stabilisation care for patients for the first 24 hours. There are over 1900 operational ambulances across eleven states with plans to expand the program across the entire country.

### **Basic Emergency Obstetric Care: First Response. Technology Opportunity Assessment**

PATH. (2012).

[http://sites.path.org/mnhtech/files/2013/05/FINAL\\_EmOC-First-Response\\_9May2013.pdf](http://sites.path.org/mnhtech/files/2013/05/FINAL_EmOC-First-Response_9May2013.pdf)

Once a woman receives immediate emergency care for an obstetric complication, she may require definitive care at a referral facility, such as the district hospital. Transfer from one level of the health system to another is usually financed by the ministry of health (MOH). The Averting Maternal Death and Disability (AMDD) project is currently researching referral systems in developing countries to help MOHs make informed decisions about effective mechanisms for referral. Research includes identifying gaps in the management of referral systems, training for drivers, the use of clinical protocols, a monitoring system for referral, and the availability of communication and transportation. Needs assessment tools have been developed to assist MOHs in analyzing referral readiness and determining where emergency transport vehicles should be prioritised. Because of the heterogeneity of settings, it is difficult to recommend strategies or solutions for the transport problem. However, the AMDD tools have been used successfully in more than 15 African countries to shape policy and develop strategies to address gaps in obstetric care, and these tools and experiences can help define an emergency transport system that is both appropriate and effective.

### **Transport Management. A Self-Learning Guide for Local Transport Managers of Public Health Services**

Cuninghame C, Forster G, O'Connor E, Saunders C. (2010). USAID.

[http://deliver.jsi.com/dlvr\\_content/resources/allpubs/guidelines/TMS\\_Guide.pdf](http://deliver.jsi.com/dlvr_content/resources/allpubs/guidelines/TMS_Guide.pdf)

This guide comprises a self-directed course on managing sustainable, cost-effective transport management systems for Ministries of Health (MoH) and other organizations implementing public health programs. It is written for local managers of public health services.

Transaid has a long experience in promoting best practice in transport management throughout Africa and elsewhere. Their activities include training and supporting the many transport managers and officers who work every day with MoH and other fleets on strategic, practical, organizational and operational transport management issues that arise. Through their extensive experience in working with local community organisations, governments, institutions, and donors, they have been able to build capability of transport and fleet management skills of those who need it most. Their experience and curriculum provided much of the background information for this guide.

### **Emergency Transportation. Technology Opportunity Assessment. Prepared for the Merck for Mothers Program.**

[http://sites.path.org/mnhtech/files/2013/07/Emergency-transportation\\_FINAL\\_28June2013.pdf](http://sites.path.org/mnhtech/files/2013/07/Emergency-transportation_FINAL_28June2013.pdf)

This report discusses the following emergency transportation options:

	<b>Access to motorised transport</b>	<b>No or little access to motorised transport</b>
<b>Access to an all-weather motorable road</b>	Medical ambulance, taxi, bus, shared vehicle, motorcycle ambulance, private vehicle (usually tractor).	Motorboat, all-wheel drive (AWD) vehicle, tractor, airplane, maternity waiting home
<b>Access to seasonal roads</b>	Motorboat, airplane, AWD vehicle, maternity waiting home.	Animal cart, padded seat on an animal, canoe, maternity waiting home
<b>No access to roads</b>	Motorboat, airplane, AWD vehicle, maternity waiting home.	Canoe, padded seat on an animal, maternity waiting home.

### Other useful resources

#### **Targeted Interventions for Improved Equity in Maternal and Child Health in Low- and Middle-Income Settings: A Systematic Review and Meta-Analysis**

<http://www.plosone.org/article/fetchObject.action?uri=info%3Adoi%2F10.1371%2Fjournal.pone.0066453&representation=PDF>

#### **A neglected topic: Emergency transport and referral systems to improve access to maternal health care**

<http://www.mhtf.org/2013/01/23/a-neglected-topic-emergency-transport-and-referral-systems-to-improve-access-to-maternal-health-care/>

#### **Averting Maternal Death and Disability - referral systems for emergency obstetric and newborn care (webpage)**

<http://www.amddprogram.org/content/referral-systems>

#### **Maternal health and transport. Eldis key issues guide.**

<http://collections.europarchive.org/tna/20100918075642/eldis.org/go/topics/resource-guides/health/key-issues/maternal-health-and-transport>

#### **Emergency Obstetric Care Project Impact Report**

<http://www.rhrc.org/resources/emocpir.pdf>

#### **Innovative Approaches to Maternal and Newborn Health Compendium of Case Studies**

[http://www.unicef.org/health/files/Innovative\\_Approaches\\_MNH\\_CaseStudies-2013.pdf](http://www.unicef.org/health/files/Innovative_Approaches_MNH_CaseStudies-2013.pdf)

#### **A neglected topic: Emergency transport and referral systems to improve access to maternal health care**

<http://www.mhtf.org/2013/01/23/a-neglected-topic-emergency-transport-and-referral-systems-to-improve-access-to-maternal-health-care/>

#### **Ensuring Equitable Access for Safe Institutional Child Birth**

[http://www.unicef.org/india/SafeInstitutional\\_Deliery.pdf](http://www.unicef.org/india/SafeInstitutional_Deliery.pdf)



## Investing in Maternal Health Learning from Malaysia and Sri Lanka

<http://www->

[wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2007/08/28/000020439\\_20070828164038/Rendered/PDF/259010REPLACEM10082135362401PUBLIC1.pdf](http://wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2007/08/28/000020439_20070828164038/Rendered/PDF/259010REPLACEM10082135362401PUBLIC1.pdf)

### 3. South East Asia resources on facility-based delivery

#### **Can vouchers deliver? An evaluation of subsidies for maternal health care in Cambodia**

Van de Poel E, Flores G, Ir P, O'Donnell O & Van Doorslaer E. (2013). Bulletin of the World Health Organization 2014;92:331-339.

<http://www.who.int/bulletin/volumes/92/5/13-129122/en/>

Unlike the voucher schemes operating in most other countries, those in Cambodia do not cover a range of providers but are, instead, restricted to subsidizing maternity care at public facilities, mainly health centres. As such, the vouchers function as fee waivers. In addition, the schemes have two other important features: health-care facilities are reimbursed for the care provided and women are given information encouraging them to use maternal health care in these facilities.

Between 2007 and 2010, voucher schemes were implemented in 22 of 77 operational health districts in Cambodia. In 14 districts, the voucher scheme was universal, whereas in 8 it targeted the poorest women (detailed information on the roll out of the voucher schemes is available from the authors on request). In both types of scheme, pregnant women were identified mainly by local health volunteers, who distributed the vouchers and provided advice on safe motherhood at village meetings with the aim of making women aware of the benefits of using maternal health care at public facilities.

At the end of each month, health centres were paid for each voucher coupon collected in accordance with the posted user fees. In principle, the universal voucher scheme provided reimbursement only when all components of a package of antenatal care, delivery and postnatal care had been completed. But, in practice, a health centre may have been paid for a delivery even though it did not provide proof that the woman had completed all the required antenatal and postnatal care visits and women may not have been reimbursed for fees they paid for antenatal care after completion of the care package.

Analysis shows sharp decrease in home births and the increase in births in public health-care facilities that occurred in both intervention and control districts between the 2005 and 2010 Cambodian District Health Surveys. The proportion of home births fell more in districts in which a voucher scheme had been implemented by 2010 than in those with no voucher scheme.

The operation of voucher schemes raised the probability that a woman would give birth in a public facility by around 10 percentage points. This corresponds to about one fifth of the average increase during the study period in the proportion of births taking place in these facilities in districts with voucher schemes; the proportion increased from 17% in 2005 to 68% in 2010. Other interventions, such as incentive payments to midwives, were relatively more important at the national level.

#### **Using targeted vouchers and health equity funds to improve access to skilled birth attendants for poor women: a case study in three rural health districts in Cambodia**

Ir P, Horemans D, Souk N, Van Damme W. (2010). BMC Pregnancy Childbirth 10 (1).

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2820432/>

Background:

In many developing countries, the maternal mortality ratio remains high with huge poor-rich inequalities. Programmes aimed at improving maternal health and preventing maternal mortality often fail to reach poor women. Vouchers in health and Health Equity Funds (HEFs) constitute a financial mechanism to improve access to priority health services for the poor. We assess their effectiveness in improving access to skilled birth attendants for poor women in three rural health districts in Cambodia and draw lessons for further improvement and scaling-up.

**Methods:**

Data on utilisation of voucher and HEF schemes and on deliveries in public health facilities between 2006 and 2008 were extracted from the available database, reports and the routine health information system. Qualitative data were collected through focus group discussions and key informant interviews. We examined the trend of facility deliveries between 2006 and 2008 in the three health districts and compared this with the situation in other rural districts without voucher and HEF schemes. An operational analysis of the voucher scheme was carried out to assess its effectiveness at different stages of operation.

**Results:**

Facility deliveries increased sharply from 16.3% of the expected number of births in 2006 to 44.9% in 2008 after the introduction of voucher and HEF schemes, not only for voucher and HEF beneficiaries, but also for self-paid deliveries. The increase was much more substantial than in comparable districts lacking voucher and HEF schemes. In 2008, voucher and HEF beneficiaries accounted for 40.6% of the expected number of births among the poor. We also outline several limitations of the voucher scheme.

**Conclusions:**

Vouchers plus HEFs, if carefully designed and implemented, have a strong potential for reducing financial barriers and hence improving access to skilled birth attendants for poor women. To achieve their full potential, vouchers and HEFs require other interventions to ensure the supply of sufficient quality maternity services and to address other non-financial barriers to demand. If these conditions are met, voucher and HEF schemes can be further scaled up under close monitoring and evaluation.

**Maternity waiting homes in Southern Lao PDR: the unique 'silk home'**

Eckermann E, Deodato G. (2008). Journal of obstetrics and gynaecology Research 34 (5), 767-775

<http://www.ncbi.nlm.nih.gov/pubmed/18834334>

The concept of maternity waiting homes (MWH) has a long history spanning over 100 years (WHO, 1996). The research reported here was conducted in the Thateng District of Sekong Province in southern Lao PDR to establish whether the MWH concept would be affordable, accessible, and most importantly acceptable, as a strategy to improve maternal outcomes in the remote communities of Thateng with a high proportion of the population from ethnic minority groups. The research suggested that there were major barriers to minority ethnic groups using existing maternal health services (reflected in very low usage of trained birth attendants and hospitals and clinics) in Thateng. Unless MWHs are adapted to overcome these potential barriers, such initiatives will suffer the same fate as existing maternal facilities. Consequently, the Lao iteration of the concept, as operationalised in the Silk Homes project in southern Lao PDR, is unique in combining maternal and infant health services with opportunities for micro credit and income generating activities and allowing non harmful traditional practices to co-exist alongside modern medical protocols. These innovative approaches to the MWH concept address the major economic, social and cultural barriers to usage of safe birthing options in remote communities of southern Lao PDR.

### **The tyranny of distance: maternity waiting homes and access to birthing facilities in rural Timor-Leste**

Wild K, Barclay L, Kelly P & Martins N. (2011). Bulletin of the World Health Organization 2012;90:97-103

<http://www.who.int/bulletin/volumes/90/2/11-088955/en/>

Maternity waiting homes are residential facilities where women who live remotely can wait before giving birth at a hospital or health centre. The commonly accepted hypothesis is that more women from remote areas would access birthing facilities if they could wait for the onset of labour in a maternity waiting home.

Since being included as an option in the safe motherhood programme, implementation of maternity waiting homes has become an increasingly popular strategy in health systems in developing countries. More countries are incorporating these homes into ministry of health policy, often backed by United Nations (UN) agencies and other large donors. Organizations such as the United Nations Population Fund (UNFPA), The World Bank and WHO have recently supported maternity waiting home projects in countries as diverse as Afghanistan, Cambodia, Eritrea, the Gambia, the Lao People's Democratic Republic, Lesotho, Maldives, Mongolia, Morocco, Mozambique, Nepal, Sri Lanka and Timor-Leste.

A before-and-after distance analysis of the use of the first two maternity waiting homes to be implemented in Timor-Leste has demonstrated that, contrary to its objectives, the strategy of implementing such homes did not result in a higher proportion of women from remote areas giving birth in health facilities in Lospalos and Same. Place of delivery is prominent in many of Timor-Leste's health policies. Given the failure of maternity waiting homes to improve access for remote women, further research should be conducted to determine which models of care increase coverage and produce the best outcomes for women and neonates. The results of such research could then be used to inform national policy. Fruitful areas of research in Timor-Leste include the impact of maternity transport services, skilled attendance for home births, and decentralization of birthing facilities to subdistricts.

Since the early 1990s, WHO has called for studies assessing the impact of maternity waiting homes. Because the success of implementing such homes will depend on the context, efforts should be made to evaluate and publish findings on the use of this strategy in other countries. The methodology for distance analysis presented here provides a framework for further research using data collected routinely in rural health centres.

### **Reduction in inequality in antenatal-care use and persistence of inequality in skilled birth attendance in the Philippines from 1993 to 2008**

Molina H, Nakamura K, Kizuki M, Seino K. (2013). BMJ Open 2013;3:e002507

<http://bmjopen.bmj.com/content/3/6/e002507.full>

Article focus:

Assessing the changes in the inequalities associated with maternal healthcare use according to economic status in the Philippines.

Key messages:

- The study showed a reduction in the inequality of antenatal-care use through time, suggesting a substantial coverage of women in the lowest quintile.
- However, inequality was shown to persist in skilled birth attendance and delivery in medical facilities, indicating minimal professional delivery care among disadvantaged women despite health system-wide efforts and improvements in the sociodemographic profile of the population.

- The results call for equity-oriented research and policies to close the wide gap in skilled care at birth in the Philippines and to determine the success factors in the reduction of inequality in antenatal-care use.

Strengths and limitations of this study:

- This is the first study of long-term trends in inequalities in the utilisation of critical maternal health interventions using four comparable, nationally representative Demographic Health Survey (DHS) data sets commonly used as data sources in the literature.
- Comparability of the different survey years was achieved by selecting only the women who had live-births within 1 year.
- The DHS wealth index was used to represent changes in socioeconomic inequalities through time.

### **National guideline on maternity waiting home**

Cambodia Ministry of Health. (2012).

<http://www.moh.gov.kh/files/mch/Guideline%20on%20Maternity%20Waiting%20Home.pdf>

This document outlines the need assessment before setting up a maternity waiting home (MWH), selection of a location, management of a MWH, identification and referral of women, and monitoring & evaluation. The aim is to provide guidance to policy makers, implementing units, health partners including NGOs, on how to support rural, remote and poor women to access quality of care during pregnancy, childbirth, post-partum and newborn care.

### **Assessing the Elimination of User Fees for Delivery Services in Laos**

Boudreaux C, Chanthala P, Lindelow M. (2014). PLOS ONE 9(3)

<http://www.plosone.org/article/fetchObject.action?uri=info%3Adoi%2F10.1371%2Fjournal.pone.0089784&representation=PDF>

A pilot eliminating user fees associated with delivery at the point of services was introduced in two districts of Laos in March 2009. Following two years of implementation, an evaluation was conducted to assess the pilot impact, as well as to document the pilot design and implementation challenges. Study results show that, even in the presence of the substantial access and cultural barriers, user fees associated with delivery at health facilities act as a serious deterrent to care seeking behavior. We find a tripling of facility-based delivery rates in the intervention areas, compared to a 40% increase in the control areas. While findings from the control region suggest that facility-based delivery rates may be on the rise across the country, the substantially higher increase in the pilot areas highlight the impact of financial burden associated with facility-based delivery fees. These fees can play an important role in rapidly increasing the uptake of facility delivery to reach the national targets and, ultimately, to improve maternal and child health outcomes. The pilot achieved important gains while relying heavily on capacity and systems already in place. However, the high cost associated with monitoring and evaluation suggest broad-scale expansion of the pilot activities is likely to necessitate targeted capacity building initiatives, especially in areas with limited district level capacity to manage funds and deliver detailed and timely reports.

### **A systems approach to improving maternal health in the Philippines**

Huntington D, Banzon E & Dy Recidoro Z. (2011). Bulletin of the World Health Organization 2012;90:104-110.

<http://www.who.int/bulletin/volumes/90/2/11-092825/en/>

This paper reports the results of a case study conducted in late 2010 to assess the impact of the National Safe Motherhood Programme by comparing progress among a set of provinces within one region. Sorsogon province was selected as the site of the World-Bank-funded health project in the Bicol region because of its low socioeconomic and maternal health status and because the local government supported the project. The province began implementing a series of reforms in 2006. Because of its participation in the World Bank project, Sorsogon has received more technical support, programme guidance and oversight from the DOH and Provincial Health Office than other provinces in the region. The World Bank loan was not a major source of revenue for Sorsogon province during the study period and was slow to begin disbursement. However, strong support from the provincial governor and mayors empowered the province to access domestic health funding. The National Safe Motherhood Programme and Maternal Mortality Reduction Initiative are being followed in the region's other provinces but only started recently.

The gains in the facility-based delivery rate in the other provinces were between 9 and 24 percentage points, compared with Sorsogon province, which had a 44 percentage point increase. The largest gain occurred between 2008 and 2009, when Sorsogon reported a 34 percentage point rise in facility-based births.

The results presented are consistent with increases in the facility-based deliveries, and with the positive changes shown in the different health system components that are critical for improving maternal health. Between 2006 and 2009, the actual number of maternal deaths in Sorsogon fell from 42 to 18; the MMR fell from 254 to 114 during the same period. Other provinces in the Bicol region reported declines in the number of maternal deaths, but of lesser magnitude.

The national maternal health strategy prioritises the creation of community-based women's health teams. In the Bicol region, Sorsogon province reported the formation of 871 women's health teams in 541 barangay, compared with 391 in Catanduanes province. The other provinces did not report data on the formation of women's health teams during the study period; however, anecdotal evidence suggests that, by the close of the review period, the other provinces were moving quickly with this element of the national programme model. Each member of a women's health team receives a cash incentive through a performance-based financing mechanism. The payment to the trained birth assistant (TBA) is intended to incentivise referral to a health facility by offsetting the potential income the TBA forfeits by making the referral. The payment to the midwife is a type of overtime salary adjustment. The payment to the pregnant woman supports transportation or other out-of-pocket expenses associated with the institutional delivery. The DOH had operational problems in delivering the first wave of performance-based grants but resolved these problems as experience increased.

### **Factors associated with non-utilization of health service for childbirth in Timor-Leste: evidence from the 2009-2010 Demographic and Health Survey**

Khanal V, Lee AH, Brites da Cruz JLN and Karkee R. (2014). BMC International Health and Human Rights 2014, 14:14

<http://www.biomedcentral.com/1472-698X/14/14>

#### **Background:**

Timor-Leste is a young developing country in Asia. Most of its infrastructure was destroyed after a long armed conflict for independence. Despite recent expansion of health facilities and investment in healthcare, maternal mortality remains high with most mothers still giving birth at home. This study investigated factors affecting the non-utilisation of health service for childbirth in the aftermath of the independence conflict.

#### **Methods:**

The Timor-Leste Demographic and Health Survey 2009-2010 was the latest two-stage national survey, which used validated questionnaires to obtain information from 26 clusters derived from 13 districts of the country. Factors influencing non-utilisation of health facility for childbirth were investigated using univariate and multivariable logistic regression analyses, accounting for the cluster sampling and sample weight of the survey.

#### Results:

Of the total 5986 participants included in the study, 4472 (74.8%) did not deliver their last child at a health facility. Lack of education for the mother (adjusted odds ratio (OR): 2.04; 95% confidence interval (CI) 1.56 to 2.66) and her partner (OR: 1.45; 95% CI 1.14 to 1.84), low household wealth status (OR: 5.20; 95% CI 3.93 to 6.90), and rural residence (OR: 2.83; 95% CI 2.22 to 3.66), were associated with increased likelihood of non-utilisation of health facility for childbirth. Working mothers (OR: 1.55; 95% CI 1.32 to 1.81), who had high parity (OR: 1.78; 95% CI 1.36 to 2.32) and did not attend antenatal care service (OR: 4.68; 95% CI 2.65 to 8.28) were also vulnerable for not delivering at a health facility. Conversely, the prevalence of non-utilisation of health facility for childbirth reduced with increasing number of service components received during antenatal care visits (OR: 0.72; 95% CI 0.64 to 0.80).

#### Conclusions:

Only a quarter of Timorese women delivered at a health facility. In order to reduce maternal mortality, future interventions should target disadvantaged mothers from poor families, those residing in rural areas, have higher parity but no education, and who seldom attend antenatal care service, by improving their utilisation of health facility for childbirth.

#### **'Maybe it was her fate and maybe she ran out of blood': final caregivers' perspectives on access to care in obstetric emergencies in rural Indonesia**

D'ambruoso L, Byass P, Qomariyah SN. (2009). Journal of Biosocial Science 42(2), 213-242  
<http://www.ncbi.nlm.nih.gov/entrez/eutils/elink.fcgi?dbfrom=pubmed&cmd=prlinks&retmode=ef&id=20018117>

This paper examines access to care in obstetric emergencies from the perspectives of service users, using established and contemporary theoretical frameworks of access and a routine health surveillance method. The implications for health planning are also considered. The final caregivers of 104 women who died during pregnancy or childbirth were interviewed in two rural districts in Indonesia using an adapted verbal autopsy.

Qualitative analysis revealed social and economic barriers to access and barriers that arose from the health system itself. Health insurance for the poor was highly problematic. For providers, incomplete reimbursements, and low public pay, acted as disincentives to treat the poor. For users, the schemes were poorly socialized and understood, complicated to use and led to lower quality care. Services, staff, transport, equipment and supplies were also generally unavailable or unaffordable. The multiple barriers to access conferred a cumulative disadvantage that culminated in exclusion. This was reflected in expressions of powerlessness and fatalism regarding the deaths.

The analysis suggests that conceiving of access as a structurally determined, complex and dynamic process, and as a reciprocally maintained phenomenon of disadvantaged groups, may provide useful explanatory concepts for health planning. Health planning from this perspective may help to avoid perpetuating exclusion on social and economic grounds, by health systems and services, and help foster a sense of control at the micro-level, among peoples' feelings and behaviours regarding their health. Verbal autopsy surveys provide an opportunity to routinely collect information on the exclusory mechanisms of health systems, important information for equitable health planning.



**Why do some women still prefer traditional birth attendants and home delivery?: a qualitative study on delivery care services in West Java Province, Indonesia**

Titaley CR, Hunter CL, Dibley MJ, Heywood P. (2010). BMC Pregnancy and Childbirth 10(43).

[https://www.academia.edu/6556439/Why\\_do\\_some\\_women\\_still\\_prefer\\_traditional\\_birth\\_attendants\\_and\\_home\\_delivery\\_a\\_qualitative\\_study\\_on\\_delivery\\_care\\_services\\_in\\_West\\_Java\\_Province\\_Indonesia](https://www.academia.edu/6556439/Why_do_some_women_still_prefer_traditional_birth_attendants_and_home_delivery_a_qualitative_study_on_delivery_care_services_in_West_Java_Province_Indonesia)

**Background:**

Trained birth attendants at delivery are important for preventing both maternal and newborn deaths. West Java is one of the provinces on Java Island, Indonesia, where many women still deliver at home and without the assistance of trained birth attendants. This study aims to explore the perspectives of community members and health workers about the use of delivery care services in six villages of West Java Province.

**Methods:**

A qualitative study using focus group discussions (FGDs) and in-depth interviews was conducted in six villages of three districts in West Java Province from March to July 2009. Twenty FGDs and 165 in-depth interviews were conducted involving a total of 295 participants representing mothers, fathers, health care providers, traditional birth attendants and community leaders. The FGD and in-depth interview guidelines included reasons for using a trained or a traditional birth attendant and reasons for having a home or an institutional delivery.

**Results:**

The use of traditional birth attendants and home delivery were preferable for some community members despite the availability of the village midwife in the village. Physical distance and financial limitations were two major constraints that prevented community members from accessing and using trained attendants and institutional deliveries. A number of respondents reported that trained delivery attendants or an institutional delivery were only aimed at women who experienced obstetric complications. The limited availability of healthcare providers was reported by residents in remote areas. In these settings the village midwife, who was sometimes the only health care provider, frequently travelled out of the village. The community perceived the role of both village midwives and traditional birth attendants as essential for providing maternal and health care services.

**Conclusions:**

A comprehensive strategy to increase the availability, accessibility, and affordability of delivery care services should be considered in these West Java areas. Health education strategies are required to increase community awareness about the importance of health services along with the existing financing mechanisms for the poor communities. Public health strategies involving traditional birth attendants will be beneficial particularly in remote areas where their services are highly utilised.

**Education and the use of maternal health care in Thailand**

Raghupathy S. (1996). Social Science and Medicine 43(4), 459-471.

<http://www.sciencedirect.com/science/article/pii/0277953695004114>

This study analyses the impact of female education on the use of maternal and child health services by women in Thailand during their pregnancy. Three types of health service use were examined—the use of tetanus toxoid inoculations, prenatal care, and assistance by formal sources during delivery. While most previous research in the area had focussed on the effects of schooling per se, the present study tries to assess the differential impact of various schooling categories on utilisation outcomes. An additional issue examined was the interactive effects of education and residence on health care use in the schooling-utilisation

link. The results of the analysis indicate that the health consequences of maternal education cannot be taken for granted—maternal schooling does not have a uniform impact across all services; nor are these effects necessarily positive. While there is distinct positive effect of schooling in the use of prenatal care, the educational differentials in the use of delivery assistance start emerging only after secondary schooling. It is with respect to TT inoculations that the most surprising result was seen; while women with primary and secondary schooling maintain their advantage, women with higher education showed a lower likelihood of use compared to those with no schooling. Overall, secondary education emerges as the most consistent predictor of health service use showing higher likelihood of use of all three services. Schooling effects also vary across residence, though this interaction was significant only in the case of inoculations. While educational differentials are maintained in rural areas, urban residence tends to narrow down these differentials considerably. The study concludes by making suggestions for policy.

#### 4. Facility-based delivery resources from other Asian countries

##### **A conditional cash assistance programme for promoting institutional deliveries among the poor in India: process evaluation results**

Devadasan N, Elias MA, John D, Grahacharya S & Ralte L. (2008). Studies in HSO&P, 24. [http://www.itg.be/itg/Uploads/Volksgezondheid/shsop24/11\\_A%20conditional%20cash%20assistance%20programme%20for%20promoting%20institutional%20deliveries%20among%20the%20poor%20in%20India%20-%20process%20evaluation%20results.pdf](http://www.itg.be/itg/Uploads/Volksgezondheid/shsop24/11_A%20conditional%20cash%20assistance%20programme%20for%20promoting%20institutional%20deliveries%20among%20the%20poor%20in%20India%20-%20process%20evaluation%20results.pdf)

India contributes significantly to the global burden of maternal deaths. More than 20% of all maternal deaths occur in India. To tackle this and especially to promote institutional deliveries, the government of India has introduced a conditional cash assistance programme called the Janani Suraksha Yojana (JSY). Under this programme, poor women who have had three antenatal check ups and who deliver in a health facility would get money soon after delivery to take care of their direct and indirect costs.

The researchers interviewed staff and women who had recently delivered from four Indian states, to determine how the JSY is functioning in the field and whether it is meeting its original objective of increasing institutional deliveries. While there is some evidence to suggest that there has been an increase in institutional deliveries, we were able neither to quantify it nor attribute it to the JSY. This is because of the paucity of good quality data at the state and district levels. Both the staff as well as the pregnant women were happy with the scheme and felt that it met an important need. However, there were some important gaps in the implementation of the scheme. We found that some of the poor women were not aware of the programme; that the documentation processes had become very cumbersome and that there was a considerable delay in the women getting the cash benefit. Some women also mentioned that they received only partial amounts - the rest being pocketed by the health staff. The most significant issue was that the scheme has been changed to permit the cash benefit to go to all women who deliver, irrespective of the site of delivery. This has resulted in this scheme actually promoting home deliveries, a perversion of the original objective.

##### **Changes in the proportion of facility-based deliveries and related maternal health services among the poor in rural Jhang, Pakistan: results from a demand-side financing intervention**

Agha S. (2011a). International Journal for Equity in Health 2011, 10:57. <http://www.equityhealthj.com/content/10/1/57>

Background:

Demand-side financing projects are now being implemented in many developing countries, yet evidence showing that they reach the poor is scanty.

#### Methods:

A maternal health voucher scheme provided voucher-paid services in Jhang, a predominantly rural district of Pakistan, during 2010. A pre-test/post-test quasi-experimental design was used to assess the changes in the proportion of facility-based deliveries and related maternal health services among the poor. Household interviews were conducted with randomly selected women in the intervention and control union councils, before and after the intervention.

A strong outreach model was used. Voucher promoters were given basic training in identification of poor women using the Poverty Scorecard for Pakistan, in the types of problems women could face during delivery, and in the promotion of antenatal care (ANC), institutional delivery and postnatal care (PNC). Voucher booklets valued at Rs. 4,000 (\$48), including three ANC visits, a PNC visit, an institutional delivery, and a postnatal family planning visit, were sold for Rs. 100 (\$1.2) to low-income women targeted by project outreach workers. Women suffering from complications were referred to emergency obstetric care services.

Analysis was conducted at the bivariate and the multivariate levels. At the multivariate level, logistic regression analysis was conducted to determine whether the increase in institutional delivery was greater among poor women (defined for this study as women in the fourth or fifth quintiles) relative to non-poor women (defined for this study as women in the first quintile) in the intervention union councils compared to the control union councils.

#### Results:

Bivariate analysis showed significant increases in the institutional delivery rate among women in the fourth or fifth wealth quintiles in the intervention union councils but no significant changes in this indicator among women in the same wealth quintiles in the control union councils. Multivariate analysis showed that the increase in institutional delivery among poor women relative to non-poor women was significantly greater in the intervention compared to the control union councils.

#### Conclusions:

Demand-side financing projects using vouchers can be an effective way of reducing inequities in institutional delivery.

### **Impact of a maternal health voucher scheme on institutional delivery among low income women in Pakistan**

Agha S. (2011b). *Reproductive Health* 2011, 8:10.

<http://www.reproductive-health-journal.com/content/8/1/10>

#### Background:

Only 39% of deliveries in Pakistan are attended by skilled birth attendants, while Pakistan's target for skilled birth attendance by 2015 is > 90%.

#### Methods:

A 12-month maternal health voucher intervention was implemented in Dera Ghazi Khan City, located in Southern Punjab, Pakistan in 2009. A pre-test/post-test non-experimental study was conducted to assess the impact of the intervention. Household interviews were conducted with randomly selected women who delivered in 2008 (the year prior to the voucher intervention), and with randomly selected women who delivered in 2009. A strong outreach model was used and voucher booklets valued at \$50, containing redeemable coupons for three antenatal care (ANC) visits, a postnatal care (PNC) visit and institutional delivery, were sold for \$1.25 to low-income women targeted by project workers. Regression analysis was conducted to determine the impact of the voucher scheme on ANC, PNC, and

institutional delivery. Marginal effects estimated from logistic regression analyses were used to assess the magnitude of the impact of the intervention.

#### Results:

The women targeted by voucher outreach workers were poorer, less educated, and at higher parity. After adjusting for these differences, women who delivered in 2009 and were sold voucher booklets were significantly more likely than women who delivered in 2008 to make at least three ANC visits, deliver in a health facility, and make a postnatal visit. Purchase of a voucher booklet was associated with a 22 percentage point increase in ANC use, a 22 percentage point increase in institutional delivery, and a 35 percentage point increase in PNC use.

#### Conclusions:

A voucher intervention implemented for 12 months was associated with a substantial increase in institutional delivery. A substantial scale-up of maternal health vouchers that focus on institutional delivery is likely to bring Pakistan closer to achieving its 2015 target for institutional delivery.

#### **Using vouchers to increase access to maternal healthcare in Bangladesh**

Rob U, Rahman M, Bellows B. (2009-10). *Int Q Community Health Educ.* 2009-2010;30(4):293-309.

<http://www.ncbi.nlm.nih.gov/pubmed/21273164>

The maternal mortality ratio (322) is comparatively high in Bangladesh. The utilisation of maternity care provided by trained professionals during and after delivery is alarmingly low, primarily due to lack of knowledge and money. The overall objective of this operations research project was to test the feasibility and effectiveness of introducing financial support (voucher scheme) for poor rural women to improve utilisation of antenatal care (ANC), delivery and postnatal check-up (PNC) from trained service providers. A pretest-posttest design was utilised. A total of 436 women were interviewed before and 414 after the intervention to evaluate the impact of interventions. In-depth interviews were conducted with users and non-users of vouchers. Findings show that institutional deliveries have increased from 2% to 18%. Utilisation of ANC from trained providers has increased from 42% to 89%. Similarly, utilisation of PNC from trained providers has increased from 10% to 60%.

#### **Impact of Janani Suraksha Yojana on institutional delivery in Empowered Action Group States, India**

Paul L, Chellan R. (2013). *South East Asia Journal of Public Health* 3(2)

<http://www.banglajol.info/index.php/SEAJPH/article/view/20033>

The National Population Policy (NPP) in India defined goal to increased institutional delivery and reducing Maternal Mortality Ratio (MMR). Therefore, National Rural Health Mission (NRHM) aimed to increased expenditure to provide primary health care services to poor households in rural India through Janani Surakshya Yojana (JSY), which provide referral transport, escort and improved hospital care for institutional deliveries. The study concludes from District Level Household Surveys (DLHS)-2 and 3 data that Janani Surakshya Yojana undoubtedly contributed to a tremendous improvement in institutional delivery. Accredited Social Health Activist (ASHA), found as an effective link between the Government and the poor pregnant women to provide information on Janani Surakshya Yojana. States like Madhya Pradesh, Odisha and Rajasthan have an impressive rise in institutional delivery and also high percentage of women received financial benefits through the JSY. Planned implementation of programme through NRHM may help achieve the goals of NPP 2000 and hence Millennium De-velopment Goal (MDG)-5 to save life of millions mothers and newborn in India.

### **Raising institutional delivery in war-torn communities: Experience of BRAC in Afghanistan**

Hadi A, Rahman T, Khuram D, Ahmed J and Alam A. (2007). Asia Pacific Journal of Family Medicine Volume 6 Issue 1.

[http://www.apfmj-archive.com/afm6\\_1/afm51.htm](http://www.apfmj-archive.com/afm6_1/afm51.htm)

#### **Aims:**

Although reproductive health services have been expanded in rural communities in Afghanistan in the last several years, no systematic attempt has been made to assess their contribution to promote safe delivery. This study assesses the effects of the Bangladesh Rural Advancement Committee (a non-government organisation) health programme in raising institutional delivery in post-conflict traditional communities in Afghanistan.

#### **Methods:**

Data for this study came from two surveys conducted by Management Science of Health/United States Agency of International Development in 2004 and 2006 in the district of Paghman in Kabul province. A total of 180 randomly selected married women who gave birth in the last 2 years preceding the survey were interviewed.

#### **Results:**

Findings reveal that institutional delivery in rural communities has been increasing even in post-conflict poor rural communities. The use of services was much higher if antenatal care was provided by midwives and physicians. Intensive community mobilization, provision of free services and transport facilities at night, incentives to health providers, maintaining privacy in the delivery room and the quality of services were the key factors in raising the number of institutional deliveries.

#### **Conclusions:**

The provisions of free services and incentives for health providers worked well in raising the frequency institutional delivery. Given that Afghan communities are sparsely distributed in the countryside and largely inaccessible by most modern transport, the expansion of this approach to provide institutional delivery may not be feasible at this stage. This study argues for the promotion of new approaches to maternal health by testing the cost-effective intervention models. The study concludes that an integrated approach to address health services can significantly improve access to and the utilisation of institutional delivery among poor and disadvantaged communities in Afghanistan.

### **The State-Led Large Scale Public Private Partnership 'Chiranjeevi Program' to Increase Access to Institutional Delivery among Poor Women in Gujarat, India: How Has It Done? What Can We Learn?**

De Costa A, Vora KS, Ryan K, Raman PS, Santacatterina M, Mavalankar D. (2014). PLOS ONE 9(5).

<http://www.plosone.org/article/fetchObject.action?uri=info%3Adoi%2F10.1371%2Fjournal.pone.0095704&representation=PDF>

#### **Background:**

Many low-middle income countries have focused on improving access to and quality of obstetric care, as part of promoting a facility based intra-partum care strategy to reduce maternal mortality. The state of Gujarat in India, implements a facility based intra-partum care program through its large for-profit private obstetric sector, under a state-led public-private-partnership, the Chiranjeevi Yojana (CY), under which the state pays accredited private obstetricians to perform deliveries for poor/tribal women. We examine CY performance, its

contribution to overall trends in institutional deliveries in Gujarat over the last decade and its effect on private and public sector deliveries there.

**Methods:**

District level institutional delivery data (public, private, CY), national surveys, poverty estimates, census data were used. Institutional delivery trends in Gujarat 2000–2010 are presented; including contributions of different sectors and CY. Piece-wise regression was used to study the influence of the CY program on public and private sector institutional delivery.

**Results:**

Institutional delivery rose from 40.7% (2001) to 89.3% (2010), driven by sharp increases in private sector deliveries. Public sector and CY contributed 25–29% and 13–16% respectively of all deliveries each year. In 2007, 860 of 2000 private obstetricians participated in CY. Since 2007, >600,000 CY deliveries occurred i.e. one-third of births in the target population. Caesareans under CY were 6%, higher than the 2% reported among poor women by the DLHS survey just before CY. CY did not influence the already rising proportion of private sector deliveries in Gujarat.

**Conclusion:**

This paper reports a state-led, fully state-funded, large-scale public-private partnership to improve poor women's access to institutional delivery - there have been >600,000 beneficiaries. While caesarean proportions are higher under CY than before, it is uncertain if all beneficiaries who require sections receive these. Other issues to explore include quality of care, provider attrition and the relatively low coverage.

**Effect of Chiranjeevi Yojana on institutional deliveries and neonatal and maternal outcomes in Gujarat, India: a difference-in-differences analysis**

Mohanani M, Bauhoff S, La Forgia G, Babiarz KS, Singh K & Miller G. (2013). Bulletin of the World Health Organization

<http://www.who.int/bulletin/volumes/92/3/13-124644/en/>

In January 2006 the state government of Gujarat launched the Chiranjeevi Yojana programme, a public–private partnership designed to increase institutional delivery rates.

The Chiranjeevi Yojana programme covers the costs of deliveries – at designated private-sector hospitals – for women from “below-poverty-line” (BPL) households. The programme pays the designated private-sector hospitals 1600 Indian rupees – approximately 37 United States dollars (US\$) – per delivery. In exchange, the programme expects the hospitals both to offer vaginal deliveries or caesarean sections to poor women free of charge and to reimburse at least some of the women's travel costs.

The aim of this study was to estimate the relationship between the Chiranjeevi Yojana programme and the probability of institutional delivery, the use of maternal and neonatal services provided by trained health workers, birth-related maternal complications and household spending for delivery. By matching information about programme placement and timing to population-level data – rather than data from participating hospitals –the influence of self-selection into institutional delivery among pregnant women was minimised.

Findings indicate that the Chiranjeevi Yojana programme was not associated with changes in the probability of institutional delivery (including delivery at private institutions), maternal morbidity or delivery-related household expenditure. These findings differ from those reported by previous evaluations suggesting substantial benefits of the Chiranjeevi Yojana programme, including a 27% increase in institutional deliveries, a 90% reduction in maternal deaths and a 60% reduction in neonatal deaths. These earlier studies did not address self-



selection of women into institutional delivery, reporting inaccuracies by hospitals, or any increases in institutional deliveries over time that were unrelated to the programme. The programme was rolled out in a period when the economy of Gujarat was growing by over 10% per year, for example.

There are several possible explanations for observing no increase in the probability of institutional delivery associated with the Chiranjeevi Yojana programme. One is that the quality of services provided by private maternity hospitals is poor or, at least, is perceived to be poor by the local population. As a result, demand for institutional delivery may be low even if such delivery is provided free of charge. Another is that – despite the support of the programme – institutional deliveries in Gujarat remain associated with large transportation costs, informal payments or other expenses that make programme benefits small relative to the full cost of institutional delivery.

### **Behavior Change Communications during Antenatal Visits Using Pictorial Cards Improves Institutional Delivery Rates: Evidence from Matlab, Bangladesh**

Rahman A, Anwar I. (2013). International Journal of Tropical Disease & Health, 3(3): 242-256.

<http://www.sciencedomain.org/download.php?f=1374040349-Rahman332012IJTDH2973.pdf&aid=1644>

#### **Aims:**

Behaviour change communication (BCC) has been recommended in maternal health however, little is known about its effectiveness in improving knowledge and utilisation of services. This paper presents findings from Matlab, a rural area of Bangladesh to inform policy about the effect of focused BCC on maternal knowledge and institutional delivery rates.

Study Design: Cohort Study.

Place and Duration of Study: The study took place in Matlab, Bangladesh from the period 2003 to 2006.

#### **Method:**

The International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) introduced pictorial cards in 1996 to monitor all pregnant women in Matlab service area and to provide BCC during routine antenatal visits on pregnancy danger signs, birth planning and maternal nutrition. Maternal knowledge was measured by asking about complications shown on the pictorial cards during 1st and 2nd (or successive) antenatal visits. The pictorial card data were linked with the birth file data and the socioeconomic survey data of the year 2005 of Matlab Health and Demographic Surveillance Systems (HDSS) for analysis.

#### **Results:**

HDSS recorded 11,150 births during the study period but pictorial cards covered 10,657 women, and maternal knowledge data was available from 6,624 of these. Knowledge about all 5 danger signs increased from 8.9% to 34.2% between 1st and 2nd (or successive) antenatal visits ( $P < .001$ ). Women with complete knowledge of all five pregnancy danger signs were 1.13 (Adjusted Odds: 1.13, 95% CI, 1.01-1.27) times more likely to have institutional deliveries than those without knowledge when the effect of socio-demographic co-variables were held constant.

#### **Conclusion:**

Focused BCC using pictorial cards during antenatal visits improves knowledge regarding 5 pregnancy danger signs which has clear implications for improving institutional delivery rates. We recommend implementation research to demonstrate the effect of focused BCC in

improving knowledge and practice to address high maternal mortality in resource-poor settings.

**Determinants of facility delivery after implementation of safer mother programme in Nepal: a prospective cohort study**

Karkee R, Binns CW, Lee AH. (2013). BMC Pregnancy and Childbirth 2013, 13:193.  
<http://www.biomedcentral.com/1471-2393/13/193>

**Background:**

There are several barriers for pregnant women to deliver in a health care facility. This prospective cohort study investigated factors affecting facility delivery and reasons for unplanned place of delivery after implementation of the safer mother programme in Nepal.

**Methods:**

Baseline interviews using a validated questionnaire were conducted on a sample of 700 pregnant women representative of the Kaski district in central Nepal. Follow-up interviews of the cohort were then conducted within 45 days postpartum. Stepwise logistic regression analysis was performed to determine factors associated with the facility delivery outcome.

**Results:**

Of the 644 pregnant women whose delivery location had been identified, 547 (85%) gave birth in a health care facility. Women were more likely to deliver in a health facility if they were educated especially with higher secondary or above qualification (adjusted odds ratio (OR) 12.39, 95% confidence interval (CI) 5.09 to 30.17), attended 4 or more antenatal care visits (OR 2.15, 95% CI 1.25 to 3.69), and lived within 30 minutes to the facility (OR 11.61, 95% CI 5.77 to 24.04). For the 97 women who delivered at home, 72 (74.2%) were unplanned, mainly due to quick precipitation of labour making it impossible to reach a health facility.

**Conclusions:**

It appeared that facility delivery occurs more frequent among educated women and those who live nearby, even though maternity services are now freely available in Nepal. Because of the difficult terrain and transportation problem in rural areas, interventions that make maternity service physically accessible during antenatal period are needed to increase the utilisation of health facility for child birth.

**Need factors for utilisation of institutional delivery services in Nepal: an analysis from Nepal Demographic and Health Survey, 2011**

Karkee R, Lee AH, Khanal V. (2014). BMJ Open 2014;4:e004372.  
<http://bmjopen.bmj.com/content/4/3/e004372.full?rss=1>

**Objective:**

This study aims to assess the role of need factors with respect to the utilisation of institutional delivery services in Nepal.

**Design:**

An analytic study was conducted using a subset of 4079 ever married women from the 2011 Nepal Demographic and Health Survey, which utilised two-stage cluster sampling. Logistic regression with complex sample analysis was performed to evaluate the effects of antenatal care visits and birth preparedness activities on facility delivery.

Outcome measures: Facility delivery.

**Results:**

Overall facility delivery rate was low at 36.9% (95% CI 33.5% to 40.2%, SE 1.69). Only half (50.1%) of the women made four or more antenatal care visits while 62.9% (95% CI 59.9% to 65.8%, SE 1.51) did not indicate any of the four birth preparation activities. After adjusting for external, predisposing and enabling factors, women who made more than four antenatal care visits were five times more likely to deliver at a health facility when compared to those who paid no visit (adjusted OR 4.94, 95% CI 3.14 to 7.76). Similarly, the likelihood for facility delivery increased by 3.4-fold among women who prepared for at least two of the four activities compared to their counterparts who made no preparation (adjusted OR 3.41, 95% CI 2.01 to 5.58).

#### Conclusions:

The perceived need, as expressed by the frequency of antenatal care visits and birth preparedness activities, plays an important role in institutional delivery service utilisation for Nepali women. These findings have implications for behavioural interventions to change their intention to deliver at a health facility.

#### **Determinants of institutional delivery in rural Jhang, Pakistan**

Agha S, Carton TW. (2011). International Journal for Equity in Health 2011, 10:31  
<http://www.equityhealthj.com/content/10/1/31>

#### Background:

There is expert consensus that delivery at a health facility substantially reduces the risk of maternal death. By increasing the use of antenatal (ANC), postnatal care (PNC) and family planning, the risk of maternal death can be further reduced. There has been little investigation of factors associated with the use of these services in Pakistan.

#### Methods:

A representative household survey was conducted in rural areas of Jhang district, Pakistan, to determine the effect of demographic, economic and program factors on the utilisation of maternal health services. Married women who had children ages 12 months or younger were interviewed. Data was collected from 2,018 women on socio-demographic characteristics and the utilisation of health services. Logistic regression analysis was conducted to identify the correlates of health services use. Marginal effects quantify the impact of various factors on service utilisation.

#### Results:

Parity and education had the largest impact on institutional delivery: women were substantially less likely to deliver at a health facility after their first birth; women with primary or higher education were much more likely to have an institutional delivery. Age, autonomy, household wealth, proximity to a health facility and exposure to mass media were also important drivers of institutional delivery. The use of family planning within a year of delivery was low, with parity, education and husband's approval being the strongest determinants of use.

#### Conclusions:

The findings suggest that rural women are likely to respond to well-designed interventions that remove financial and physical barriers to accessing maternal health services and motivate women by emphasizing the benefits of these services. Interventions should specifically target women who have two or more living children, little formal education and are from the poorest households.

#### **Improving access to maternity services: an overview of cash transfer and voucher schemes in South Asia**

Jehan K, Sidney K, Smith H, de Costa A. (2012). Reproductive Health Matters 2012;20(39):142–154.  
<http://archive.istmed.ac.uk/2881/1/RHM39-Jehan.pdf>

In Nepal, India, Bangladesh and Pakistan, policy focused on improving access to maternity services has led to measures to reduce cost barriers impeding women's access to care. Specifically, these include cash transfer or voucher schemes designed to stimulate demand for services, including antenatal, delivery and post-partum care. In spite of their popularity, however, little is known about the impact or effectiveness of these schemes. This paper provides an overview of five major interventions: the Aama (Mothers') Programme (cash transfer element) in Nepal; the Janani Suraksha Yojana (Safe Motherhood Scheme) in India; the Chiranjeevi Yojana (Scheme for Long Life) in India; the Maternal Health Voucher Scheme in Bangladesh and the Sehat (Health) Voucher Scheme in Pakistan. It reviews the aims, rationale, implementation challenges, known outcomes, potential and limitations of each scheme based on current available data. Increased use of maternal health services has been reported since the schemes began, though evidence of improvements in maternal health outcomes has not been established due to a lack of controlled studies. Areas for improvement in these schemes, identified in this review, include the need for more efficient operational management, clear guidelines, financial transparency, plans for sustainability, evidence of equity and, above all, proven impact on quality of care and maternal mortality and morbidity.

#### **Expansion in the private sector provision of institutional delivery services and horizontal equity: evidence from Nepal and Bangladesh**

Hotchkiss DR, Godha D, Do M. (2014). Health Policy Plan. Jul 2014; 29(Suppl 1): i12–i19.  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4095922/>

Wealth-related inequity in the use of maternal healthcare services continues to be a substantial problem in most low- and middle-income countries. One strategic approach to increase the use of appropriate maternal healthcare services is to encourage the expansion of the role of the private sector. However, critics of such an approach argue that increasing the role of the private sector will lead to increased inequity in the use of maternal healthcare services. This article explores this issue in two South Asian countries that have traditionally had high rates of maternal mortality—Nepal and Bangladesh. The study is based on multiple rounds of nationally representative household survey data collected in Nepal and Bangladesh from 1996 to 2011. The methodology involves estimating a concentration index for each survey to assess changes in wealth-related inequity in the use of institutional delivery assistance over time. The results of the study suggest that the expansion of private sector supply of institutional-based delivery services in Nepal and Bangladesh has not led to increased horizontal inequity. In fact, in both countries, inequity was shown to have decreased over the study period. The study findings also suggest that the provision of government delivery services to the poor protects against increased wealth-related inequity in service use.

#### **Other useful resources**

##### **Overcoming Access Barriers for Facility-based Delivery in Low-income Settings: Insights from Bangladesh and Uganda**

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3001147/>

##### **India's JSY cash transfer program for maternal health: Who participates and who doesn't - a report from Ujjain district**

<http://www.reproductive-health-journal.com/content/9/1/2>

**Correlates of and Barriers to the Utilisation of Health Services for Delivery in South Asia and Sub-Saharan Africa**

<http://www.hindawi.com/journals/tswj/2013/423403/>

**Preference for Institutional Delivery and Caesarean Sections in Bangladesh**

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3702364/>

**Need factors for utilisation of institutional delivery services in Nepal: an analysis from Nepal Demographic and Health Survey, 2011**

<http://bmjopen.bmj.com/content/4/3/e004372.full>

**An evaluation of two large scale demand side financing programs for maternal health in India: the MATIND study protocol**

<http://www.biomedcentral.com/1471-2458/12/699>

**Improving access to maternity services: an overview of cash transfer and voucher schemes in South Asia**

[http://www.rhm-elsevier.com/article/S0968-8080\(12\)39609-2/abstract](http://www.rhm-elsevier.com/article/S0968-8080(12)39609-2/abstract)

**Determinants of place of birth decisions in uncomplicated childbirth in bangladesh: an empirical study**

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3472154/>

**Impact of a maternal health voucher scheme on institutional delivery among low income women in Pakistan**

<http://www.reproductive-health-journal.com/content/8/1/10>

**What influences the decision to undergo institutional delivery by skilled birth attendants? A cohort study in rural Andhra Pradesh, India**

[http://www.rrh.org.au/articles/subviewnew.asp?ArticleID=2311#cite\\_note-24](http://www.rrh.org.au/articles/subviewnew.asp?ArticleID=2311#cite_note-24)

**Promoting Institutional Deliveries In Rural India: The Role of Antenatal-Care Services**

[https://www.eastwestcenter.org/sites/all/modules/filemanager/files/Research\\_Program/NFHS\\_Subject\\_Reports/subj-20.pdf](https://www.eastwestcenter.org/sites/all/modules/filemanager/files/Research_Program/NFHS_Subject_Reports/subj-20.pdf)

**5. Referral transport experience in Asia**

**The Village Emergency Referral System**

CARE and USAID. Webpage accessed: 25/9/14.

[http://www.medicam-cambodia.org/best\\_practices/refferal\\_system/index.asp](http://www.medicam-cambodia.org/best_practices/refferal_system/index.asp)

This document describes CARE's Village Emergency Referral System (VERS), an activity designed to help the poorest families and high-risk pregnant women to access emergency health services in Cambodia in a timely manner. The activity encourages villages to establish community funds and organize transportation for cases of emergency referral. The implementation strategy is described, as are results and lessons learned from communities with active VERS projects.

CARE-Cambodia runs a Strengthening Capacity for Improved Community Health (SCICH) Program, designed to bridge the gap between the health system and communities by generating demand for quality health services. Koh Kong Province is the focus of SCICH efforts because it is one of the poorest, most challenged areas.

The report outlines:

- Goals and objectives

- Implementation strategy
- Review methodology
- Results and lessons learned on: the need for VERs, overcoming fundraising challenges, accessing the fund, monitoring, unanticipated costs, the significance of successful referrals, community change, and sustainability.
- Conclusions and recommendations.

### **Cambodia EmONC Improvement Plan**

Cambodia Ministry of Health. (2009).

[http://www.unfpa.org/sowmy/resources/docs/library/R124\\_MOHCambodia\\_2009\\_Final\\_EmONC\\_Improvement\\_Plan\\_March2010.pdf](http://www.unfpa.org/sowmy/resources/docs/library/R124_MOHCambodia_2009_Final_EmONC_Improvement_Plan_March2010.pdf)

An example of a village emergency referral system:

In Koh Kong Province, time, distance, transport and finance are barriers for rural women when accessing health services. This leads to high maternal mortality rates. In July 2007, the PHD partnered with CARE Cambodia to implement a Village Emergency Referral System (VERS).

Villages are encouraged to establish community funds and organize transportation for cases of emergency referral. VERS funds can be used by community members, in the case of obstetric emergency or an accident, to provide transport from their village to the nearest Health Centre or referral hospital for treatment.

VERS is introduced to a village through the Commune Council who oversees and supports a Village Health Council (VHC) in each village. Since February 2007 the scheme has been established in 67 villages in two Operational Districts (ODs). VERS has strong support from VHC members, local authorities, and local key stakeholders.

### **Trawlergies for maternal and newborn emergency transport**

WHO Regional Office for South East Asia. Webpage accessed: 25/9/14.

<http://origin.searo.who.int/myanmar/areas/trawlergiesformaternalandnewborn/en/>

UNFPA Strategic Partnership Programme with WHO implemented key activities in 2006-2007 on "Strengthening Continuum of Maternal and Newborn Health Services". One of these was expansion of referral system of essential obstetric and newborn care. To facilitate timely transfers in emergency maternal and newborn management, especially for the hard to reach villages, UNFPA/WHO/DoH had distributed 25 trawlergies, a mini truck tractor, as part of program activity to strengthen Reproductive Health. These were provided to the five programme townships in Myanmar, Myaung, Monywa, Salingyi, Khin U and Wetlet Townships in Sagaing Division in December 2006. An assessment on the usefulness, drawbacks, gaps and constraints on this form of assistance was conducted between 1st to 5th July by Department of Health, Department of Medical Research (Lower Myanmar), UNFPA and WHO in collaboration as a team.

All beneficiaries appreciated receiving a trawlergy in their main RHCs for emergency transport of maternal and infants. The most usefulness was seen in places where roads that lead to health facility are present. Villages near river banks and railroad sides preferred either boat or train for transport. Underuse and misuse were also noted. Some were because of geographic location but a few depend on empowerment and motivation. Misuse was noted in two villages.



The trawlergies did not give engine trouble but their main disadvantages were frail joint, low headlamp irradiance, bumpiness, roofless chassis and absent side-rails. All lacked license plates and due to this vehicles encountered trouble especially when driving in Monywa city. RHCs had difficulty in getting experienced drivers.

All RHCs reported that they had maintenance and utilisation committee but most were not fully functioning. Some of the RHCs also had difficulty in getting funds for providing free transport, maintenance and sustainability.

### **Cost & efficiency evaluation of a publicly financed & publicly delivered referral transport service model in three districts of Haryana State, India**

Prinja S, Manchanda N, Aggarwal AK, Kaur M, Jeet G, Kumar R. (2013). Indian J Med Res. Dec 2013; 138(6): 1003–1011.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3978952/>

#### **Background & objectives:**

Various models of referral transport services have been introduced in different States in India with an aim to reduce maternal and infant mortality. Most of the research on referral transport has focussed on coverage, quality and timeliness of the service with not much information on cost and efficiency. This study was undertaken to analyze the cost of a publicly financed and managed referral transport service model in three districts of Haryana State, and to assess its cost and technical efficiency.

#### **Methods:**

Data on all resources spent for delivering referral transport service, during 2010, were collected from three districts of Haryana State. Costs incurred at State level were apportioned using appropriate methods. Data Envelopment Analysis (DEA) technique was used to assess the technical efficiency of ambulances. To estimate the efficient scale of operation for ambulance service, the average cost was regressed on kilometres travelled for each ambulance station using a quadratic regression equation.

#### **Results:**

The cost of referral transport per year varied from ₹5.2 million in Narnaul to ₹9.8 million in Ambala. Salaries (36-50%) constituted the major cost. Referral transport was found to be operating at an average efficiency level of 76.8 per cent. Operating an ambulance with a patient load of 137 per month was found to reduce unit costs from an average ₹ 15.5 per km to ₹ 9.57 per km.

#### **Interpretation & conclusions:**

Our results showed that the publicly delivered referral transport services in Haryana were operating at an efficient level. Increasing the demand for referral transport services among the target population represents an opportunity for further improving the efficiency of the underutilised ambulances.

### **Utilisation of a State Run Public Private Emergency Transportation Service Exclusively for Childbirth: The Janani (Maternal) Express Program in Madhya Pradesh, India**

Sidney K, Ryan K, Diwan V, De Costa A. (2014). PLOS ONE 9(5).

<http://www.plosone.org/article/fetchObject.action?uri=info%3Adoi%2F10.1371%2Fjournal.pone.0096287&representation=PDF>

#### **Background:**

In 2009 the state government of Madhya Pradesh, India launched an emergency obstetric transportation service, Janani Express Yojana (JEY), to support the cash transfer program that promotes institutional delivery. JEY, a large scale public private partnership, lowers

geographical access barriers to facility based care. The state contracts and pays private agencies to provide emergency transportation at no cost to the user. The objective was to study (a) the utilisation of JEY among women delivering in health facilities, (b) factors associated with usage, (c) the timeliness of the service.

**Methods:**

A cross sectional facility based study was conducted in facilities that carried out > ten deliveries a month. Researchers who spent five days in each facility administered a questionnaire to all women who gave birth there to elicit socio-demographic characteristics and transport related details.

**Results:**

35% of women utilised JEY to reach a facility, however utilisation varied between study districts. Uptake was highest among women from rural areas (44%), scheduled tribes (55%), and poorly educated women (40%). Living in rural areas and belonging to scheduled tribes were significant predictors for JEY usage. Almost 1/3 of JEY users (n = 104) experienced a transport related delay.

**Discussion:**

The JEY service model complements the cash transfer program by providing transport to a facility to give birth. A study of the distribution of utilisation in population subgroups suggests the intervention was successful in reaching the most vulnerable population, promoting equity in access. While 1/3 of women utilised the service and it saved them money; 30% experienced significant transport related delays in reaching a facility, which is comparable to women using public transportation. Further research is needed to understand why utilisation is low, to explore if there is a need for service expansion at the community level and to improve the overall time efficiency of JEY.

**Other useful resources**

**Study of ambulance services in Nepal including lessons learned and recommendations**

<http://www.nsmg.org/pdf/Study-of-Ambulance-Services1.pdf>

**Emergency medical services in Islamabad, Pakistan: a public-private partnership**

<http://www.sciencedirect.com/science/article/pii/S0033350605001071>

**Pakistan: the Faisalabad obstetric flying squad**

[http://apps.who.int/iris/bitstream/10665/48407/1/WHSQ\\_1995\\_48\\_1\\_p50-54\\_eng\\_fre.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/48407/1/WHSQ_1995_48_1_p50-54_eng_fre.pdf?ua=1)

**An integrated village maternity service to improve referral patterns in a rural area in West-Java**

<http://www.ncbi.nlm.nih.gov/pubmed/7672178>

**July: Transaid assists in the assessment of driver training institutions in Cambodia**

<http://www.transaid.org/projects/july:-transaid-assists-in-the-assessment-of-driver-training-institutions-in-cambodia>

**Community-based Emergency Referral for Maternal & Child Health in Middle Island, Nga-Pu-Daw Township after Cyclone Nargis**

<http://adsri.anu.edu.au/sites/default/files/documents/disasters-conference/Saw%20Saw.pdf>

**Inter-hospital emergency obstetric referrals to the labour ward of RIPAS Hospital**

<http://www.bimjonline.com/PDF/Bimj%202011%20Volume%207,%20Issue%201/22-33.pdf>

**Emergency obstetric care and referral: experience of two midwife-led health centres in rural Rajasthan, India**

[http://www.unfpa.org/sowmy/resources/docs/library/R031\\_Iyengar\\_2009\\_India\\_MidwivesLed\\_Maternity.pdf](http://www.unfpa.org/sowmy/resources/docs/library/R031_Iyengar_2009_India_MidwivesLed_Maternity.pdf)

**Afghanistan, Access to Maternal Health Services, Charharkint District, Jun. 2010**

<http://www.transaid.org/projects/afghanistan,-access-to-maternal-health-services,-charharkint-district,-jun.-2010/?q=childbirth>

**Afghanistan Maternal Health Transport Project**

<http://www.transaid.org/images/resources/07%20Transaid%20Technical%20Case%20Study%20-%20Afghanistan%20Maternal%20Transport.pdf>

**Preliminary Transport Management Assessment and Training in Sri Lanka**

<http://www.transaid.org/images/resources/25%20Transaid%20Technical%20Case%20Study-transport%20management%20assessment%20and%20training%20in%20sri%20lanka.pdf>

**6. Comments from experts**

**Wendy Holmes, Burnet Institute of Development Studies**

*I believe the most important point in relation to our work (Paper in section 2: Reaching emergency obstetric care: overcoming the 'second delay') was the recognition that the three delays model, which has provided a useful framework, has nevertheless obscured the significance of the delay in ensuring that women who live beyond easy reach of emergency obstetric care are encouraged and enabled to move closer to such services before they go into labour. This requires a variety of measures depending on the context and careful district level planning. I do think that there has been an increased awareness of these issues in recent years.*

**Caroline Barber, Head of Programmes and Sam Clark Programmes Support Manager; Transaid**

Comments on referral transport (from telephone conversation):

Africa and Asia may face some of the same transport challenges. Any government health system operating vehicle fleets needs to have sufficient skilled human resources to manage the transport and to have a sufficient budget to cover the running costs and maintenance of the vehicles. In terms of community based transport schemes our approach is to work with communities. Using needs assessments and formative research we can understand what transport is in place and work with communities, government and the private sector to build on this. Some of the design principals are transferrable but community managed solutions must be developed with communities with a clear plan for sustainability.

**7. Additional information**

**Author**

This query response was prepared by **Laura Bolton**

**Contributors**

Rajendra Karkhee; School of Public Health and Community Medicine, BP Koirala Institute of Health Sciences, Dharan, Nepal

Wendy Holmes, Burnet Institute of Development Studies

Julia Hussein, University of Aberdeen

Caroline Barber, Transaid

Sam Clark, Transaid

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