

Mobile phones: exceptional tools for HIV/AIDS, health, and crisis management

The *Leading Edge* in the August 2008 issue questioned, "Does HIV/AIDS still require an exceptional response" in relation to the potential imbalance of global health-care resources?¹ In the midst of the unchecked and deadly pandemic the answer is yes; especially if local resources are used and management of other endemic health problems can also benefit. Perhaps one of the most promising emerging health systems tools, which can build capacity around the HIV/AIDS response and filter into the global health response, lies increasingly in the palms of our hands.

Mobile telephones are reaching people in Africa's cities, towns, villages, and countrysides more rapidly than anywhere else in the world (figure 1).² The overlap with the global health-care crisis does not go unnoticed. We previously reported that despite very low incomes, most clients attending two University of Nairobi clinics (serving sex workers and providing HIV services for the general population in Pumwani district) had access to mobile phones and knew how to use them.³ Surprisingly,

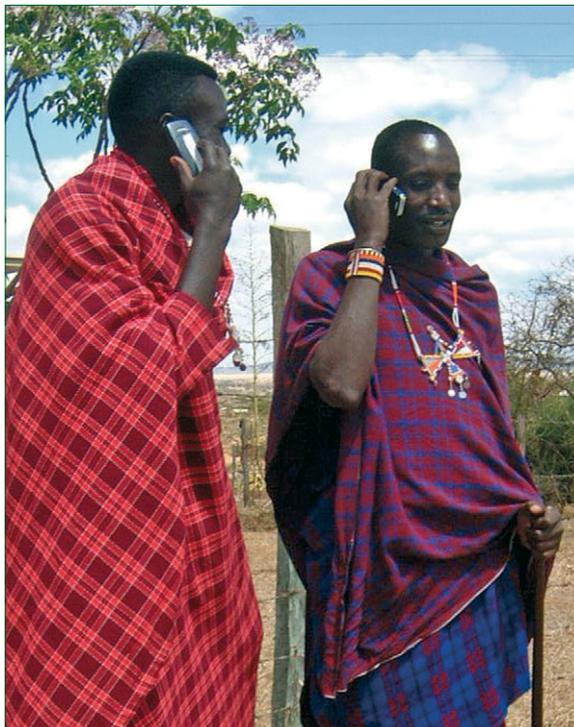


Figure 1: Masai men communicating on mobile phones outside Kajiado district hospital, Kenya

mobile phone communication featured in most aspects of patients' personal lives and business, but not their health management.

One solution to the gap in mobile phone access and use in health care was devised by the Pumwani clinic team, and other examples are also emerging.⁴⁻⁸ In Pumwani, a simple, low-cost mobile phone-based system has evolved that includes nurses sending weekly short message service (SMS) text messages to clients receiving antiretroviral therapy (ART) to enquire how they are doing, and then triaging their responses according to the patients' needs (figure 2). Patients in the initial pilot trial gave favourable feedback on the system, reporting that "it feels like someone cares". The system is now under a randomised clinical trial (RCT) in Kenya to see if it can improve adherence and response to ART.

The potential flexibility of a mobile-phone-based health system is unrestrained. Adherence issues with tuberculosis therapy and other chronic and semi-chronic disease management are very similar to HIV, and could thus be similarly supported.⁹⁻¹² Improved

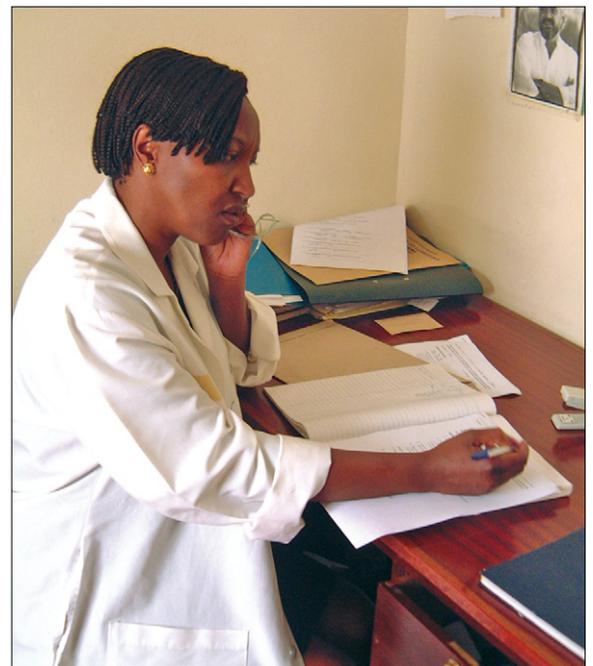


Figure 2: A counsellor at the Majengo clinic in Pumwani responds to text messages from patients

follow-up contact for short-course medical therapies such as malaria may also be a future option. The key advantage to using mobile phones to track patients is that they offer a low-cost, instantaneous, and increasingly ubiquitous communications medium, and are unrestricted to location. The goal is to improve effectiveness and efficiency of health service delivery with the farthest possible reach.

Human resource shortfalls are not the only crises that loom over the HIV/AIDS pandemic and other endemic diseases. Political and economic crises tend to occur at greater frequency in resource-poor settings. This year, Kenya had a political crisis following its disputed presidential elections. Widespread violence resulted in thousands dead and hundreds of thousands displaced from their homes.¹³ Mobile phones were actually implicated in facilitating mass action.¹⁴ Our experience was more positive. When the peak of the crisis settled, we were able to reach, by phone, 211 of the 267 enrolled participants. 22 patients said their lives were directly affected by the crisis, of whom 15 reported gaps in ART adherence. Displacement from home was a primary barrier, but other issues such as loss of privacy and fear of stigma in new environments were also reported. Our nurses were often able to connect patients to new dispensaries. In one case, a patient whose home had been burned during previous elections had severe emotional distress during the current crisis but a counsellor provided telephone support, and she succeeded in taking her medications until she could later be seen at the clinic. The system is not perfect: at least three patients reported losing mobile phones while fleeing violence. Others were denied access to air time "top up" by poor security or economic fallout or were forced to remain in remote areas without network coverage.

Nonetheless, it appears that mobile phones are being increasingly used in the scale-up of global health

systems, and are under investigation for this purpose. Mobile phone technology can also be an important way to provide assistance during periods of crisis management.

Richard Lester, Sarah Karanja

Department of Medical Microbiology and Infectious Diseases, University of Manitoba, Winnipeg, MB, Canada (RL); and Department of Medical Microbiology, University of Nairobi, Nairobi (RL, SK)
rlester.id@gmail.com

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Hepatitis C vaccine: supply and demand

We wish to correct an error made in the recent Review on the supply and demand of hepatitis C virus (HCV) vaccine.¹ The vaccine developed by Transgene (Lyon, France) was described as being a recombinant modified vaccinia Ankara (MVA) expressing HCV core-E1-E2 and NS3 that has been evaluated in chimpanzees in a

prophylactic setting before current testing in human beings. Transgene's prototype vaccine (TG4040) is indeed a recombinant MVA but it expresses a different set of antigens—namely, NS3, NS4, and NS5B. This T-cell based vaccine has not been tested in chimpanzees. It is currently being clinically evaluated as a therapeutic vaccine.