

WIRED MOTHERS

Increasing skilled delivery attendance to reduce maternal and neonatal morbidity and mortality

Every year, approximately 270,000 women die during pregnancy. Moreover, the risk in Sub-Saharan Africa is much larger, 50 times greater than in developed countries. Seven million children also die before reaching the age of five, a growing proportion of these (43%) occurs at or around the time of birth. Therefore, antenatal care (ANC), skilled delivery attendance and access to emergency obstetric care are essential in improving maternal, neonatal and child health. In Zanzibar, 99% of pregnant women attend an ANC visit at least once, yet only 51% of births are attended by a health professional and more than half do not receive any postnatal care.

Wired Mothers is an mHealth project that seeks innovative ways to ensure access to ANC and skilled attendance at delivery and to examine the beneficial impact mobile phones can have on maternal and neonatal morbidity and mortality. In 2009/2010, the University of Copenhagen, in collaboration with Zanzibar's Ministry of Health and Social Welfare and the Danida Health Sector Programme Support, conducted a study to compare differences in service delivery and health outcomes between women receiving the Wired Mothers mobile phone intervention and those receiving standard care.

Implementation date: March 2009 to March 2010

About Wired Mothers

The Wired Mothers mobile phone intervention was designed with the aim of linking pregnant women to their primary health care provider throughout their pregnancy, childbirth and post-partum period. Wired mothers, or *mama mitandao*, received appointment reminders and educational information via SMS and were provided with mobile phone vouchers to enable them to call a primary care provider to discuss any acute or non-acute issues. Additionally, mobile phones were used by health facility workers, ambulance drivers, and referral hospital employees to strengthen communication between different levels of the health system.

The intervention involved all three levels of the health system.



Evaluation and Results

The Wired Mothers intervention was evaluated in a cluster randomized controlled trial. The study involved 2,550 pregnant women (1,311 interventions and 1,239 controls) receiving care from 24 primary health care facilities in six districts in Zanzibar. Within each district, two facilities were randomized for intervention and two for no intervention (standard care). To ensure mobile phone access, the pregnant women in the intervention group received a phone credit voucher.

The intervention significantly increased the proportion of women receiving four ANC visits during pregnancy as recommended by WHO and there was a trend towards more women receiving preventive health services, more women continuing to attend ANC late in pregnancy and more women with antepartum complications who were identified and referred.

The majority of intervention women stated that the appointment reminders influenced their health seeking behavior and felt that the educational messages helped them in various areas, including learning about danger signs in pregnancy and feeling that the health system cared for them.

Results also showed that the mobile phone intervention was associated with an increase in skilled delivery attendance. 60% of the women in the intervention

group, versus 47% in the control group, delivered with skilled attendants. While the intervention had a significant increase in skilled delivery attendance among urban women (OR, 5.73; 95% CI, 1.51–21.81), it did not influence skilled birth attendance among rural women

Lessons Learned

- The Wired Mothers intervention was highly appreciated by women and health workers.
- The study demonstrates that simple mobile phone interventions that involve community and health workers can promote the provision and utilization of essential maternal health interventions such as ANC, skilled delivery care and emergency obstetrics services.
- The study has proved that supportive supervision, clear job descriptions (responsibilities) and regular provision of logistics have the potential to improve staff moral and performance
- The intervention was developed in Tanzania using simple technology and at low cost.
- The collaboration between a government agency, a development organization and an academic institution was efficient and increased the evidence base for policy makers interested in using mHealth applications.
- Simple mobile phone solutions such as Wired Mothers are a feasible solution for strengthening access to essential maternal and child health (MCH) services in low-resource settings.

Conclusion

The Wired Mothers mobile phone intervention significantly increased the number of urban women receiving the recommended number of ANC visits and skilled delivery attendance. Evidence-based mobile phone solutions may contribute towards improved MCH and the achievement of Millennium Development Goals 4 (to reduce child mortality) and 5 (to reduce maternal mortality).

The policy implication of the Wired Mothers study is that developing countries should improve public private partnership in the area of health education and information and use the momentum of information technology in delivering health services. Specifically, mobile phone interventions should be considered as a strategy to improve provision and utilization of ANC, delivery services and emergency obstetric care, which are essential for maternal and perinatal health. mHealth interventions for maternal health should however consider the special needs of rural women.

Geographic Coverage: Tanzania (Zanzibar)

Implementation Partners: University of Copenhagen; Ministry of Health and Social Welfare, Zanzibar, Tanzania; Health Sector Programme Support Zanzibar; Danida Health Sector Programme Support

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References:

1. Wired mothers - use of mobile phones to improve maternal and neonatal health in Zanzibar. Danida Research Portal. 12 March 2013. Web.
2. mHealth Info. Wired Mothers. November 2010. Web.
3. Lund, S. 2009, Wired Mothers - Use of Mobile Phones to Improve Maternal and Neonatal Health in Zanzibar, Presentation, Institute of International Health of the University of Copenhagen.
4. Lund S, Hemed M, Nielsen B, Said A, Said K, Makungu M, Rasch V. Mobile phones as a health communication tool to improve skilled attendance at delivery in Zanzibar: a cluster-randomised controlled trial. BJOG 2012;119:1256–1264.
5. Wired Mothers Project Team 2009, Wired Mothers - Use of Mobile Phones to Improve Maternal and Neonatal Health in Zanzibar, FFU Application.