Mobile health devices can improve health care access in developing countries, remote regions

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Mobile health technology has substantial potential for improving access to health care in the developing world and in remote regions of developed countries, states an article in *CMAJ* (*Canadian Medical Association Journal*).

In many countries, access to health care is hampered by lack of medical professionals and health care infrastructure, limited or poor equipment, sporadic power and other obstacles. However, the development of remote-presence medical devices can help fill this void by connecting people in remote locations with experienced health care professionals for real-time assessment.

Smartphones, tablets and other consumer devices are being used in health care, but applications are limited because of processing capacity, privacy issues and signal variability.

"The next step in the evolution of mobile telemedicine is the development of portable, dedicated medical communication devices capable of providing real-time remote presence and transmission of diagnostic-quality medical data from a range of peripheral diagnostic devices that will allow point-of-care therapeutic intervention," writes Dr. Ivar Mendez, University of Saskatchewan, with coauthor.

Pilot tests by the authors using a mobile-presence device in the remote

Bolivian Andes mountains with pregnant women allowed an obstetrician in Halifax to monitor the baby's heartbeat, communicate with the mother and conduct a complete prenatal ultrasound with the help of an onsite nurse.

"Mobile remote-presence devices for telemedicine have the potential to change the way health care is delivered in developed and developing nations," write the authors. "The availability of cellular network signals around the globe and rapidly increasing bandwidth will provide the telecommunication platform for a wide range of mobile telemedicine applications. The use of low-cost, dedicated remote-presence devices will increase access to medical expertise for anybody living in a geographical area with a cellphone signal."

There are some barriers to implementation of these solutions, such as perceived high costs (about $25 000 for the device plus connectivity charges) as well as medical liability, patient confidentiality, physician payment and other policy issues. However, the public's appetite for these solutions and the promise they have for improving access to health care may help remove barriers for remote-presence medicine in remote communities.

"This switch from the current model of centralized diagnosis in large medical facilities to point-of-care diagnosis could dramatically increase medical efficacy by removing barriers of time and distance, reducing wait times and decreasing the cost of health care delivery," state the authors.

As the rapid advance of technology continues to transform many areas of society, the medical field will see increasingly sophisticated tools and devices to improve point-of-care diagnosis.

"Although mobile telemedicine may be applied initially to emergency

situations, remote locations and the developing world, its major impact may be in the delivery of primary health care. We can envision the use of mobile remote-presence devices by allied health personnel in a wide range of scenarios, from home care visits to follow-up sessions for mental health care, in which access to medical expertise in real time would be just a phone call away," the authors conclude.

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