

Swaziland: Improving client follow-up with automated text messaging

By Charles Azih, Anne Pao and Vijay Narayan



Training of clinic nursing staff on the AP Reminder system. (Photo by Idris Bello).

In Swaziland 26 per cent of 18-49 year-olds are HIV-positive¹. The Ministry of Health and various partners have responded with an ambitious three-year programme MaxART: Maximising ART for Better Health and Zero New HIV Infections. This programme introduces innovative community and facility-based initiatives to improve the uptake of HIV testing, care and treatment throughout the country. One such initiative employs m-Health technology in the form of automated SMS appointment reminders for enhanced client follow-up.

The MaxART programme, funded by a grant from the Dutch Postcode Lottery's Dream Fund, is spearheaded by the Ministry of Health, with implementation support from the Clinton Health Access Initiative (CHAI), STOP AIDS NOW!, and a consortium of partners. MaxART aims to strengthen health systems and overcome the many barriers to testing and treatment, so that 90 per cent of treatment-eligible HIV-positive individuals are on treatment by 2014, in this southern African country whose population is about 1.1 million.

HIV client retention and follow-up are major challenges for Swaziland's health system. National anti-retroviral treatment data show that only 35 per cent of clients actively remain on treatment by their fifth year². It is crucial that clients are supported to maintain links with the health system via regular engagement with the facility so they maximise the opportunity to benefit from improved adherence to anti-retroviral treatment.

Taking medication consistently helps to suppress HIV in clients, leading to improved health and it also reduces the chance of transmitting the virus to others. A Uganda

study exploring the reasons why clients miss appointments showed that forgetfulness accounted for 24.2 per cent of missed appointments, busy with other commitments for 17.7 per cent, too ill to come to clinic for 11.3 per cent and having extra medications for 11.3 per cent.

Financial and travel constraints accounted for 9.7 per cent and confusion over appointment dates for the remaining 9.7 per cent³. Currently, many health facilities in the country use phone calls to followup and re-engage with clients who have missed appointments. While this is a huge step in the right direction, these calls can be costly for the health system and time-consuming for the already over-burdened health workers.

Missed appointments also create problems when clients return on days they are not expected at clinic for routine refill of anti-retroviral treatment, resulting in confusion in sorting out their documents for the day, over-crowding and long queues. Clients may decide to return on another day, which can be discouraging given the time, effort, and cost involved in visits.

SMS reminders have major impact

Reminding clients of clinic appointments via mobile phone technology has been shown to significantly improve both adherence to appointments and medications⁴. As a result, MaxART is launching a six-month pilot of an Automated Patient Appointment Reminder System at hospitals and health centres.

Key facts and figures about the Pilot

- **Mother facilities: 3 sites**
- **Primary-care clinics reached via mother facilities: 30 sites**
- **Potential patient reach: 28,000 PLHIV in care and treatment**
- **Hardware needs: computer with access to electronic database, modem and connections, antenna to enhance reception, SIM card**
- **Software needs: AP Reminder application.**

This involves SMS "reminder" text messages being automatically sent to clients two days before their scheduled visits.

The Swaziland health sector already works with electronic client records. The Automated Patient Appointment Reminder System application will leverage these records to send

SMS reminder messages to HIV-positive clients about scheduled clinic appointments. In addition to providing a potentially cost-effective, timely solution to help clients stay connected with care, the system also benefits health workers since it does not require any additional work, and should reduce the number of clients with missed appointments needing to be called, thus saving staff time.

Patient appointment reminder application

The Ministry of Health worked with CHAI to develop a customised SMS application, tailored to Swaziland's needs and to the existing Ministry of Health data infrastructure. This application requires limited hardware and software – which will be installed and managed at each pilot site by the Ministry of Health's Information Technology Unit. The Automated Patient Appointment Reminder System connects to the electronic client database and extracts the client's phone number (or that of someone identified to provide treatment support) and their next scheduled appointment date. These two pieces of information are then used to send an automatic reminder message two days before the next appointment.

For more targeted messaging, health facilities can also send customised appointment reminders based on the facilities' specific knowledge of their client group. The application has an "opt-out" function to exclude clients electing not to receive SMS reminders. Once the hardware and software are installed, all that facility health workers need is airtime to send SMS to clients via the local mobile network.

The Automated Patient Appointment Reminder System has many potential benefits, especially given that 70 per cent of Swaziland's population is estimated to have a cell phone with simple SMS capabilities. As suggested from the findings of the Kunutsor study in Uganda³, text messaging for appointment reminders is a timely and effective intervention for improving client attendance and follow-up. The system should help clients stay connected with care through improved follow-up and retention, minimise the burden of manual messaging or phone follow-up by health workers, improve management of appointments, and provide a testing ground for future SMS technology strategies. It should also improve health information management because the system relies on correct, consistent, and timely entry of client data in the electronic databases housed at larger hospitals and health centres, so-called "mother" facilities.

The continual strengthening of health information management will help maximise operation of the solution, which will rely significantly on clinic staff commitment.

If the pilot succeeds, the Ministry of Health would use it to expand its scope beyond HIV to clients with other health conditions, including hypertension and diabetes. It could also be used for maternal and child health services like ante-natal clinic and immunisations.

Scale-up opportunity

The MaxART pilot project has the opportunity to demonstrate that automated patient appointment

reminders are a cost-efficient and effective alternative to phone calls. The pilot could be a catalyst for a national scale-up supported by the Ministry of Health and the implementing partners. However, it requires detailed monitoring and evaluation of its functionality, feasibility and impact. The Health Management Information System (HMIS) unit within the Ministry of Health and the CHAI Swaziland team plans to review the system by assessing:

- Missed appointments within the health system before and after the introduction of the application to determine "missed appointments averted" by the system.
- "Missed appointment telephone calls" made before and after the introduction of the automated reminder system to determine "healthcare worker time" saved and comparative cost savings versus follow-up via phone calls.
- Number of messages sent from the facility and number of clients reached each month.
- Acceptability of the reminder system.
- Costs associated with the system.
- Electronic database fields for data completion, accuracy and data quality.

The Automated Patient Appointment Reminder System also includes automated and customisable reporting functionality that generates data to enable health workers to



A Ministry of Health systems manager sets up a modem to send SMS reminders over mobile network. (Photo by Anne Pao).

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perform deeper analysis of pilot effectiveness and to understand the potential clinical determinants of improved follow-up and retention.

Driving innovative solutions

Swaziland's Ministry of Health and CHAI have launched the automated patient appointment reminder system. The strategy highlights the ministry's drive towards more innovative, technology-based solutions to overcoming health challenges that affect client experience and clinical outcomes. The overarching goal is linked to MaxART's underlying objectives by supporting people living with HIV to manage the difficult challenges they face, such as remembering their clinic appointments, thus helping them stay connected with the health system to live longer, healthier lives. ■

Lessons Learnt

- The Automated Patient Appointment Reminder System has many potential benefits, especially given that 70 per cent of Swaziland's population is estimated to have a cell phone with simple SMS capabilities.
- Automated patient appointment reminders may prove to be a cost-efficient and effective alternative to phone calls.
- Automated and customisable reporting functionality generates data to enable health workers to perform deeper analysis of pilot effectiveness and to understand the potential clinical determinants of improved follow-up and retention.

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References and end notes

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