

GP

GOVERNMENT PURCHASING

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By Peter Saunders

Case Study: Winnipeg Health Sciences Centre



Photos courtesy Librestream

Surgeons are using wireless mobile communications in a new assessment and support system.



Dr. Edward Buchel is one of the surgeons pressing for technological innovation to help prevent delays, serve more patients and find new efficiencies.

Winnipeg's Health Sciences Centre (HSC) provides services that extend across Manitoba, Nunavut and northwestern Ontario. Operated by the Winnipeg Regional Health Authority, its central 13-ha (32-acre) site is one of Canada's largest tertiary care facilities, serving as a major hub of health-care referral, teaching and research. It is also designated as Manitoba's trauma centre, with a major focus on transplants, neurosurgery, burns and pediatric care, and is formally affiliated with the University of Manitoba and CancerCare Manitoba. As such, HSC provides patient care not only within its core area of Winnipeg, but also through provincial programs to remote locations. Telehealth systems are key to this mandate, including video conferencing rooms. In addition to serving distant patients, however, telemedicine technology is also beginning to provide local benefits within HSC's facility by reducing patient wait times, facilitating mentorship and increasing medical staff productivity.

VIDEO CONFERENCING



Doctors-in-training use a camera-like device to share still photos, video, notations and audio with surgeons through their notebook, tablet or desktop computers.

Specifically, plastic surgeons are using wireless mobile communications as the basis for a new assessment and support system. A portable camera designed for precise image reproduction shares still photos, video, notations and audio with surgeons through their notebook, tablet or desktop personal computers (PCs). This enables communication between rooms during surgical procedures, remote emergency room (ER) assessments, post-surgery follow-ups and other activities to become markedly more efficient.

Using this system, a consulting surgeon can view live video and still images of a patient's condition while speaking with the caregiver at that patient's side.

"One of the purposes is to monitor what medical graduates do in the ER and in clinics when unsupervised," explains Dr. Edward Buchel, HSC's head of plastic surgery. "It also helps these residents—who are in different years of training and at very different levels of skill—quickly determine if a patient who shows up in the ER with trauma needs to see a plastic surgeon. When they can't check, the patients may face wait times of 10 to 12 hours until a surgeon is able to see them in person. This tool can solve that problem. And the benefits are clear when you're able to say, 'Let that patient go home,' rather than keep them in the hospital. It can change the course of treatment. It will help our patients and help us train better doctors."

HSC uses two of the Onsight cameras from Winnipeg-based Librestream. While they resemble large single-lens reflex (SLR) cameras, they are multimedia devices that securely stream one-way video and two-way telestration—*i.e.* sketching

The system could use a public Wi-Fi network, as its signals are already encrypted.

atop images—and audio over the Internet. Currently, the system uses HSC's own wireless-fidelity (Wi-Fi) infrastructure, but it could soon use a public network, as the signals are already encrypted.

Buchel says the wireless connectivity with PCs makes the system far more surgeon-friendly than traditional telehealth setups.

"When video conferencing depends on a room-based system, it means I need to take an hour to go to and work at a specific location, which is not what taxpayers want us doing with our time," he explains. "That may be convenient to set up, but it's inconvenient for both patients and doctors to use. I'm always on the go, in five different places at the same time, and we have the wireless capabilities in place, so mobile collaboration makes a lot more sense. With surgery, very important decisions need to be made right away, with as little delay as possible."

The system can provide benefits not only at the moment of initial diagnosis, but also through later stages of care.

"After microsurgery, where we transfer tissue from one part of the body to another, we have to monitor the patient every hour on the hour for the first day or so, as the blood cells may clot and create an immediate need for surgery," Buchel says. "Traditionally, when there's a problem, a nurse calls a resident, who has to decide whether to visit the patient or not, and then if he/she does examine the patient, the next step is to call the surgeon, if needed. Now we can

eliminate these huge delays and improve care where saving an hour or two is very important to a patient's health."

HSC began using the cameras earlier this year. One of the only concerns Buchel has seen so far is with the size and weight of the devices, which can be burdensome for residents to carry around everywhere with them—but he does not see this issue lasting too long.

"As the technology becomes more common, the devices will become smaller," Buchel says. "Technology itself is never the problem. It always develops very quickly."

After the initial six-month pilot phase, the system will be evaluated to determine how many patients it aided, any problems that arose and the degree of impact on the Wi-Fi network.

"The goal would be to place them in multiple locations, especially at remote nursing stations in northern regions," says Buchel. "When you can prevent the need to medevac patients from there to Winnipeg for a surgeon's diagnosis, the cost savings will be in the thousands of dollars."

Other work is already underway in this regard, including pilot-testing by the Manitoba Department of Healthy Living, whereby Onsight devices will be used at nursing stations for foot-care diagnoses and followup treatment with specialists in Winnipeg.

With files from Librestream. For more information, visit www.librestream.com.