

Phone-based telemedicine: is this the panacea for African eHealth?

Yunkap Kwankam discusses what might be the stethoscopes of the twenty-first century



The term eHealth conjures up images of very sophisticated systems and gadgetry. But eHealth is not about sophistication or complexity of the technology. Rather it is about bringing knowledge and information to bear on the improvement of complex human biological systems. eHealth can be very sophisticated, such as in the case of paperless hospitals and robotic surgery. It can also be very simple, such as with phone-based telemedicine.

What is phone-based telemedicine?

Phone-based telemedicine is simply telemedicine where the link between the patient's location and that of the medical expertise is by telephone – healthcare by telephone.

One of the leading practitioners of this form of eHealth is a Swiss company called Medgate – www.medgate.ch. It has a staff of about 220 people, including 60 doctors, 50 telemedicine assistants, medical practice assistants and qualified nurses, and 60 call centre agents. The volume of teleconsultations done by Medgate has grown to 4300 a day, based on telephones primarily, but also including the internet, video-conferencing and tele-biomonitoring (monitoring of physiological parameters of patients, such as blood pressure, heart-rate, etc. from a distance, using devices that communicate with the monitoring station by telephone or internet).

These impressive numbers simply point to the growth of the company, which was launched in 2000. You can do phone-based telemedicine with any number of care givers. But clearly the volume of consultations leads to greater cost-effectiveness when staff do not spend too much time in idle mode waiting for calls to come in. More than half the patients 'seen' by Medgate doctors have their problems resolved in a teleconsultation and have no need to visit another doctor's office or hospital.

Of course behind the simple technology of the telephone lies an entire system of eHealth infrastructure:

- Electronic prescription.
- Drug delivery system.
- Medical alert system with ambulance call and medical evacuation as necessary.
- Payment schemes covered by insurance and third-party payers.

Professor S Yunkap Kwankam is Executive Director of the International Society for Telemedicine and eHealth (ISfTeH) and CEO of Global eHealth Consultants (GeHCs).

These refinements make the system work better. They are important but not indispensable to the practice of phone-based telemedicine. The key component is availability of medical knowledge at the point of need through telephone access to that knowledge.

Telemedicine with cell phones

I have written in an earlier piece that just as eHealth is the future of health, mHealth or mobile eHealth is the future of eHealth. The diffusion of cell phones into the remotest parts of most African countries makes phone-based telemedicine a key option for curative interventions as well as preventive measures. And when you combine phone-based telemedicine with powerful algorithms for diagnosis, such as embodied in say, the Meddoctor system (www.meddoctor.com), and follow this up with information on clinical practice guidelines, then the first key steps towards better health outcomes have been taken – through proper diagnosis and evidence-based advice on treatment.

Phone-based medical imaging systems

Even the most basic cell phones these days incorporate a digital camera with enough resolution to enable digital images of skin lesions, burns, skin discoloration, etc. to be taken, transmitted and successfully interpreted by dermatologists and GPs in remote locations.

There are also imaging applications for cell phones (see for example www.plosone.org/article/info:doi/10.1371/journal.pone.0002075). Of course these cannot hold a candle to the GE Vscan, a phone-sized ultrasound device launched by GE in February 2010. But cell-phone based medical imagers, as Jeff Immelt, CEO of GE says of his device, 'could be the stethoscopes of the 21st century.'

Extending the reach of health professionals

Telemedicine is best known for its ability to provide medical advice from a distance, thus extending the care-giving capacity of health professionals beyond their physical reach. Given the acute shortage of health professionals in Africa – sub-Saharan Africa has 33 of the 56 countries worldwide where, according to the 2006 *World Health Report*, the health workforce density (number of doctors, nurses, pharmacists per thousand population) is below the threshold required to provide even basic services – phone-based telemedicine can provide an alternative even as we build up the health workforce.