mCARE: ENHANCING NEONATAL SURVIVAL IN RURAL SOUTH ASIA

BRIEF OVERVIEW

According to research conducted by West, Christian, Labrique and other colleagues in Bangladesh, 50% of women experiencing an obstetric crisis use a mobile phone to call a provider, obtain medical advice, or arrange transport or financial aid. The JiVitA Maternal & Child Health and Nutrition Research Project has implemented projects where, at the onset of labor, mobile phone calls were made to nurse-midwife teams who were then dispatched to the home, where over 80% of births in this population occur.. This has resulted in highly skilled birth attendance for 89% of the 500 pregnancies under that pilot study. While mobile phones are becoming ubiquitous in rural Bangladesh, many lower socioeconomic families may not own a phone, while they are often at the highest risk of increased maternal and neonatal mortality and morbidity. This is changing rapidly, as a survey of 168,000 families, conducted in the JiVitA project site in rural Bangladesh in early 2012, revealed that over 70% of households in the study area own a personal mobile phone.

The mCARE project has developed and is testing an integrated mobile phone-based data system that links rural community health workers (CHW) and their clients (pregnant women and newborns) in order to 1) systematize pregnancy and birth registration, 2) effectively target the delivery of antenatal and postnatal care to mothers and newborns, and 3) enhance survival of preterm infants by promotion of emergency referral and essential newborn care in resource-poor settings.

This project is being implemented from 2011 to 2014 in the JiVitA Project Site in rural Gaibandha District of Bangladesh, one of the largest rural population research sites in South Asia, covering 650,000 people and where 90% of all infants are reported to be born at home.

ABOUT mCARE

mCARE's goal is to improve pregnancy registration and enhance survival of preterm infants in resource-poor settings through active pregnancy and birth surveillance, targeted and accountable provision of antenatal and postnatal care and referral facilitation. Its health information system includes automated reminders for antenatal and postnatal visits, checklists for basic home-based newborn care, notification of labor and birth, and emergency mobilization or referral support for rural women and families.

CHWs are responsible for pregnant women in their communities whom they monitor and ensure the delivery of antenatal services. Their work and primary signal functions can be enhanced using simple mobile and cloud-based scheduling and support systems, such as the mCARE mobile CHW Support System. Community health workers are connected to their pregnant clients and their newborns to improve the delivery of antenatal care by scheduling follow-up visits, by compressing the time to respond to crises by allowing families to trigger the mobilization of referral and emergency response systems, and by creating novel windows of opportunity for intervention through innovative use of known data such as gestational age and previous pregnancy outcome to predict potentially high risk deliveries.

EVALUATION AND RESULTS

The project builds on a long engagement in collaborative, population-based research by the JiVitA Maternal and Child Health and Nutrition research site in rural Bangladesh. The CHW-client link contains a rigorous evaluation component that measures system functionality, usability and performance indicators prior to deployment and testing at scale.

In the country's rural northwest where the mCARE study is focused, few mothers deliver babies at hospitals (>80% of women give birth at home - in the absence of skilled medical personnel - and most women are at home when complications occur). For the women who can reach health facilities to address their health problems, a preliminary study was interested to understand whether these facilities were well equipped to address these life-threatening complications. It evaluated emergency obstetric care capabilities at 14 high-volume private and public health facilities while also identifying ideal patient referral locations for the mCARE system. The study determined there was potential to improve referral and that mobile health technology could play a key role.

LESSONS LEARNED

- It is feasible to deploy and evaluate an mHealth intervention project in an established research setting where outcomes are well studied and denominators are known. This wealth of information allows for both quantitative and qualitative evaluation.
- Complications can be averted and infant mortality can be potentially reduced through simple, low-cost interventions during delivery and the early neonatal period, a high-risk period that can be accessed with mobile notification.
- Systematic surveillance, pregnancy identification and birth notification systems are possible to deploy in low-resource settings, using simple technology.
- Low-literate community workers are capable, and often have access to mobile technologies, even in remote, resource-poor settings.

CONCLUSION

mCARE is working to demonstrate that mobile health technology can play a role in improving referral systems. The project has completed formative and development stages, and Bangladesh's ministry of health has approved testing at scale. The next step will be to measure resulting improvements through a study involving 1,600 pregnant women.

GEOGRAPHIC COVERAGE

Gaibdandha District, Bangladesh

IMPLEMENTATION PARTNERS

Johns Hopkins Bloomberg School of Public Health in collaboration with technical and research partners mPower-Health and the JiVitA Maternal Child Health and Nutrition Research Project, under the stewardship of Bangladesh's Ministry of Health and Family Welfare

FUNDER

UBS Optimus Foundation

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Information was excerpted from:

Gray, Jeff. "Mobile health researchers seek to improve emergency obstetric care in Bangladesh." *National Institutes of Health Fogarty International Center.* 12.1. (January/February 2013). Web.

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