

# Project Mwana – SMS for Early Infant Diagnosis of HIV

## Brief Overview

In Zambia, where the HIV prevalence rate among the general population is 14.3 percent, mother-to-child transmission accounts for 21 percent of all new HIV infections. Although the use of antiretroviral therapy (ART) in HIV-infected pregnant women can prevent mother-to-child transmission, when prevention fails, effective programs for early infant diagnosis (EID) of HIV are critical, because the evidence suggests that early initiation of ART in HIV-infected children can substantially reduce HIV-related morbidity and mortality.



Project Mwana is an innovative health initiative being implemented by the Zambian Ministry of Health with support from UNICEF and their collaborating partners (Zambia Center for Applied Health Research and Development; Zambia Prevention, Care and Treatment Partnership; and Clinton Health Access Initiative). Through the use of RapidSMS mobile technology, the project delivers test results for diagnosis of HIV in infants in real time to rural clinics and facilitates communications between clinics and community health workers. The community health workers then inform mothers that the results are ready for their collection.

Begun as a pilot in 13 districts of Zambia in June 2010, the project has shown a reduction in turnaround time – from sample collection, to laboratory, to the return of test results, to the originating health facility – of more than 50 percent in the country's rural and underserved communities. Zambia has since developed a national scale-up plan and implementation guide, and with UNICEF's support, aims to achieve national scale by 2013.

### ■ Geographic Coverage:

Zambia

### ■ Implementation Partners:

UNICEF is supporting the Zambian Ministry of Health to lead a team of partners which includes: Zambia Center for Applied Health Research and Development | Zambia Prevention, Care and Treatment Partnership | Clinton Health Access Initiative

During the development and design phase of the pilot, UNICEF also partnered with: Johnson & Johnson | McKinsey & Company | frog™

### ■ Funder:

UNICEF

### ■ For More Information Contact:

UNICEF

- **Nilda Lambo, Chief, Health & Nutrition;**  
United Nations House, P.O. Box 33610, Lusaka, Zambia;  
Tel: +260.9787.79532 email: [nlambo@unicef.org](mailto:nlambo@unicef.org)

# Project Mwana – SMS for Early Infant Diagnosis of HIV

## About Project Mwana

Project Mwana uses RapidSMS, a free, open-source programming framework that allows developers to build their own SMS-based applications. The project consists of two applications. 'Results160', which speeds up the time it takes for health facilities where the samples are collected to get the results back from the regional processing laboratories, fulfills the project's primary objective of allowing test results to be communicated in a timely, efficient way. All dried blood spot (DBS) samples are sent to regional processing laboratories. The communication of test results occurs via four text messages:

- When test results are ready, the central SMS system sends a message alerting the clinic workers;
- The first clinic worker ready to record the results sends their four digit pin to the server;
- The results are sent to that phone for, formatted to be readable on different screen sizes; and finally,
- A second message reminds the user to write the results down in the register and delete them off their phone.

The second application, 'RemindMi', serves a second project objective, to improve the rate of postnatal follow-up, by reminding mothers to return for their six-day, six-week and six-month postnatal visits in line with Zambia's immunization schedule.

## Evaluation and Results

The Zambia Center for Applied Health Research and Development (ZCHAR), a Boston University affiliate and one of the partners on Project Mwana, conducted an evaluation of the pilot phase of the project. The team selected ten public health facilities within two districts in Zambia's southern provinces for inclusion in the study. Overall, 1,009 DBS were collected from infants for HIV testing in the ten study sites over the 19 months before the SMS system was implemented. In the 7.5 months after implementation, 406 such samples were collected at the same sites. The mean turnaround time for delivery of a test result to the relevant health facility fell from 44.2 days pre-implementation to 26.7 days post-implementation. In addition, the results delivered through SMS texting were highly accurate by comparison with the results recorded on paper.

The 'RemindMi' application used to trace patients via SMS to ensure that they receive key childhood interventions now also provides community health workers with a tool to register births. Its birth registration component has been adopted enthusiastically by community health workers, who now use it to register the majority of births in their catchment areas.

It is too early to establish whether the faster turnaround time for results leads to earlier ART access for exposed infants or if SMS reminders significantly increase adherence to postnatal appointments. A full evaluation of Project Mwana's impact is planned for 2013.

## Lessons Learned

- Government leadership is critical to ensuring that the project is integrated into long-term planning and the technical, physical, monitoring, and human infrastructure and systems.
- A permanent software development team and project manager should be sourced locally.
- In order to control costs, the project should: negotiate with telecom companies for scale, not pilots; utilize the phones people have rather than purchasing and supporting a national phone system; and create district-level training teams.
- The identified needs of end users should inform decision-making and the development of tools.
- Test early and often; don't worry about failing and stay adaptable. Use open source tools that can be customized to local needs.

## Conclusion

SMS technology is a powerful innovation that in Zambia has reduced delays in receiving EID DBS HIV test results, improved communication among health care providers and community volunteers, and more importantly, encouraged patients to return to the clinic for their test results with greater confidence. The experiences from development of the Project Mwana system can serve as the basis for future mHealth projects. The system could potentially be extended to maternal and child health areas such as the prevention of mother-to-child transmission (PMTCT) of HIV and nutrition, as well to other results delivery and diagnostic mechanisms or national health program for women and children.

### Information was excerpted from:

[http://www.unicef.org/partners/Partnership\\_profile\\_2012\\_Mwana\\_Zambia\\_V2\\_approved.pdf](http://www.unicef.org/partners/Partnership_profile_2012_Mwana_Zambia_V2_approved.pdf)

<http://www.who.int/bulletin/volumes/90/5/11-100032/en/index.html>

<http://projectmwana.posterous.com/>

[http://www.unicef.org/equity/index\\_65314.html](http://www.unicef.org/equity/index_65314.html)