Children's TeleHealth Network links 3 provinces

Nancy Robb

The IWK–Grace Health Centre in Halifax and 3 other Maritime hospitals have launched a telemedicine network to enhance children's and women's care in the region.

The Maritime Children's TeleHealth Network, announced last spring, links the IWK-Grace with Cape Breton Regional Hospital in Sydney, NS, Saint John Regional Hospital in New Brunswick and Queen Elizabeth Hospital in Charlottetown. "Clinically, the network is very unique," says Ruby Blois, the IWK–Grace's director of partnership development.

Blois says the network supports the IWK–Grace's goals of making the best use of clinical resources and treating patients closer to home. She says about 30% of the hospital's caseload comes from outside Nova Scotia. As the only pediatric and obstetric tertiary care centre in the Maritimes, the IWK-Grace sees about 170 000 patients a year.

The computer-based system, developed by TecKnowledge Healthcare Systems of Halifax, is having its medical-imaging and interactive videoconferencing capabilities put to the test in oncology, cardiology, radiology and patient and medical education.

Ruby Blois: interactive videoconferencing

Blois says a quality-improvement program will evaluate, among other things, the technology, clinical progress, family and staff satisfaction, and cost-effectiveness. She anticipates savings not only to patients and families but also in ambulance and airlift costs, diagnostic tests and lengths of hospital stays.

Dr. Dorothy Barnard, clinical head of pediatric hematology/oncology at the IWK–Grace, says oncologists' involvement is a natural extension of the Atlantic Provinces Pediatric Hematology/Oncology Network, an interdisciplinary group set up to pool resources and expertise.

She says oncologists are conducting interdisciplinary tumour boards on the TeleHealth network to discuss cases and view pathology slides and diagnostic images "at the time of diagnosis or at any time of critical decision-making."

"There are patients who live in New Brunswick who still come here for consultations — maybe some of them no longer need to come here. You can do it by slide review and diagnostic-imaging review and discussion."

Barnard says the TeleHealth network will be a boon to the Maritimes' 3.5 pediatric hematologists/oncologists — and eventually, she hopes, to the lone practitioner in Newfoundland — as well as other specialists and personnel involved in cancer treatment.

"It's very comforting to bounce ideas off somebody else," she says. "You get an extra degree of comfort that you looked at all the aspects and you're making the best decisions that you can. One of the realities is that even though pediatric oncology is a narrow field, the depth of what we're required to know is increasing exponentially. We can't all be experts to the depth needed in a tertiary care centre."

Barnard says a potential use of the oncology application is to provide ongoing support to those managing follow-up care. This will prevent patients from having to return to the IWK–Grace for treatment.

Dr. John Finley, chair of pediatric cardiology at the IWK–Grace, says there's often not enough time before admission to inform children and families about procedures. "They arrive here and a lot of information is given to them all at once at a time when they are usually fairly anxious, so they don't retain very much.

"If there were an opportunity to give them information in advance, we feel they would have a better understanding and a higher degree of comfort with what is going to happen to their child."

Finley says cardiologists will conduct a pilot project comparing the effectiveness of patient education via teleconferencing and telephone. The project will assess "if there is higher satisfaction and improved retention in the televised group."

Meanwhile, Finley is extending his pioneering work in transmitted echocardiograms to the TeleHealth network. For the past 9 years, the IWK–Grace has been receiving emergency echocardiograms by broad-band video technology.

Finley says more than 300 patients have taken advantage of the service, offered to 6 regional hospitals across the Maritimes. IWK–Grace cardiologists monitor images as they're being taken "to make sure they are complete and appropriate," then provide a "rapid" diagnosis. "This has allowed us to use echocardiographic or ultrasound fa-

cilities in places where there is no pediatric cardiologist."

And it has proved cost-effective. According to an article in *Telemedicine Today*, the program saved $86 000 in airlifts in its first 33 months, or twice the cost of the service. "There are other reasons for avoiding air transport," Finley adds. "It can be dangerous to move sick newborns around."

Finley says the same principles apply to transmitting digitized echocardiograms on the TeleHealth network. "The advantage is that it is much, much cheaper," he says, "but the disadvantage is the images have to be broken up. If this cannot be done with a rapid enough processor, then you lose some image quality.

"We don't want to say this is definitely a replacement until it's proven. Nobody has had the 2 technologies up and running at the same time. What we're going to be doing is comparing them side by side."

Finley stresses that TeleHealth should be reserved for urgent cases and outreach medical teams should continue to handle elective cases. "People should look at [telemedicine] not as a panacea but as an interesting way of trying to deal with our problems of geography and distribution of medical services, specialist services particularly."

"This is a technology we are looking forward to," says Dr. Mitchell Zelman, a consulting pediatrician and vice-chief of staff at Queen Elizabeth Hospital in Charlottetown. "Like any new technology, however, the right checks and balances have to be in place."

Zelman would like to see "some sort of triage mechanism" to ensure that only appropriate cases are discussed on the TeleHealth network. He also wants to make sure that proper referral lines are followed and that local physicians who may "miss out on a learning experience" aren't bypassed. "This is another example where the primary health care provider could be left out of the loop. We need to make sure that there's good communication on all sides."

Ruby Blois agrees. "We don't want to change existing referral patterns. We want to encourage appropriate referral patterns within the Maritimes."

Blois says the goal is to expand the TeleHealth network to include all "relevant" regional centres. "I remain optimistic," she says. "In terms of our Maritime mandate, this is a win-win for children and families." ❓

Teleradiology: first Grand Manan, then the world

New Brunswick is taking telemedicine seriously, the head of radiology at the Saint John Regional Hospital says. "Telemedicine is a very cost-effective tool with tremendous applications in rural Canada and rural New Brunswick," says Dr. Michael Barry.

"In rural New Brunswick, it will lend itself to teleradiology very, very nicely, and the government has acknowledged that by appointing a telemedicine officer for the Department of Health."

Since the fall of 1995, Barry has been running a teleradiology project at his hospital, which receives about 100 x-rays a month from Grand Manan, an island in the Bay of Fundy.

Accessible by ferry, the island has only 1 family physician to serve 3000 residents. "Grand Manan is very vulnerable to weather in winter," Barry says. "It has very real problems getting reasonable access to health care."

Barry says that with telemedicine — and NB's upgraded telecommunications system — it takes less than a minute to transmit digitized x-rays, which meet guidelines established by the American College of Radiology.

"We do every x-ray imaginable — skulls, chest, ankles, spines — everything that plain radiography can do," Barry says of the $100 000 computer-based system, developed by TecKnowledge Healthcare Systems of Halifax.

His hospital faxes back x-ray readings within 24 to 48 hours; the turnaround time used to be 7 to 14 days. "If you're reading an x-ray that's 2 weeks old, it's not much good for acute injuries," he says. "This is the way service should be — 24 to 48 hours like any major hospital. [Grand Manan] could just as well be across the hall as 100 km away."

Barry says the project has already started to prove its worth. In the first 8 months it saved 2 air evacuations, which cost thousands of dollars.

Still, rural radiologists fear they may pay a price when telemedicine expands. "One of the concerns in rural areas is that it will put the small, single radiologist out of business, that everything will be [sent] to bigger centres, particularly with regionalization.

"I don't think there's any replacement on the ground for those radiologists," Barry stresses. "This will not replace a radiologist — this will [provide] support."

The next step for Saint John Regional is an imaging network in radiologists' homes so they can receive diagnostic images from emergency and intensive care departments during on-call hours. Barry, who was testing CT scans at home last, says the network will expedite admission and discharge decisions and move patients through emergency more quickly.

"We think this is the first of many applications," he says of the Grand Manan project. "We believe there is an international market here."