Telehealth, Geography, and Jurisdiction

Issues of Healthcare Delivery in Northern Saskatchewan

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Cet article fait la promotion de la "télésanté," une technologie utilisée pour surmonter les obstacles juridiques et de transfert, ce qui a longtemps nui aux efforts des infirmières qui veulent offrir des services de santé aux communautés isolées du Nord du Canada.

In 2002 The Commission on the Future of Healthcare in Canada (Romanow) (also known as the *Romanow Report*) acknowledged that disparities in access to healthcare and healthcare providers were significant barriers to healthcare delivery for those living in rural and remote regions of Canada. One recommendation of the *Romanow Report* was to establish a rural and remote access fund and use a portion of the fund to expand the telehealth system. Technology has been vital to providing care in rural and remote regions. For example, in the 1940s and 1950s, when nursing stations were first established in Northern Saskatchewan, although vulnerable to the whims of nature, two-way radios and an air ambulance system (the first in North America) provided support to nurses. More recently, revolutionary advances in telecommunications have seen the implementation of telehealth-telemedicine systems in the north, thus increasing its importance to healthcare. Since its introduction in 1975, the telehealth system in Canada has grown considerably, and by 2004, all the provinces and territories report having some type of system in place. Canada Health Infoway identified 34 different networks across Canada reaching 10-15 per cent of rural and remote communities and approximately five per cent of Indian reserve communities (Muttitt, Vigneault and Loewen).

Telehealth is defined as the use of information and communication technology (ICT) to deliver health services, expertise, and information over distance, geographic, time, social and cultural barriers (Muttitt, Vigneault and Loewen). Medical professionals also use telehealth for "clinical appointments, consultations, follow-ups, meetings and education sessions" (Government of Saskatchewan). According to the *Romanow Report*, telehealth is considered a central mechanism for improving care for individuals living in rural and remote regions. On the surface, ICT offers one way to overcome problems associated with distance and access, but there are also challenges. While politically attractive, ICT is also contentious, because it creates new nodes of service provision rather than resolving structural problems affecting access to healthcare services (May; Cutchin).

I argue that three geographies are at work—sometimes in synchronization, sometimes at odds, which affect the provision of healthcare using telehealth. These include a geography of transportation, a geography of jurisdiction that assigns "who gets what" in terms of healthcare, and a geography of care, in which the work of nurses is defined and shaped by the other two. This paper is based on my participation on a Canadian Institutes of Health Research (CIHR) New Emerging Team (NET) research project that has been examining the use of telehealth in assessment, diagnosis, and management of individuals with dementia in rural and remote regions of Saskatchewan (Morgan, Stewart, Crossley, D'Arcy, Biem, Kirk and Forbes).[1] During 2003 and 2004, the team traveled to the 14 rural and remote telehealth sites throughout the province and met with healthcare providers in each community. Information in this paper focuses on six of the seven telehealth sites in Northern Saskatchewan where the population is primarily Aboriginal[2]—La Ronge, Beauval, Pinehouse Lake, La Loche, Ile a la Crosse, and Pelican Narrows.[3] Here, the three geographies work to illustrate the challenges and possibilities offered by telehealth in the region.

Introducing the Region

Northern Saskatchewan (see Figure 1) is part of the "provincial norths," a vast sub-Arctic belt, running from the coast of British Columbia through the Canadian

Shield and on to Labrador. It is a region which has long been ignored, politically weak, economically unstable, and home to substantial Aboriginal populations. Distances are great, and if roads are available, they are for the most part, unpaved and often in poor condition.[4] Exacerbating the situation further in the provincial norths are the jurisdictional differences between the federal and provincial governments that are responsible for providing healthcare services to the predominantly Aboriginal population.

Geographies of Jurisdiction

One needs only to look at historical maps of Saskatchewan to see that the foundations for jurisdictional disputes were in place prior to the establishment of the legal entity that we know today as Northern Saskatchewan (Hayes). Saskatchewan became a province in 1905. The Northern Administrative District was formed in 1945 with the boundaries of Northern Saskatchewan being defined by special statute, the *Northern Administration Act* in 1948 (Smith). Prior to both these events, however, treaties were negotiated between First Nations people and the Canadian Government. With the signing of Treaty 6 (1876), Treaty 8 (1899), and Treaty 10 (1906) in Northern Saskatchewan, reserves were established and the Indian population became a federal 'responsibility' under the *Indian Act*. It is these events that set the stage for the jurisdictional divisions which continue to affect both the delivery of health care by nurses working in the region, as well as the ability of women to access medical care for themselves and their families.

As the majority of the population in Northern Saskatchewan is of Aboriginal descent, it is necessary to outline their unique situation within the Canadian context. Far too many Aboriginal people experience the kinds of health problems associated with poverty, yet the problems are also linked to their historical position in Canada's social system (Waldram, Herring and Young). For example, the establishment of reserves, either through treaty making or other policies, resulted in the creation of boundaries that delineated reserve spaces of federal jurisdiction from non-reserve spaces of provincial jurisdiction.

Because treaties were signed in all of Saskatchewan, the terms treaty Indians and status Indians are used synonymously. The rights, benefits, and restrictions of the *Indian Act* apply to treaty/status Indians, but they *do not* apply to non-status Indians, Métis or Inuit people, who with the rest of the general population are considered a provincial responsibility.[5] While this is only a brief description of the complex constitutional and governance issues, suffice it to say that the issues translate into equally complex funding structures for Aboriginal healthcare. However, more central to this discussion are the implications of the boundaries and divisions for the provision of care. Generally speaking, status Indians fall within the domain of the federal government while the rest of the population is considered the responsibility of provincial governments.[6]

Today, healthcare in Canada remains primarily under provincial jurisdiction. Therefore, the provinces cover the costs of physicians and hospital care for all residents within their jurisdiction, including Aboriginal people. The federal government, through the First Nations and Inuit Health Branch (FNIHB) of Health Canada, supports the delivery of primary care, public health, and health promotion services to the First Nations population residing in reserve communities across the country. Services offered outside hospitals such as mental health, community-based prevention, and home care are also generally covered by the federal government, if available, as are the costs of health professionals such as dentists and physicians who travel to remote and isolated communities (Health Canada). Other non-insured health benefits covered by FNIHB for status Indians include eyeglasses, drug prescriptions, and transportation. Under these arrangements, therefore, the travel costs for Status Indians are covered by the federal government, but not for Métis and non-Aboriginal people. Thus, a complex system of service delivery has emerged, which is compounded by geographies of distance.

Geographies of Distance: Historical and Contemporary Frictions

Under the *Canada Health Act* (1984), Canadians are promised accessible and universal healthcare. Despite the *Act*'s provisions, however, rural and remote regions of Canada continue to be under-serviced in terms of acute primary (disease) care and primary health (well-being) care, including disease prevention, health promotion, and community healthcare (Centres of Excellence for Women's Health). Health indicators have consistently shown that the health status of people living in rural communities, particularly northern communities, is not as good as their urban counterparts (Romanow).

For women living in rural and remote regions of Canada, the situation is more complex. Information systems are often poorly coordinated and inadequately promoted, while health services are reported to be infrequent, irregular, and limited. The lack of access to medical services locally, means that people must go to larger centres for care, which is often inconvenient and costly. The responsibility of family well being more often than not falls to women. Consequently making the necessary arrangements for travel, and finding the financial resources adds another layer of stress to women's lives. Furthermore, the shortage of services also means that women in remote communities tend not to seek care unless they are very ill, and rarely make appointments related to preventative measures (Centres of Excellence for Women's Health).

Information from Health Canada indicates that physician services for 35 per cent of First Nations communities (in the provinces) are greater than 90 kilometres away (Health Canada; Muttitt, Vigneault and Loewen). Of those communities approximately 3.5 per cent have no road access and rely either on scheduled or special flights to bring health professionals in or take patients out (Lemchuk-Favel and Jock). What the information does not reflect, however, is how road and flying conditions in the north vary significantly according to the season and weather. Winter presents the most daunting driving conditions, but any time the ground is not frozen, unpaved roads can quickly turn to quagmires making travel conditions less than ideal. In Saskatchewan, Saskatchewan Health reports that in the remote northwest portion of Northern Saskatchewan only 38 per cent of residents are within 30 minutes of a medical facility. But that 30-minute timeframe is most likely under ideal conditions. As most of the roads are unpaved and susceptible to poor driving conditions, this figure is likely vastly underestimated.

Travel costs for status Indian people are generally covered by FNIHB, but *not* for the Non-status, Métis, and non-Aboriginal population. However, although travel expenses are covered for status Indians, healthcare personnel report that FNIHB constantly shifts the parameters with respect to the circumstances when travel costs are covered—a strategy that results in considerable confusion and frustration for patients and caregivers alike. But, as we discovered in our travels to Northern Saskatchewan, the cost of travel is not the only challenge confronting northern people when they need to access medical services beyond those provided in the community—the transportation system, including both road networks and transportation services (i.e. buses), are sadly lacking. Thus, jurisdiction and distance, compounded by transportation costs, have shaped the ways in which care is performed in the region.

Although ambulances are used, patients are most often transferred by plane, because travel by ambulance is constrained by poor roads and time. The nearest ambulance is an hour away and then another three hours is required to get to a larger centre.

Geographies of Care

The institution of nursing constitutes the backbone of healthcare provision in the north (Waldram, Herring and Young; Canitz; O'Neil). Therefore, any discussion of healthcare delivery in the north is directly connected to nurses, the vast majority who are women (Andrews, Stewart, Pitblado, Morgan, Forbes and D'Arcy). The key challenges facing nurses who work in isolated, remote communities, both in the past and the present, are identified as "stress, power and control, isolation, gender and cross-cultural identification" (Canitz 198; MacLeod, Kulig, Stewart and Pitblado). Geographies of jurisdiction and distance compound these problems, which adds to ongoing difficulties in recruiting and retaining healthcare staff for northern facilities.

From a nurse's perspective, the problems of working in northern remote communities are evident. In one northern Saskatchewan community, the lone nurse for a population of 1,400 residents works independently to:

> assess, diagnose and treat an average of 50 clients daily. The doctor comes every Thursday for more complicated diagnosis and treatment, weather permitting. In emergency situations nurses consult a doctor on call for further treatment, advice and medical evacuation arrangements. But transferring clients safely and quickly is complicated by numerous factors. (Brazill 6)

The nurse goes on to say that although ambulances are used, patients are most often transferred by plane, because travel by ambulance is constrained by poor roads and time. The nearest ambulance is an hour away and then another three hours is required to get to a larger centre. With respect to air transportation, float/ski planes are the most reliable form of transportation, but planes cannot take off during the fall (freeze-up) and spring (break-up).

It is interesting to note that the present-day challenges reported by nurses, are hauntingly similar to those of nurses working at nursing stations in Northern Saskatchewan in the 1940s and 1950s (Lewis; Waldram, Herring and Young). At that time, nurses working at remote locations throughout northern Saskatchewan were also provided with new transportation and communication technologies. For example, an air ambulance system was used to airlift patients out to larger centres, and nurses employed communication technology in the form of two-way radios, when assistance was required. But the radios were unreliable due to atmospheric conditions and equipment failures, and like the nurses in the twenty-first century conditions sometimes prevented planes from landing.

Table 1: NET Visits to Communities in Northern Saskatchewan

Date	Communities	Mode of Travel
Sept. 4/03	La Ronge Pinehouse Lake Pelican Narrows	Chartered plane
Oct. 23/03	Ile a La Crosse La Loche Beauval	Chartered plane
Aug.31 – Sept. 1/04	Pinehouse Lake Beauval Ile a La Crosse	Road
Sept.30/04	La Ronge	Road

Table 2: Medical Services Branch Transportation Costs (1997)

Mode of Transportation	Cost
Taxis	$4,889,045
Air	$3,943,073
Ambulance	$1,286,507
Private Vehicle Miles	$ 226,708
Bus	$ 151,689
Total Transportation Costs	**$10,497,022**

Source: Elias, 1998/1999

Table 3: Distance to Appointments: Telehealth vs. In-Person (one-way)

	Mean Kilometres	Range
To Saskatoon from home	269	111-595
To Telehealth from home	49	1-183
Kilometres saved by Telehealth*	218	5-594

**multiply x two for round trip*

Source: Morgan et al., 2005b

Encountering Geographies of Distance, Jurisdiction, and Care

Traveling to Northern Saskatchewan in 2003 and 2004, both by air and road, gave the NET members an appreciation for the distances and difficulties that residents of the region face with respect to transportation. In fact, we discovered that jurisdictional issues were as entrenched as ever.

The first trip was by chartered plane to La Ronge, Pinehouse Lake, and Pelican Narrows. The first stop was La Ronge, the largest community in Northern Saskatchewan. The immediate area consists of the communities of the town of La Ronge, the northern village of Air Ronge, and three Indian reserves. The total population of the area is approximately 5,000 residents, comprised of status and non-status Indians, Métis, and non-Aboriginal people. During our meeting, we learned of a number of challenges facing the healthcare providers, the most significant of which was the cost of getting patients to La Ronge from smaller communities throughout the north. Furthermore, the split between status and non-status patients defined who did/did not have access to financial assistance for transportation expenses. For example, non-status patients were responsible for paying their own travel costs, while Medical Services Branch (MSB)[7] covered the costs for status Indians. However, at the same time, providers perceived that MSB policies about what expenses were/were not covered seemed to change almost daily.

The second stop of the tour took us to the northern village of Pinehouse Lake, a primarily Métis community, with about 1,000 residents. During our discussions with healthcare providers, we learned that Pinehouse Lake was not a reserve community, thus transportation costs for patients were not covered. Interestingly, the meeting was interrupted when an emergency arose and the staff left to attend those injured in a car accident. A physician traveling with our group went to assist and when it was determined that one of the patients had to be flown to La Ronge for care, he decided to accompany the patient. In the meantime, the rest of the group continued to Pelican Narrows.

Pelican Narrows is a reserve community with a population of approximately 2,000 residents. Because the landing strip in Pelican Narrows was too soft to land safely, we flew to Sandy Bay, approximately 80 kilometres north. The director of the health centre arranged for taxi transportation to take us to Pelican Narrows. Granted the community had road access, but the road was unpaved, narrow, twisty, and hilly, leaving many of the team members nauseated from the unfamiliar driving conditions. The vast majority of residents in Pelican Narrows were/are status Indians and, therefore, entitled to coverage for transportation expenses. However, transportation services are limited. Saskatchewan Transportation Com-

pany (STC) serves the community, but not on a daily basis. Furthermore, the pickup point is located almost 100 kilometres south of the community (Wolf). Access presents considerable challenges particularly for dialysis patients, whose need for treatment does not correspond with the bus schedule. As a result, patients often travel the entire distance by taxi to larger centres such as Prince Albert or Saskatoon for treatment. Local taxis also transport other residents to the STC pickup points along the 100 kilometre unpaved narrow, winding, road.

While the chart in Table 1 neatly categorizes communities based on the mode of transportation, it does not reflect just how costly transportation is for both residents and government. Nor does it show the extent to which transporting people boosts the northern economy through $10.5 million in payments to air and road transportation services; 85 per cent or $8.7 million of which is for taxis and air payments. In 1997 $4.9 million was paid to 180 taxis (in Northern Saskatchewan) averaging $27,000 per taxi. $4.9 million or almost 50 per cent of the medical transportation expenditure in Northern Saskatchewan is for travel by taxis—which not surprisingly, Medical Services Branch considers a highly inefficient way to provide services (Elias). MSB funding provides First Nations people with 90 full-time equivalent positions, including 20 transportation coordinator jobs, one of the most difficult jobs in the healthcare provision system.

The community visits also provided the opportunity to learn about on-the-ground issues and some of the concerns of healthcare providers, and nurses in particular. One significant concern was the lack of adequately trained staff to manage the telehealth system. In some communities, recruitment and retention of specifically designated telehealth coordinators has been difficult. But the situation is not unique to northern Saskatchewan and has been identified as a significant problem in other Aboriginal communities in Canada (Muttitt, Vigneault and Loewen). Nurses sometimes step in and fill the role as telehealth site coordinators but this is not ideal because it adds to their often already-heavy workload. In one community the NET group visited, the equipment sat idle because no one was available or trained to operate the system, and efforts to recruit a telehealth coordinator had been unsuccessful.

Secondly, medical facilities in northern communities are often limited space-wise, making it very difficult, if not impossible to have specifically designed telehealth areas. Consequently, patient privacy and comfort cannot be guaranteed. At some of the older facilities, telehealth equipment was housed in multi-purpose rooms, where patients had little privacy, and consultations were conducted in any room that might be available. Although this situation is difficult for both patients and healthcare providers, new medical facilities that have been constructed/planned for Northern Saskatchewan should alleviate this problem.

Overcoming Multiple Geographies

Nevertheless, while still vulnerable to equipment failure, current telehealth technology could improve access to medical care by reducing the distance, and in some instances, perhaps the need for travel to larger centres. ICT could be used to deliver continuing education programs to nurses, and instructional programs to patients. Ultimately, if all concerned (i.e., community members, nursing staff etc.) are ready and accept telehealth technology, it could help to reduce the isolation, and perhaps in the long run even lead to improvement in recruitment and retention of healthcare professionals such as nurses. However, telehealth is a two-way system, and to be successful, there must be buy-in from physicians and other healthcare providers located in the larger centres, but the level of support at this level remains unclear (Kermode-Scott).

Preliminary results from the NET study reveal that although the distance that some patients must travel to a telehealth site remains significant, there has been a considerable reduction overall (see Table 2).

Yet, even with collaboration and a commitment from all parties, a number of factors continue to limit expansion of the system. For example, broadband service is limited with only 28 of the 625 First Nations communities in Canada having access to such facilities, although new initiatives introduced by Industry Canada may help to improve the situation (Muttitt, Vigneault and Loewen).

Progress has also been made with respect to cross-jurisdictional agreements which "recognize that information technology is making health less about geography and more about enhanced care to communities" (Muttitt, Vigneault and Loewen 408). For example, in January 2005, an agreement between the federal and provincial governments provided the funding to install the infrastructure to deliver high speed Internet access to 35 northern communities in Saskatchewan (PAGCT). New umbrella organizations such as the Northern Health Strategy[8] have emerged where all stakeholders involved in the delivery of healthcare services are working together to improve the health of *all* residents of Northern Saskatchewan regardless of their jurisdiction. Lastly, in 2003, the Athabasca Health Authority opened one of the first integrated federal, provincial and First Nations health services facilities in Canada. The centre, named *Yutthe Dene Nakohodi*, "A Place to Heal Northern People," was built at Stony Rapids. Although the project took almost ten years to come to fruition, it addresses recommendations dating back to the 1950s that solutions must be found to the jurisdictional chasm that impeded access to healthcare services in Northern Saskatchewan (National Archives of Canada). The issues facing healthcare and nursing are also complex, however, legislation has recently extended the scope of nursing practice which Donna Brunskill states, "is a legitimization of the important role that Registered Nurses have played in northern Saskatchewan outposts

for decades" (5). Furthermore, the devolution of responsibility for healthcare to band control has resulted in increased retention of nursing staff in some communities, thus signalling the benefits of local decision-making arrangements.

Conclusions

Women are usually the primary caregivers within families and also dominate the nursing profession. As such, gender is a significant factor in how health care services are accessed and provided. While women living in rural and remote communities in Canada are disadvantaged because of the lack of healthcare services generally, they also face additional challenges attributable to distance and jurisdictional divisions. For example, the anxiety and costs of traveling to larger centres for health care often falls to women, while on going jurisdictional divisions can determine whether or not families qualify for financial assistance for transportation costs. Nurses who work in the small communities are often overworked and the isolation associated with distance affects them personally as well as professionally. Although jurisdictional arrangements ensure that new initiatives are subject to intensive and lengthy federal-provincial-Aboriginal negotiations, economic development policies have left the northern infrastructure inadequate, even today. These geographies create a dynamic, yet difficult context for nurses and affect the kinds of care decisions they can make, the follow-up they can provide, and even their decision to remain living and working in the region. By implication any changes in service delivery must deal with the jurisdictional arrangements as well as the technological ones (telehealth). Other elements of technology such as transportation must also be considered simultaneously, because broadband facilities do not erase problems with communication, and people still have to physically get somewhere in order to obtain services. Finally there is a myriad of social issues that affect the geographies of care. Telehealth by itself will not address adequacy in recruitment, retention, training, professional isolation, and even the geographic remoteness that remain key aspects of nursing in Northern Saskatchewan. However, the successes described above demonstrate that a commitment to healthcare, a willingness to set aside jurisdictional disputes, together with technology, could help meet the recommendations set out by the *Romanow Report*.

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[1]The NET project "Strategies to Improve the Care of Persons with Dementia in Rural and Remote Areas" (Morgan, Biem, Crossley, D'Arcy, Forbes, Kirk, Stewart, McBain, Basran and Harder) is funded by the CIHR Institute of Aging, CIHR Institute of Health Services and Policy Research, CIHR Rural and Northern Health Initiative, Saskatchewan Health Research Foundation, Alzheimer Society of Saskatchewan, and the University of Saskatchewan. Additional travel support has been provided by Northern Medical Services (Saskatchewan)
[2]The term "Aboriginal" includes the three distinct Aboriginal peoples of Canada as defined in the *Canadian Constitution* (1982)—Indian, Inuit, and Métis.
[3]The NET group did not travel to Southend, although it is a telehealth site. Communities in the Athabasca basin region do not have telehealth due to lack of broadband/high speed availability.
[4]For a full discussion of development of the transportation network in Northern Saskatchewan see Quiring.
[5]In 1939 the Supreme Court of Canada decided that the federal government should assume responsibility for the Inuit. However, the *Indian Act* does not apply to the Inuit.
[6]The federal government views healthcare as policy rather than as a treaty right. For a full discussion see Chapter 7 of Waldram, Herring and Young.
[7]Medical Services Branch (MSB) provides physician services to the on-reserve registered Indian population in the north.
[8]The Northern Health Strategy represents the following Northern Saskatchewan Health organizations: Athabasca Health Authority, Keewatin Yatthe Regional Health Authority, Kelsey Trail Health Region, Lac La Ronge Indian Band, Mamawetan Churchill River Regional Health Authority, Meadow Lake Tribal Council, Peter Ballantyne Cree Nation, Prince Albert Grand Council, Health Canada, First Nations and Inuit Health Branch, Northern Inter-Tribal Health Authority, Saskatchewan Population Health Unit, Northern health Region/Authorities, Saskatchewan Health, Northern Medical Services.

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