Low technology, high expectations: Mobiles for maternal health in Sierra Leone

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Community members attending a briefing session by a research team in Bombali district, Sierra Leone. (Photo by Hermen Ormel).

Using mobile technologies for public health holds the promise of rapid gains in Sierra Leone – but whether this is just virtual, or can become a reality is yet to be known. While initiating mHealth interventions, Sierra Leone has simultaneously embarked on a research project that aims to contribute to the evidence base for the health benefits of 'going mobile'. This article presents research results on the feasibility of using mobile phones for strengthening communication between health staff and clients to improve sexual and reproductive health.

Sierra Leone is among the world's poorest countries, ranking at 180 out of 187 in the Human Development Index (UNDP 2011). The challenges the country, its people and the new government faced when it emerged from war in 1992 were enormous. Given the adverse circumstances, significant progress has been made in rebuilding the health system, and strengthening availability and quality of health services.

Sexual and reproductive health (SRH) is a government priority and pregnant and lactating women and under-five-year-olds have reaped major benefits from the Free Health Care Initiative launched in April 2010, as regards better access to free maternal, newborn and child health services, including drugs (MoHS 2011).

The country's maternal mortality ratio of 890 deaths per 100,000 live births is among the highest in the world, as is the infant mortality rate of 114 per 1,000 (WHO undated, data 2010). A lot remains to be done to address SRH needs. On the client and community side, there is need to improve SRH awareness, address teenage pregnancy and improve use of skilled delivery care. On the provider side, responsiveness of services to client needs, the referral system and quality of services need attention. (Magbity et al. 2011)

Following earlier initiatives by international NGOs, the Ministry of Health is spearheading the use of mobile phones at decentralised (health district) levels, to achieve progress on the road to the 2015 Millennium Development Goals 4 (improving Child health) and 5 (improving Maternal health) and beyond. This is commendable for a country whose cell phone subscription rate of 21 per 100 is relatively low compared to other West African countries, although the mobile penetration is rapidly expanding (WHO 2010).

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Interviewing a female elder in Bo district, Sierra Leone. (Photo by Hermen Ormel).

Are they making a difference?

Literature on the use of 'mobile technology to advance health' (mHealth), points to several areas where cell phone use could make a difference. Improved communication between health workers for better diagnosis and faster emergency referrals are examples. Responding to these perceived opportunities, some district health administrations in Sierra Leone have started establishing the so-called virtual private networks, whereby health staff form a closed user group and can share an unlimited volume of voice calls and text messages (sms) for a fixed monthly fee paid for by the government. However, it was also felt that mHealth initiatives are not always adapted to the local context. There is also a perceived lack of evidence on the effectiveness of such interventions: are they really making a difference?

With partners like the Freetown-based Medical Research Centre (MRC) and the University of Sierra Leone, and supported by several development partners, the Ministry of Health undertook research to examine the feasibility of mHealth interventions to improve sexual and reproductive health in general and maternal health specifically. Eighteen health workers, 15 health managers, 16 female health service clients and 11 community key informants were interviewed between April and June 2011 in the Kenema and Western Area health districts. This was complemented by nine focus group discussions with health workers and male and female community members. Excerpts of study results (see Magbity et al. 2011) are presented below.

Communication between health workers and clients

Based on research discussions, it emerged that only one-third of female health service clients interviewed possessed a phone, although some could borrow relatives' phones. Hardly anyone had used the phone for health-related calls.

On the other hand, most health workers had one or more cell phones, which they put to work-related use to make appointments or follow-up clients. One female health worker went the extra mile: "I give my phone number to pregnant women who visit the facility for ante-natal care, especially when they are almost due to be put to bed [deliver]. In case of emergency they can call me, since the facility doesn't open late at night. I also call clients to monitor the progress of their pregnancy, and make follow-up on patients after treatment."

Interestingly, female clients suggested the phone should also be used to sensitise husbands, who, in Sierra Leone, make decisions regarding whether their wives should seek health services or not. Several men thought they would benefit. One said: "…the benefit the men and the community as a whole get is that their wives and children would be treated well and problems of complications that pregnant women envisage during pregnancy will be solved."

Some clients clearly saw the benefit of the use of phones for their health in ensuring that they get the health services they need. A female client wanted health workers to be more concerned: "I expect them to call me and check on my general welfare and to encourage me to visit the clinic frequently, so that the position of my baby can be checked on a regular basis."

Cell phones can be used for voice calls and text messaging. However, the study revealed that, while health workers frequently used sms to communicate with their clients, both health workers and clients preferred voice calls.

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This is partly due to the relatively high illiteracy rates in Sierra Leone. A female client said: "I do not receive text messages because I do not know how to read. I can only receive calls. I cannot even make the call myself. My brother usually helps me out." Also, voice calls are considered more 'direct' and interactive among the more 'verbally-oriented' Sierra Leonean communities, many of whose languages have no written form.

According to a female health worker, "clients and health workers would prefer voice calls, because most of the clients cannot access text messages, they are mostly illiterate. I also think that many of those who can read do not know how to use this application. Another problem is that a text message is not read immediately on receipt. The time lapse can cost a life."

This makes Sierra Leone different from many other countries in West and East Africa, where text messaging has fast become a new way of communication.

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(Un)comfortable topics

Both health worker and client respondents of the study agreed that not all topics lend themselves to telephone discussion. Most found that it was fine to talk about reproductive health issues such as family planning and antenatal care. "It will be very helpful to receive information on family planning especially for teenagers who do not have the opportunity of discussing such issues. Even the shy ones can be informed via the mobile phone with people around her not knowing what she said or what was being said to her. This will prevent teenage pregnancy," a female community member said.

However, there was disagreement on discussing pregnancy, with some feeling uncomfortable with the topic. Most found discussing HIV, STI and test results inappropriate. "Well, for the test result it is difficult to communicate via phone especially for HIV. Also, there are some clients who do not want other people to know that they are pregnant especially in the early stages."

Confidentiality and gender issues

While new technologies offer a chance to improve awareness and contact between client and provider, they can also cause problems if not handled well. Women sometimes do not disclose the use of contraceptives to their partners, and therefore the use of a phone to discuss matters between a health worker and a female client when her husband is present may cause trouble. One woman approved of discussing all health topics and issues via phones except family planning. "Some women did not get the consent of their husbands

to become clients, and the use of a phone might invite problems from the husband," she said. Several women cited their husbands' jealousy as a deterrent to mobile phone use. "My husband is very jealous, so he checks my phone all the time for other numbers of people he says are my boyfriends," one woman said.

Clients and health workers cited several (current and potential) benefits of expanded mobile technology use as presented in Table 1. It is clear that some benefits are quite tangible. A female health worker said about use of mobile phones: "It saves my energy and even that of the client. Otherwise I will walk to see the clients or the client walks to see me. It also saves my time because communication is quick and prompt."

> **"My husband is very jealous, so he checks my phone all the time for other numbers of people he says are my boyfriends"**

A male health worker said that the phone allowed faster communication between health facilities and had thus "reduced maternal mortality rate by giving emergency response especially in the case of calling for an ambulance for referrals." Such a claim can only be assessed through more rigorous data collection and research.

New technology brings both opportunities and challenges. In Sierra Leone, limited geographical coverage of the mobile network, battery charging, poor access to airtime (phone credit top-up vouchers) all raise questions of who pays the cost? Clients using the phone for health related-issues do so for their own well-being and have to pay unless they can call to a free hotline. Health workers use the phone to improve or speed up services, as shown in the examples presented. However when the Ministry of Health does not pay, it becomes burdensome: "The more calls you make the more credit you will have to buy … it is a great sacrifice," said a female health worker.

Meanwhile, a male health manager said they were willing to use their own phones for work-related purposes because it would make their work easier and especially cut down on the need to close the health facility to travel to headquarters just to submit a report.

Conclusion

Health workers, clients and other community members see much potential in mobile communication technology to improve information, service delivery, access, quality, efficiency, responsiveness and, ultimately, health outcomes. While this could positively influence maternal and newborn health and other aspects of SRH, supportive evidence is lacking. Follow-up intervention research has thus started in one district in Sierra Leone to determine the effectiveness of mobile technology among health workers and between them and clients. The findings of both studies will inform the Ministry of Health's mHealth strategy. ■

Table 1: Health worker and female client perceptions of the benefits of expanded use of mobile technology, Sierra Leone (Adapted from Magbity et al. 2011)

Perceived benefits for clients	Perceived benefits for health workers
• Improved health awareness, e.g. on family planning, pregnancy, delivery care and HIV. • Better health-worker-client communication, e.g. health worker can monitor well-being of pregnant woman. • More responsive services, especially in emergencies and for maternal and new-born health, e.g. ensuring faster access to emergency obstetric care. • Avoiding transportation challenges, e.g. calling an ambulance saves client time and money.	• Improved supply chain management, e.g. communicating drug re-stocking requirements by phone instead of having to travel to the next level of the health system. • Work becomes easier, more efficient, e.g. calling or texting to report service use data replaces the need to travel. • Improved case diagnosis/management, e.g. when health workers call a colleague or supervisor to ask for advice. • Improved emergency referral.

References and end notes

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