

Information and Communications Technology for Maternal, Newborn and Child Health

Implemented by Village Reach in Balaka District, Malawi

While the Millennium Development Goals inspired progress in reducing maternal and infant mortality rates, still more than 360,000 women die every year from complications due to pregnancy and childbirth. Nearly 4 million infants die each year before reaching one month of age, accounting for the majority of all under-five deaths. The knowledge, tools and treatments that can prevent and treat the major killers of mothers, newborns, and children under five exist and are affordable. However, there are intractable barriers that prevent those health services and treatments from reaching the people who need them most.

Innovations for Maternal, Newborn & Child Health (Innovations) is being implemented by Concern Worldwide US, with funding from the Bill & Melinda Gates Foundation, to support the development and field testing of bold and inventive ways to overcome barriers to delivering proven maternal, newborn, and child health (MNCH) solutions.

Innovations was designed on the premise that local communities can play an instrumental role in finding solutions to these barriers. Using varied approaches such as nationwide calls for ideas, workshops, individual consultations and other mechanisms, *Innovations* seeks out and develops innovation where it can be found. Ideas from unheard and unconventional voices and from those people often excluded from healthcare planning and decision making have played an important part in designing the *Innovations* projects.

Barriers to Maternal, Newborn and Child Health Service Access in Balaka

Balaka is among the poorest-performing districts in Malawi in relation to maternal and child health outcomes. Women and children must cross long distances and difficult terrain to reach facilities, often confronting long wait times upon their arrival. This, in turn, results in women choosing to forgo critical health visits. Additionally, political upheaval has resulted in less funding from international donors, fuel shortages and massive inflation. With almost 90% of the country living in rural areas, pregnant women and mothers of young children already faced great obstacles when trying to access formal health care – barriers which have been exacerbated by recent events.

Finding Innovation in Malawi

Innovations ran a nationwide campaign (“Share an Idea, Save a Life”) in 2009, which generated ideas from across Malawi and from people who previously had not been engaged in finding solutions to health challenges.

The Balaka project harnesses the synergy between separate ideas submitted by two Malawians - Soyapi Mumba, a local software developer, and Clement Mwazambumba, a District AIDS Coordinator - during a national competition in 2010. Soyapi suggested that in addition to face-to-face interactions with the health system, women and children would benefit from other two-way communication, via a hotline, that could give them more timely access to information. Clement suggested using a computerized booking system, SMS technology, and a database housed at health facilities to strengthen documentation, book initial antenatal visits and receive tips and reminders relating to maternal and child health issues. *Innovations* is testing these two ideas within the same pilot project.

The first element of the pilot tests the capacity of a toll-free hotline to help prevent avoidable and last minute emergencies, as women can access maternal, neonatal and child health advice from trained and supervised staff based at Balaka District Hospital. For supplemental information, an automated tips and reminders service for subscribed pregnant women and families of children under five provides personalized health messages that support timely and appropriate care seeking and health practices. To address the issue of wait times when women seek care at a facility, *Innovations* is testing an SMS-based booking system that allows clients to plan their access of certain health services, and health workers to base health service delivery planning on advance client information.

Over two years, *Innovations* in collaboration with UNICEF, the Ministry of Health (MOH), and a range of implementing partners are testing the effectiveness of these ideas to improve access and delivery of MNCH services. VillageReach is the lead implementing agency on the project; they have partnered with Baobab Health Trust, PATH and MOTECH to support specific aspects of the technology. The pilot has three primary objectives:

- Improve the quality of MNCH case management;
- Improve maternal, newborn, and child health-seeking practices; and
- Increase community confidence in the health system.

Project Components

1. A toll-free case management hotline.

The hotline – known in the local language as *Chipatala cha pa foni* (Health center by phone) – is based at the Balaka District Hospital and provides health information and advice on maternal, neonatal, and child health issues to callers who may be out of reach of health surveillance assistants (HSAs) and health facilities. Hotline callers can also enroll in a mobile phone tips and reminders service and will be able to link into emergency transport options and receive protocol-based advice and health center referrals.

Key Features:

- The Hotline is staffed by operators trained to the level of HSAs, representing a current and sustainable MOH cadre.
- Hotline staff are trained using MOH clinical-decision protocols to facilitate prompt care seeking from the appropriate level of provider (village clinic, health centre, hospital). They provide health information, advice, and referrals to the health system.
- Additional support is provided through consultation and supervision by district hospital nurses with specialties in Safe Motherhood and Integrated Management of Childhood Illnesses.
- A simple touch screen device, specially adapted to this project by the local Malawian eHealth organization Baobab Health, guides hotline staff through point-of-care protocols or algorithms and allows staff to record encounter data into a database for monitoring and planning purposes.
- Community phones provided to carefully identified volunteers are used to supplement access to phone services. Volunteers also engage in community mobilization and sensitization activities to generate demand for the service.

2. An automated and personalized tips and reminder service for pregnant women and caregivers of children under five.

Subscribers receive automated tips and reminders through either voice or SMS messages directly to their phones on a weekly basis. Community members without access to a private phone can work with the volunteer in their village to retrieve their weekly message through a toll-free phone call using a community phone maintained by the volunteer.

Key Features:

- Messages are personalized for registrants based on their week of pregnancy or the child's age and reinforce the government's minimum package of high-impact interventions to improve maternal and child survival.
- Messages were developed in collaboration with district-level government health staff, with technical support from PATH and the Grameen Foundation, and were reviewed by central MOH staff for coordination with other national-level activities and policies.
- Users can receive messages as texts or a recorded message in Chichewa or Yao, the two local languages.

3. A health center booking system.

A booking system for ANC and PNC visits is being implemented in two of the four pilot sites. This system provides both a specific date for clients to return to the health center for these visits, as well as SMS reminders sent to the client's phone.

The booking service is intended to improve health center readiness by allowing health center staff to prepare for each day's patients, as well to plan for the upcoming week. The booking system is also the first link in a follow-up chain that identifies women who have missed routine appointments and can allow for the activation of community resources (HSAs, Community

Volunteers) to address the issues first hand. For each health center, the system was developed in collaboration with district health staff to ensure its acceptability and viability for that environment and its resources. The booking system is being tested in half of the focus health centers to assess its feasibility and impact.

Key Features:

- Health Center staff determine the specific number of patients for routine visits each day so as not to overwhelm the health center.
- The actual booking (assigning a patient to a particular day for a particular service) is completed by an HSA who will then update appointments on a centralized calendar with a mobile device that allows him/her to see a list of patients scheduled for the day, as well as information about the purpose of the visit.
- SMS messages are sent to women who have access to a phone to remind them of their upcoming appointments.

4. Community outreach, education, and mobilization on MNCH issues.

Community Volunteers (CVs) are crucial to enhancing community understanding and use of the project's services. With the help of the HSAs, over 350 volunteers were identified – at least one for each village in the four catchment areas being targeted – who are literate, involved in health promotion, and willing to volunteer time to assist in *Chipatala cha pa foni* outreach and tips and reminders registration.

Many women do not share their pregnancy status outside of the family early in the pregnancy, often waiting until they are “showing” to acknowledge the pregnancy in public. For this reason, village-level demand generation activities target all women of child-bearing age, but with the clear message that the hotline and tips is for pregnant women and caretakers of young children.

Community Volunteers have the following responsibilities:

- Educate traditional leaders and other community influencers about *Chipatala cha pa foni* to encourage use of the hotline and tips and reminders.
- Conduct community outreach events to draw the community together to talk about *Chipatala cha pa foni* and how it can be used to access information on pregnancy or care of children under 5.
- Visit households with women of child bearing age to talk with the women and their other influencers about *Chipatala cha pa foni* and to demonstrate how to access the hotline and to sign up for the tips and reminders service.
- Conduct follow-up visits with women who are registered for the tips and reminders service to ensure that they received the week's messages or help them call into the interactive voice response system to access them.
- Maintain a log of all outreach events, all home visits, all problems reported by the community, and all calls that are made to the hotline using the community phone.
- Attend regular meetings with VillageReach and the District Health Promotion Officer to discuss outreach efforts, community response to the services, and new strategies for demand generation.

The research partner, Invest in Knowledge Initiative (IKI), is engaged in research and evaluation activities, including both quantitative and qualitative data collection.

Potential Outcomes of Using Information and Communication Technology to Improve MNCH Service Access and Delivery

This project serves the dual purpose of addressing demand-seeking practices while also improving supply-side capacity for service planning. It aims to increase community confidence in the health system, which will improve their relationship, ensure timely dissemination of information and encourage attendance for those who might otherwise have skipped antenatal and postnatal visits. Service providers will be better equipped with information in order to plan the use of resources at the clinic level.

Innovations, alongside the implementing and research partners, is working to ensure that the evidence generated by this pilot project will contribute to ongoing national dialogue on ways to improve the ability of mothers and children to access MNCH services.

Concern Worldwide helps people living in extreme poverty achieve major improvements in their lives that last and spread without ongoing support from Concern. *Innovations* works with the Ministry of Health and Family Welfare and the project's partners to share the lessons learned from the pilot and to transfer knowledge to other districts and partners who may wish to assist in any expansion plans developed by the Ministry of Health and Family Welfare.