Increasing Primary Care Access Close to Home for Residents of Remote Communities in Northern Alberta

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Abstract
Residents of Canada’s rural and remote communities know the challenges associated with accessing consistent healthcare. Alberta Health Services uses telehealth technology to minimize travel for rural and remote residents who require follow-up with specialists, however until recently, telehealth was only used in specialty care. This article describes a pilot project introduced in two remote northern Alberta communities to determine the feasibility and sustainability of using telehealth in the delivery of primary healthcare. Included in the article are descriptions of each phase of the project from seeking stakeholder approval through interpretation of findings and continuation of the project after it was determined successful. Jurisdictions interested in attempting their own telehealth program will be interested in the challenges and successes identified during the process. Although the project was successful, further studies are needed to determine if similar findings could be expected in other communities and populations.

Canadians consider healthcare a universal right, but for First Nations communities, especially in remote areas, there are many challenges to accessing healthcare. Geography, availability of services and language were identified as barriers in the 2002 First Nations Regional Health Survey (RHS), in which 44% of First Nations adults living on reserve acknowledged a lack of health services in their area (Loppie Reading and Wein 2009). The First Nations and Inuit Health Branch (FNIHB) of Health Canada has a mandate to support health service delivery and primary care for “remote and/or isolated” communities, but adequately staffing these communities with consistent primary care providers is difficult (Health Canada 2016).

Telehealth technologies are vastly underutilized in the current healthcare system, although several studies indicate that patients prefer a telehealth option if care is not available in their home community (Farmer et al. 2006; Hilty et al. 2007; Lamarche et al. 2010). So, this begs the question: can the use of telehealth improve access and continuity of care in primary care? The following manuscript outlines the feasibility and sustainability of a telehealth program to improve consistent primary care access for residents of two remote communities in northern Alberta.

Background
Peerless Lake (PL) and Trout Lake (TL) are two First Nations communities in northern Alberta represented by the Kee Tas Kee Now Tribal Council (KTKNTC). In an effort to improve the availability of health services in their communities, PL and TL collaborated with Alberta Health Services (AHS) and the KTKNTC to amalgamate individual community health
centres, into the Peerless Trout Health Centre (PTHC). Despite this innovative approach, provider services are still only available three to four days every six to eight weeks (personal communication, R. Rebryna, July 2015). As a result, patients from PL and TL often travel to Slave Lake for primary health services at Slave Lake Family Care Clinic (SLFCC), over 280 kilometres away.

Both the Government of Alberta (2014) and Health Canada (2012) identify a lack of consistent access to healthcare providers as a concern. A new CIHI (2015) report agreed with Freeman et al. (2006) and Mian and Pong (2012), who found that, with increased continuity of care, were decreased admissions and emergency room use. The Canadian Institute for Health Information (CIHI) report also found that there was earlier diagnosis and better management of chronic illness in those who had a regular primary care provider (CIHI 2015).

Unfortunately, remote First Nations communities experience high turnover in staff, resulting in poor continuity of care. A 2005 study found that “nursing turnover is shown to detrimentally affect communications, medications management and the range of services offered; it also results in compromised follow-up, client disengagement, illness exacerbation and an added burden of care for family and community members” (Minore et al. 2005: 87). So, in a population that Health Canada has recognized as having higher rates of common chronic health conditions, there is a troubling trend of less continuity of care.

Remote practices were found to have fewer resources and higher prevalence rates of chronic conditions (McLean et al. 2007), CIHI (2006), Government of Alberta (2014) and Health Canada (2012) statistics on rural and First Nations’ health support this finding. Health Canada (2012) and Cardinal et al. (2004) found many disparities between the health status of First Nations and non-First Nations; most notably, First Nations have a higher incidence of diabetes (17.2% in aboriginals on reserve, 10.3% off reserve and 5% in non-aboriginals), respiratory disease and mental health issues, and these problems are compounded by lower socio-economic status.

In order to bridge the gaps in provision of specialty care in Alberta, video telehealth technology was implemented to connect rural residents with specialists in urban centres. Several studies found that little difference existed in the quality of care delivered via telehealth versus in person, but that telehealth was most effective when used as an adjunct to usual care (Bowen et al. 2013; Dixon and Stahl 2008; Ferrer-Roca et al. 2010; Grubaua et al. 2008; Mitton et al. 2011; Sevean et al. 2009; Swinton et al. 2009). Patients were most satisfied if it meant less travel time or improved access (Grubaua et al. 2008; Sevean et al. 2009). One systematic review of 306 articles found that one of the most commonly identified socio-economic benefits of telehealth was improved access to appropriate healthcare for First Nations populations (Jennett et al. 2003).

It is vital to ask specific questions to ensure the patient is providing the best information possible and accurately describing what they are thinking, seeing and feeling.

Methods

The formation of partnerships and collaboration between the KTKNTC, FNIHB, SLFCC, and the PTHC was key in the development of this quality improvement project. KTKNTC approves new initiatives at PTHC and agreed to support the telehealth primary care project, provide a private consultation space to house the telehealth equipment, the sending telehealth cart and the support staff to assist with assessments. The SLFCC provided a private consultation space, the primary care provider and the receiving telehealth equipment. FNIHB and AHS provided technical support for the project.

Telehealth provider visits were available by appointment three afternoons per week during the period from September 15 through December 17, 2015. The SLFCC licensed practical nurses (LPNs) screened patients requesting a telehealth appointment to ensure their concerns could be assessed using telehealth. The LPNs were provided a list of symptoms and conditions, such as abdominal pain, earaches, sore throats, chest pain and prenatal appointments, deemed inappropriate for a telehealth visit. Walk-in patients were accommodated as time permitted, with the express understanding that they may be required to travel to present in-person to SLFCC if their concern was beyond the scope of telehealth.

The history portion of the visit has little difference from seeing the patient in person. However, reassurance that communication was clear is important, as the nuances of body language are more difficult to assess using telehealth. It is vital to ask specific questions to ensure the patient is providing the best information possible and accurately describing what they are thinking, seeing and feeling. The physical exam of the patient is where the difference exists. The provider has full control over the high-resolution camera in the PTHC clinical room and consequently, the image on the SLFCC screen. This allows the provider to manipulate the camera and image, to fill the screen with a very small area, for instance, the skin. The patient’s cooperation is essential, as the provider may ask for very fine changes in their positioning to allow for the best image.

The community health representative (CHR) is asked to return to the exam room if the digital stethoscope, or other assessment tools, is required. The digital stethoscope consists of two digital boxes, one for the sender and one for the receiver, a stethoscope bell/diaphragm attachment and a noise-cancelling headset. The bell/diaphragm device is attached to the PTHC digital box. The digital box includes a switch that allows the user to change from transmitting sounds heard through the bell to sounds heard through the diaphragm, at the provider’s request. The provider then dons the
noise-cancelling headset, which is attached to the receiving digital box and describes to the CHR where the stethoscope needs to be placed. Posters of the common stethoscope positioning were provided for the walls of the exam room at PTHC.

Diagnostics were requested in a manner similar to usual care with one important difference: if patients preferred, the requisition could be faxed to PTHC for the visiting nurse practitioner (NP) to perform. Any necessary prescriptions are faxed to the patient’s preferred pharmacy, and the medication is transported to PTHC, using the medical van that is still necessary for patients who may not be appropriate for telehealth.

**Data Collection**

Four methods were used to analyze the feasibility, sustainability and patient feedback related to the use of telehealth. The provider recorded a log of patients’ demographic information (gender, age group [0–18, 19–36, 37–54, 55–72, 73–90 or 90+], band status [band member or non-band member]) and visit status (booked and assessed, booked and no-show or walk-in). The patient satisfaction and stakeholder evaluations of the project used short, anonymous questionnaires. Patient surveys were completed following the visit, while stakeholder surveys were completed at the conclusion of the pilot. Lastly, data from the electronic medical record, including no-show rate, patient panel, number of visits and ICD-9 diagnostic codes, were used to allow analysis of the visit volume and most common reasons for accessing telehealth services.

**Results**

Sixty patients, all members of the First Nations band, were seen during the pilot. There was a 17% no-show rate, as seen in Figure 1. This is much higher than the overall clinic no-show rate of 4.8–6.6%, for 2014 and 2015, respectively. Ten non-English-speaking patients were seen through telehealth, but were not included in the project analysis due to the language barrier. Five patients during the period were repeat patients. Seventy-two per cent of the patients were female. The most commonly seen age group was 19–35, though a variety of ages were seen from less than one year to over 90 years of age (see Figure 2). Of the patients seen, 29 booked their appointments and 21 were seen as walk-in patients (see Figure 1). Figure 3 shows visit diagnoses seen most often. The reason for most visits (34%) was rashes, followed closely by prescription refill requests for contraception or anti-hypertensive medication. Only five patients required in-person assessment at SLFCC.

Twenty-eight patient questionnaires were returned at the end of the project. All surveyed felt the wait for an appointment was acceptable or very acceptable, with all but one patient accommodated with same-day or next-day appointments. Most found it very easy to book an appointment. One patient reported difficulty expressing their concern because of the equipment.
All were able to understand the provider and only one indicated they were not confident in the care they received. All indicated they would use the service again. One question offered the option to choose between telehealth, in-person in Slave Lake, in-person in Slave Lake but only with travel provided and in-person at PTHC only available rarely. Twenty-one surveyors chose telehealth as their first choice. Twenty-seven responded that they would like the program to continue.

Fourteen individuals completed the stakeholder survey including four staff members (receptionists and community health workers), four stakeholders (decision-makers) and six providers (physicians, NPs, registered nurses [RNs], LPNs). Most (12) felt they had enough input in the planning of the project and were interested in continuing the project, except for one who did not know enough about it to decide. Most (12) felt it met the needs of the community and was sustainable.

Open-ended questions offered more insight on the stakeholder surveys. The questions could be characterized into four categories: decreased travel, improved access, community needs and education. The category discussed most was travel with all comments favourable, mainly speaking about the time saved by minimizing travel to and from Slave Lake. As with travel, comments regarding access were also positive including, “Using telehealth technology provides increased access to healthcare, whereby some clients would not receive, as they may not travel.” Many of the comments about the community needs discussed the need for a longer trial, stating that three months was a short period to evaluate a program. The comments regarding education recommended further education to ensure awareness of the communities.

The pilot demonstrated that a primary care telehealth program for these communities is feasible and sustainable.

Discussion
Overall, the project design allowed for adequate analysis of the feasibility and sustainability of telehealth appointments for primary care. One stakeholder even mentioned early on that the project was a success simply by having the various organizations working together. Randomized controlled trials are needed to determine the effectiveness when used in other regions, populations and cultures. The following paragraphs discuss the challenges experienced throughout the program planning, implementation and analysis.

Although opinions on project design, goals and outcomes were sought from all stakeholders, these individuals did not disseminate the project’s purpose to staff, resulting in apprehension during implementation about the purpose and plans for telehealth once the pilot was complete. In particular, some remote community stakeholders felt the project would result in a decrease in funding for care providers in the community by reducing the need for in-person care. Staff was more supportive once the project’s purpose was revealed to provide an adjunct to primary care, while not replacing in-person care.

Given the turnover of programs and staffing in rural and remote communities, ensuring continued education is provided to SLFCC providers and any participating rural clinics would improve awareness for not only providers but likely for patients as well. If providers are more aware, they are more likely to notify their patients of the option to be seen in this manner.

The screening questions completed by LPNs prior to booking appointments ensured patients were appropriate for telehealth. Even though the provider redirected only five patients to SLFCC for in-person care, the LPNs had ensured that those inappropriate for telehealth assessments were asked to present in person. They also confirmed that patients understood the process, and explained that the provider may request the patient to present in person, depending on the findings of the provider.

Another consideration for continued telehealth care is the addition of other assessment tools, for instance, an otoscope. The cost of the tool would be close to $5,000, but depending on the number of saved trips, this may be beneficial to the system as a whole. This may allow patients who were turned away by LPNs to be assessed, such as patients suffering from sore throats and earaches. The use of an otoscope would require the CHR to insert the device into the ear similar to a typical otoscope exam; however, instead of the provider looking through the otoscope, the image is transmitted to the provider’s screen. The provider can then visualize the ear canal and tympanic membrane, in order to make a diagnosis. The otoscope can also provide easier examination of the throat.

The last challenge involved data usage. The KTKNTC collects information about the health of their members, including medical transportation costs, number of medical transportation trips, patient population statistics and rates of chronic disease. In April 2015, the chief and KTKNTC were approached and the project proposal, along with use of their data, was approved. The data for the 2014 period was shared at that time; but after several attempts to obtain the 2015 data, the project had to be evaluated without the KTKNTC data. A retrospective evaluation of this data may provide additional information on the feasibility of the project.

The pilot demonstrated that a primary care telehealth program for these communities is feasible and sustainable. A longer project that includes measures of patient outcomes would strengthen the evaluation of telehealth for primary care. A partnership was required between AHS and FNHIHB. Historically, this has been the most challenging requirement of healthcare delivery in First Nations communities.
First Nations communities highly regard the opinions of elders. Given that 26% of patients seen were over the age of 55, the elders seem to also be embracing the concept.

Open-ended questions on patient surveys support continuing the telehealth project. All comments were positive and included, “I hate riding the medical van so I hope this continues” and “This program is definitely very needed in our community and [I] would like it to continue at our health centre. It is very convenient and easy.” Although the total number of visits was relatively low, accounting for only 60 of the available 280 visits, the number of visits did increase each month, showing a growing interest in the modality.

In an appointment of this manner, it is vital to quickly establish rapport with the patient. Some patients were comfortable with the technology, while others needed time to adjust to speaking to a computer screen, rather than another person in the room. In an effort to provide this time, the provider began every appointment with a brief description of what the patient could expect. This included the security of the system, how the visit would be documented, what the patient could expect of the assessment and confirmation of consent to participate. Hearing that the equipment does not record, nor does the patient’s image get copied, seemed to ease discomfort, as patients became more open and talkative.

The project ran for 12 weeks, making return visits unlikely; so, the five repeat visits were a surprising, positive finding. The SLFCC also saw a 14.6% increase in overall patient visits over the same period in 2014; however, in patients from PL and TL, there was only 13.6% growth in patient visits, almost all of which were performed by telehealth. First Nations communities highly regard the opinions of elders. Given that 26% of patients seen were over the age of 55, the elders seem to also be embracing the concept. High numbers of women were seen during the pilot; as the caregivers of the family, women are likely to encourage their families to also use the service.

Stakeholders had more open-ended questions than the patient surveys including individual questions on the planning phase, project strengths and weaknesses, gaps in the delivery of the project and comments. All the feedback was positive and constructive. The comments on the weaknesses of the project included the need for more time to allow the community to become more engaged and the technical challenges, such as power outages and down lines. Other recommendations from stakeholders included issues with scheduling. Some wanted more variety in the availability of appointments, ability for community members to be seen on demand including after hours and access to all providers at the SLFCC.

All of these concepts have been considered by SLFCC. They plan to continue the project and at the time of manuscript completion, SLFCC has already added an additional two sites with plans to add a third in the near future. Collaborating with communities provides patients with access to the entire team including chronic disease management, social work, dieticians, physiotherapy, occupational therapy and mental health. The patients are provided with greater continuity of care. As the project grows, additional evaluation of patient, provider and stakeholder experiences is necessary for the continued success of the project.

In conclusion, the project has the potential for feasibility and sustainability. The feedback from most of the participants and stakeholders was positive and encouraging. With some minor changes to allow more variation in appointment times while continuing to accommodate walk-in patients, the project could become a very successful program for SLFCC. Improving access to consistent, high quality, cost-effective care close to home for residents in remote northern communities in Alberta can only improve the health of residents.
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