

Improving Access to Specialized Wound Care in Rural Cape Breton Using Telehealth Technology

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In 2017 the Ambulatory Care Department at Cape Breton Regional Hospital (CBRH) reached out to Virtual Care, a service that connects patients with health-care providers using video-conferencing technology, to re-launch a virtual wound clinic. A service called Tele-Wound had been offered in Cape Breton on and off since 2013; however, usage had declined over time for the following reasons:

- The rural sites were left to initiate the consults, which did not routinely occur.
- Staff engagement was low.
- Some rural sites did not have a handheld HD camera (a requirement for virtual wound appointments).
- Nursing staff at the rural sites needed to improve their comfort level and skill with using the handheld camera.
- Relationships with telehealth support staff at rural sites needed strengthening.
- The telehealth equipment used by the special-

ist was located in a distant area of the hospital, which was inconvenient.

Another major concern was the extreme congestion in the Ambulatory Care and Emergency Departments at CBRH, intensified by the large number of patients being seen in-person by the wound specialist.

As a result, the hospital's health service manager for ambulatory care identified a need to ramp up this service again, but this time taking into consideration some lessons learned:

- Planning a coordinated, collaborative approach

Data show the Virtual Wound Clinic saves patients an average of 3 hours and 40 minutes per visit (2 hours travel via ambulance transport, in addition to 1 hour and 40 minutes of wait time for the ambulance to return to CBRH for pickup).





- Engaging clinical staff at rural sites (e.g., nurses developed a transfer tool to use for virtual wound care appointments)
- Strengthening relationships with support staff at rural sites
- Enlisting a clinical champion
- Reinforcing the initial implementation with a hands-on approach by the health service manager
- Identifying a staff member to organize the weekly clinic at CBRH
- Ensuring equipment is accessible and that staff feel comfortable using it

The goal of the new Virtual Wound Clinic was to improve access to specialized wound care services

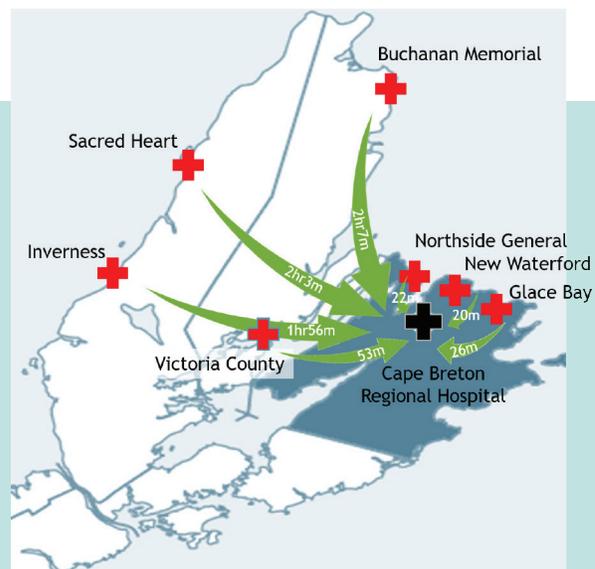
for patients living in rural Cape Breton. Prior to this, wound patients were transported to Cape Breton Regional Hospital from eight rural health-care facilities up to two hours away to receive wound care from one of the few wound specialists on the island.

The Clinic's Process

The Cape Breton (CB) Virtual Wound Clinic takes place every Monday morning from 8 a.m. to noon, with appointments every 15 minutes. Patients attend the clinic from the health-care facility closest to their home (referred to as the "patient site"). Some appointments take more or less time depending on the severity of the wound. The specialist sees a patient at site A at 8:00, site B at

Cape Breton Facts

Cape Breton Island is Canada's 18th largest island and accounts for 15% of the province of Nova Scotia's total population. Approximately 75% of the island's population resides within Cape Breton Regional Municipality (CBRM), while the other 25% is dispersed across the remainder of rural Cape Breton (CB). Sydney, which is located in CBRM, is the island's largest commercial centre and home to Cape Breton Regional Hospital (CBRH) and the CB Virtual Wound Clinic.



Travel times for patients in rural Cape Breton

8:15, and site C at 8:30, then comes back to site A at 8:45 to see a different patient. This allows for exam room changeover at each site without the specialist having to wait.

Currently new consults are seen face-to-face before virtual appointments are arranged. This allows for an opportunity to develop a care plan and provide education for patients and families about virtual care, including information on confidentiality and privacy, as well as the benefits and risks of using telehealth. Patients verbally consent to receiving care using telehealth, and the provider documents this on the chart. Patients are selected for virtual appointments based on variables such as whether the wound is healing or non-healing and/or their travel distance.

At the patient site, a member of the nursing team takes the patient to the telehealth room, where a support staff person has the equipment set up for the appointment. Members of the patient's family can also be present during the virtual appointment, if they so choose.

The nurse at the patient site uses a handheld general examination camera connected to the telehealth system (see Figure 1) to deliver an accurate image of the wound to the specialist. The types of wounds seen during the virtual wound clinic include pressure injuries, diabetic ulcers, stasis ulcers, complications from stasis disease, dermatitis-type wounds and occasionally other atypical types of wounds.

About Virtual Care

"Virtual Care" was chosen as the name of the service to stimulate new ways of thinking about care delivery and to allow for the addition of new technologies in the future.

Over the years Virtual Care has cultivated relationships with hundreds of NSHA health-care providers and other staff at many facilities and community partners throughout the province, who support and facilitate virtual appointments. One of these groups is the Ambulatory Care Wound Clinic located at Cape Breton Regional Hospital (CBRH) in Sydney.



Figure 1: A nurse demonstrates the handheld HD camera used for consultations.

When the specialist at CBRH is ready, he connects to the patient site using video-conferencing software installed on a laptop with an external webcam, and a headset if needed, depending on whether he is in an office or clinic setting.

The specialist then assesses the wound, provides a diagnosis, decides if the wound needs to be swabbed, and prescribes or recommends follow-up treatment. During the virtual appointment, the specialist provides patient-specific instructions to the nursing staff who will be treating the wounds at the patient site. He also provides education on skin care, decubitus ulcer treatment and prevention to the patient, nursing staff and families.

Telehealth systems are located at each NSHA health-care facility as a bookable resource for patient care. The software is available for download by providers at no cost; concurrent usage licence costs are covered by NSHA. Several handheld cameras were already purchased by NSHA and were distributed according to usage or identified need (though these cameras are due to be replaced in the near future). It is the responsibility of the clinical service area (in consultation with a Virtual Care

In 2018:

- 169 consults were received by the CB Virtual Wound Clinic
- 245 patients were scheduled for the CB Virtual Wound Clinic

team member) to purchase computer equipment, tablets, carts and peripheral devices (e.g., webcam, speakers, headset, microphone and monitor).

The Effect

Results after one year of the Virtual Wound Clinic showed that the number of patient appointments, on average, tripled from four in-person visits to 12 virtual appointments during the weekly clinic—a 300% increase.

Many positive patient-centred outcomes have resulted from the Virtual Wound Clinic, including:

- Reduced patient travel time
- Increased patient satisfaction with their health-care experience:
 - increased comfort and convenience by eliminating disruptive, lengthy ambulance transfers
 - eliminated wait time for ambulance transfers back to home hospital
 - eliminated risk associated with patient being left unattended while awaiting ambulance transfer back to home hospital (e.g., needing assistance to bathroom)
- Enhanced communication with patient's circle of care
- Increased number of patients seen due to efficiencies associated with virtual appointments
- Reduced risk of missed appointments due to ambulance unavailability

Many patients have expressed to staff that they prefer being at their home hospital, because they "know all the staff and trust" them. Other patients have said:

- "I have a lot of pain overall, so being able to see the specialist while staying in my own community means so much to me."
- "[This] will be great in wintertime, [it is] terrible to travel those roads and is so unpredictable."

Tips for Success in Using Telehealth

Personnel in other jurisdictions that are considering using telehealth technology for wound management may want to incorporate the following suggestions into their planning:

- Engage health services managers early in the planning/development of the project.
- Examine nursing workflow at patient sites to ensure their workload can accommodate the additional task.
- Consider taking virtual care technology to the bedside, and evaluate the benefits/risks.
- Enlist a clinical champion; this can be extremely beneficial to the success of a program.
- Measure clinical outcomes to gain insight for continuous quality improvement.



- "... [I] don't want to go to Sydney, this is great. [I] got to get back to work."
- "[I] don't have to go out in the cold."

Staff members have also noted:

- "This is great! Patients are seen quicker."
- "Virtual appointments allow for frequent reassessments."

Wider Applicability

The success of this project suggests that the expansion of virtual clinics to other areas of the province and other service areas should be explored, particularly in rural areas. This method of care delivery could also be introduced in other clinical settings, such as chronic disease management (e.g., congestive heart failure, diabetes), geriatric assessment and pain management. The development of a virtual home-based wound care service, involving partnerships with community-based nursing services, has also been considered.

For More Information

Please contact VirtualCare@nshealth.ca. 