

Integrated Health Systems Strengthening Project – IHSSP: RapidSMS

Brief Overview

The Rwandan health care system has made significant progress on reducing maternal and child mortality over the past ten years. According to the demographic health survey (DHS) the both the maternal mortality ratio (MMR) and the infant mortality rate were cut by more than 50 percent. The MMR declined from 1070/100,000 live births in 2000 to 476 in 2010 and the infant mortality rate declined from 107 to 50. However, data shows that most maternal deaths still occur at community level: 33 percent of women died before giving birth, 44 percent were aged between 21-30 years old and 45 percent had had more than three pregnancies.



In order to better identify and manage the health issues of at risk newborns and mothers, Management Sciences for Health (MSH), under the Integrated Health Systems Strengthening Project (IHSSP) worked with Rwanda's Ministry of Health and UNICEF to implement a mobile phone-based tool for community health workers to use with their clients. The RapidSMS application follows national and international guidelines of care, helping community health workers (CHWs) to closely monitor pregnant women from through the duration of their pregnancy and providing guidance on the provision of care, especially related to high risk situations. As a result of RapidSMS, there has been increased use of the formal health system by pregnant women and this has been demonstrated to have a positive health impact on mothers and their children.

Initially introduced in one of Rwanda's thirty districts, the system has now been rolled out nationwide. It has also been integrated into the national eHealth Enterprise Architecture Framework, exchanging data on risk factors with the national shared health record.

■ Geographic Coverage:

Rwanda, Nationwide (30 districts as of 2012)

■ Implementation Partners:

Rwanda Ministry of Health, UNICEF, Management Sciences for Health led a team of partners which included: Boston University | Cordaid | Futures Group International | Health Development & Performance (HDP) | Healthnet International | IDEAS | Intrahealth

■ Funder:

UNICEF, USAID, Government of Rwanda

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About RapidSMS

RapidSMS is a cell phone-based technology designed to save newborns and mothers through routine surveillance of health events by CHWs. The system relies on simple text messages that are composed by CHWs to report specific events during the course of a woman's pregnancy, delivery, and the first year of the infant's life. At the national level, these messages are incorporated into a web-enabled database. If the reported event indicates a risk for the mother or child, the system automatically sends a short SMS reply to the CHW notifying them of specific actions to take. In some villages, the CHW's mobile phone is also the most direct method of communication for patient referral and emergency transport through the nation's ambulance service (SAMU).

The application runs on an open source software platform Ubuntu Linux server, the MySQL database and is programmed using the Python language. Any cell phone can be used since it relies only on SMS messaging. In addition the system has a web-based graphical user interface that allows supervisors at the district and national levels to monitor use of the system, configure the system and broadcast SMS messages to CHWs.

In order to implement RapidSMS, IHSSP procured and distributed 10,000 cell phones to CHWs. These were combined with another 30,000 phones provided by other donors and distributed to all CHWs. MSH coordinated the development of a national training curriculum and approximately 1,000 people, including data managers and CHW coordinators from nearly 450 health centers, were trained in the use of RapidSMS. These trainers subsequently organized training on the application for the CHWs in their catchment areas. All CHWs from a health center's catchment area meet monthly to discuss progress and review feedback from RapidSMS and the CHW Health Worker Information System (SIScom).

Evaluation and Results

A study of RapidSMS in Musanze district, located in the north of the country, demonstrated appreciable results in improving maternal and child health. One year after the launch of RapidSMS, prenatal care visits increased by

25 percent, home deliveries decreased by 54 percent, while deliveries at health facilities increased by 26 percent. Health officials believe that the system also contributed to reducing the under-five deaths by 48 percent. (Data from the Musanze District Hospital).

The use of RapidSMS also contributed to:

- The instant transmission and analysis of data which is immediately accessible to all stakeholders;
- A decrease in data entry error rates through a feedback loop system identifying data outside normal parameters and verification with end-users; and
- Improved monitoring capacity at the clinic, district and national levels.

Lessons Learned

- Community health workers at the front-lines of health service provision in Rwanda can benefit from mHealth activities.
- In spite of their limited educational background and difficulties manipulating cell phones for the first time, CHWs quickly adapted to the technology.
- Regular feedback sessions are required to continually improve CHWs skills and share the successes and difficulties encountered.
- Phone maintenance and charging in areas without electricity can be a challenge.
- The use of solar chargers in areas without regular electricity can further use of mHealth applications.

Conclusion

Clear progress has been documented in maternal and child health in Rwanda by the recent demographic and health survey (DHS 2010). However, maternal and child deaths are still high. Increasing the use of interventions, which target maternal and child health, has been a national priority for the Rwandan government. Mobile phone-based applications, such as RapidSMS, show great potential for supporting health workers at the lower levels of the health system. These mHealth tools can assist CHWs in facilitating access to health services for the population and in turn improving health outcomes.

Information was excerpted from:

http://intranet.msh.org/news-and-events/news/news-story.cfm?customel_datapageid_600=69167; RapidSMS Rwanda - <http://healthmarketinnovations.org/program/rapidsms-rwanda>; Saving Mothers and Newborn lives in the community using RAPIDSMS technology – Experience from Musanze District of Rwanda: Dr. John Kalachi, District Hospital of Ruhengeri, Musanze; International Conference on Community Health, Kigali 25-28 January, 2011