POSITION PAPER: TURNING THE CORNER WITH FIRST NATIONS TELEHEALTH

Keewaytinook Okimakanak

Prepared for: KO Telehealth

Prepared by: John Rowlandson & Associates

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Table of Contents

Figure One: Keewaytinook Okimakanak Telehealth First Nations

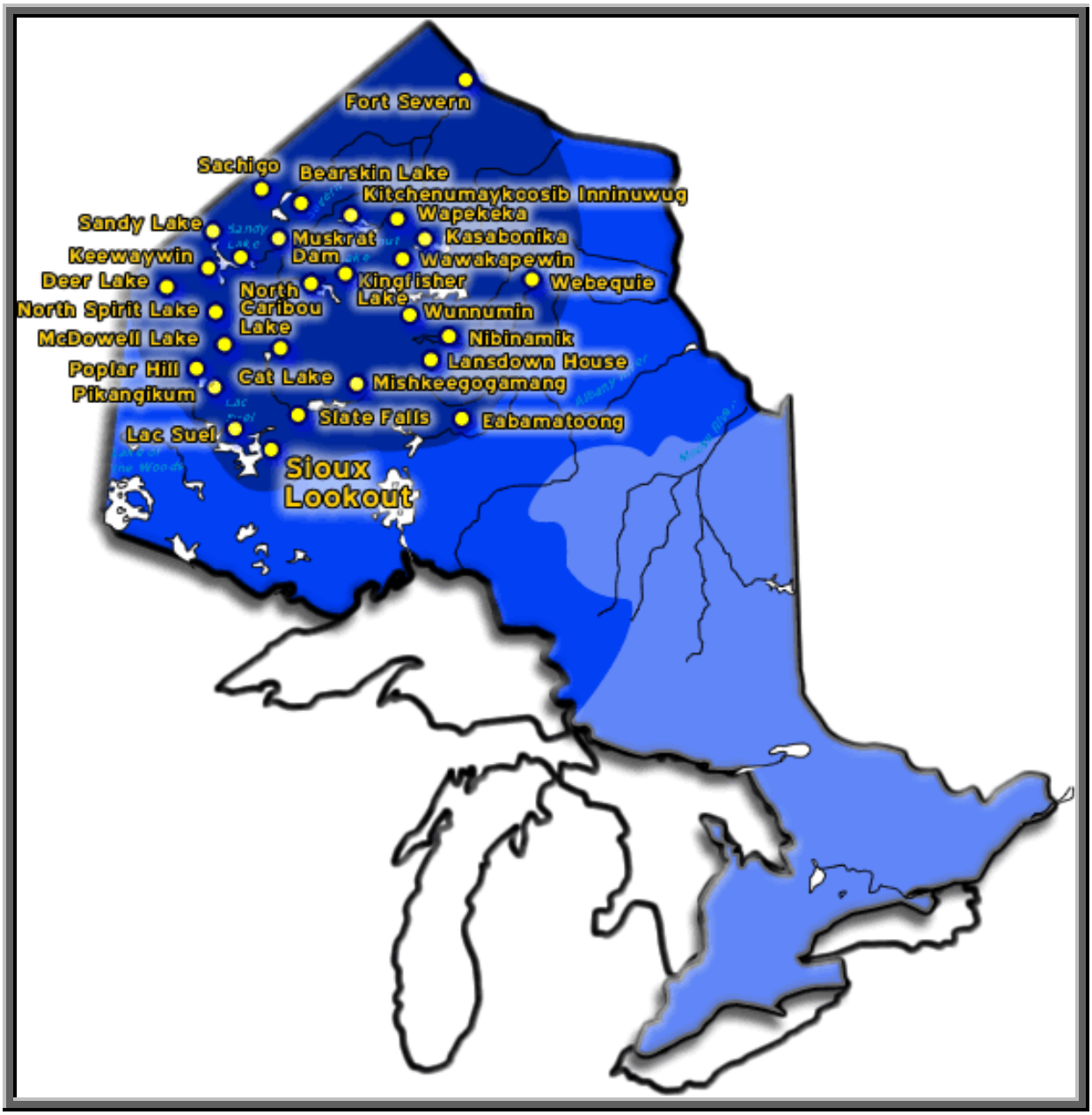
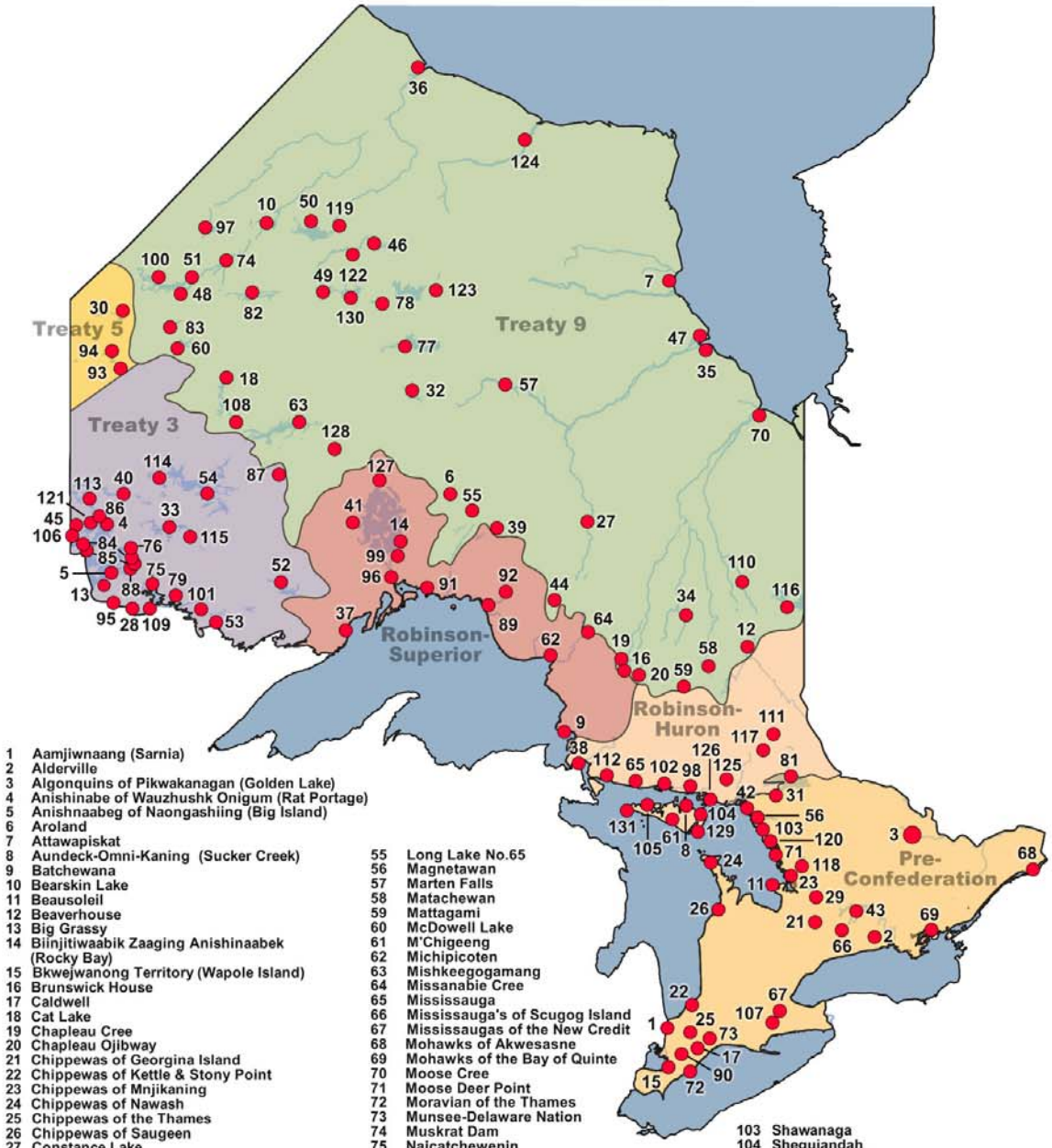


Figure Two: Ontario First Nations



1 Aamjiwnaang (Sarnia)
2 Alderville
3 Algonquins of Pikwakanagan (Golden Lake)
4 Anishinabe of Wauzhushk Onigum (Rat Portage)
5 Anishnaabeg of Naongashiing (Big Island)
6 Aroland
7 Attawapiskat
8 Aundeck-Omni-Kaning (Sucker Creek)
9 Batchewana
10 Bearskin Lake
11 Beausoleil
12 Beaverhouse
13 Big Grassy
14 Biinjitiwaabik Zaaging Anishinaabek (Rocky Bay)
15 Bkwejwanong Territory (Wapole Island)
16 Brunswick House
17 Caldwell
18 Cat Lake
19 Chapleau Cree
20 Chapleau Ojibway
21 Chippewas of Georgina Island
22 Chippewas of Kettle & Stony Point
23 Chippewas of Mnjikaning
24 Chippewas of Nawash
25 Chippewas of the Thames
26 Chippewas of Saugeen
27 Constance Lake
28 Couchiching
29 Curve Lake
30 Deer Lake
31 Dokis
32 Eabametoong
33 Eagle Lake
34 Flying Post
35 Fort Albany
36 Fort Severn
37 Fort William
38 Garden River
39 Ginoogaming
40 Grassy Narrows
41 Gull Bay
42 Henvey Inlet
43 Hiawatha
44 Hornepayne
45 Iskatewizaagegan (Shoal Lake #39)
46 Kasabonika Lake
47 Kashechewan
48 Keewaywin
49 Kingfisher
50 Kitchenuhmaykoosib Inninuwug
51 Koocheching
52 Lac Des Mille Lacs
53 Lac La Croix
54 Lac Seul
55 Long Lake No.65
56 Magnetawan
57 Marten Falls
58 Matachewan
59 Mattagami
60 McDowell Lake
61 M'Chigeeng
62 Michipicoten
63 Mishkeegogamang
64 Missanabie Cree
65 Mississauga
66 Mississauga's of Scugog Island
67 Mississaugas of the New Credit
68 Mohawks of Akwesasne
69 Mohawks of the Bay of Quinte
70 Moose Cree
71 Moose Deer Point
72 Moravian of the Thames
73 Munsee-Delaware Nation
74 Muskrat Dam
75 Naicatchewenin
76 Naotkamegwanning Anishnawbe
77 Neskantaga (Landsdowne House)
78 Nibinamik (Summer Beaver)
79 Nicickousemenecaning
80 Niharondasa Seneca
81 Nipissing First Nation
82 North Caribou Lake
83 North Spirit Lake
84 Northwest Angle No.33
85 Northwest Angle No.37
86 Ochiichagwe'babigo'ining (Dalles)
87 Ojibway Nation of Saugeen
88 Ojibways of Onigaming
89 Ojibways of the Pic River
90 Oneida Nation of the Thames
91 Pays Plat
92 Pic Mobert
93 Pikangikum
94 Poplar Hill
95 Rainy River
96 Red Rock
97 Sachigo Lake
98 Sagamok Anishnawbek
99 Sandpoint
100 Sandy Lake
101 Seine River
102 Serpent River
103 Shawanaga
104 Sheguiandah
105 Sheshegwaning
106 Shoal Lake No.40
107 Six Nations of the Grand River
108 Slate Falls
109 Stanjikoming
110 Taykwa Tagamou Nation (New Post)
111 Temagami
112 Thessalon
113 Wabaseemoong
114 Wabauskang
115 Wabigoon Lake Ojibway Nation
116 Wahgoshig
117 Wahnapitae
118 Wahta Mohawk
119 Wapekeka
120 Wasauksing
121 Washagamis Bay
122 Wawakapewin
123 Webequie
124 Weenusk (Peawanuck)
125 Whitefish Lake
126 Whitefish River
127 Whitesand
128 Whitewater
129 Wikwemikong
130 Wunnumin Lake
131 Zhiibaahaasing

NOTE FROM THE EXECUTIVE DIRECTOR – GEORDI KAKEPETUM

Developing sustainable economies requires that the basics – access to quality healthcare and education – are a standard element of everyday life for First Nations communities. This is something that our organization has been working towards from the beginning of the KNET initiative. Today, most people in the North agree – Keewaytinook Okimakanak Telehealth (KO Telehealth and Keewaytinook Internet High School (KiHS) are keys to the future growth of our communities.

"Our lives have been completely changed by the services we now receive over the network. Having telehealth care and also having secondary education services available in our communities is making us stronger as a people."

We have come a long way since we began in 1994. We started by working with the people living in our communities and succeeded in showing them the benefits of using information and communications technologies. Quickly we found that everyone from the elders to the young people understood the potential and wanted to participate.

From there we have built a strong network that is directed by community interests and supported through tripartite investments by federal, provincial and First Nations partners. Our lives have been completely changed by the services we now receive over the network. Having telehealth care and secondary education services available in our communities is making us stronger as a people. Being able to communicate with our neighbours is making us stronger as a community. Being able to communicate with the world is improving our chances for participating in and influencing that world. More doctors and nurses are still required in Northern communities but telehealth is an important and positive step forward. Telehealth provides timely access to medical evidence and health expertise at multiple points of care. It provides clients and health service providers with a secure and reliable channel for gaining access to comprehensive health, wellness and education services

KO Telehealth is also supporting solutions to broader health challenges. In March 2003, Dr. Roger Strasser, the founding dean of the Northern Ontario School of Medicine, visited the telemedicine facilities in the Deer Lake First Nation and described them as "exactly the kind of experience that our medical students will require if they are going to fully appreciate the opportunities and challenges of practicing in remote and isolated communities in the North." Similarly, Dr. Carolyn Bennett met with our Sioux Lookout staff in November 2004 to identify how telehealth can keep as many First Nations healthy for as long as possible and address broader determinants of health – such as poverty, violence, the environment, shelter, education and equity – that are often beyond the exclusive reach of the health system.[1]

The success of the project has inspired other First Nations in the region. People living in northern and isolated First Nations know the advantages of working together. We have approached this project in the spirit of co-operation because for the network to last for the long-term and to be effectively used, we must collaborate, share the investment and build new capacities in each First Nation. Specifically, we need to invest our energies in sustaining this service by building program instruments that will support the capital and operational costs of an integrated service so that small and isolated communities can successfully challenge the health disparities between First Nations and non-First Nations people in Canada.

[1] This message is also highlighted by the Health Council of Canada. In their January 2005 report, *Accelerating Change*, they state that "Health disparities are the number one health problem in the country and health care alone is powerless to overcome them" and recommend that governments "Place a particular focus on reducing health disparities between Aboriginal and other Canadians" (p.9).

1 Executive Summary

In the North, flying out of the community to get health care causes serious disruption for individuals and families. Added to this is the fact that a significant amount of …health spending is currently dedicated to transportation costs. These resources would be better spent on services provided closer to home, by health professionals who understand local needs. Telehealth technology has an important role to play in connecting health professionals in the North to other resources.

Health Council of Canada Advice, Jan 2005. Accelerating Change (p. 11)

Keewaytinook Okimakanak Telehealth (KO Telehealth) is Canada's busiest and largest First Nations telemedicine service – encompassing more than 25 sites by Fall 2005. KO Telehealth works in partnership with NORTH Network to provide integrated access to provincial and First Nations and Inuit Health Branch service providers to deliver health programming on reserve. For the past four years KO Telehealth has designed, implemented and refined a First Nations service model that supports and sustains telehealth services in Ontario's most remote and northern communities.

KO Telehealth's connectivity service – the Kuh-ke-nah Network (K-Net) – provides turnkey technology management and connectivity services. K-Net maintains a service level agreement with NORTH Network, manages a regional broadband network, provides HelpDesk services for all First Nations schools in Ontario and delivers broadband satellite services with remote Aboriginal communities in Ontario, Québec and Manitoba.

Telehealth: ***The use of advanced communications and information technologies to exchange health information and provide health care services across the geographic, time, social, and cultural barriers.***

Reid, J. 1996. A Telemedicine Primer: Understanding the issues. Billings, Montana: Artcraft Printers.

K-Net leverages integrated technical and service support resources to address broadly based information and communications technology needs in First Nations on a pan-regional basis. Accordingly, the telehealth network is extensive. It reaches from the isolated Beausoleil First Nation on Georgian Bay's Christian Island in southern Ontario to the Fort Severn First Nation, Ontario's most northerly community and from the Winnipeg Health Sciences Centre in the west to James Bay's Weeneebayko General Hospital on Moose Factory Island to the east.

1.1 Service Expansion

Looking forward, KO Telehealth has developed an Accelerated Access Plan (AAP) that will link the KO Telehealth network with the province's Aboriginal health access centre infrastructure and extends its unique Aboriginal service model to 50 additional remote and northern First Nation communities in Ontario. AAP will transform health service access for Ontario's Aboriginal communities. It will deliver quality and comprehensive access to federal and provincial health programming within a common point-of-care network, support health professional retention and recruitment in small, isolated Aboriginal communities and complement local health integration needs and priorities.

1.2 Direct Service Benefits of Telehealth

- Improved access and utilization of comprehensive telemedicine services that address community based health and wellness priorities
- Increased coordination and integration of federal and provincial First Nations health services programming
- Enhanced scope of regional health professional retention and recruitment strategies
- Increased community participation and influence over access to the health system
- Full integration with the Northern Ontario School of Medicine's community-based learning model, supporting medical student learning and practice needs during community placements.
- Reduced patient and health system travel burden – particularly for the elderly and parents with young children who have to travel long distances for access to medical services.
- Improved peer-to-peer interaction and team-based approaches to regional care
- Decreased isolation for patients at distant points of care using tele-visitation services
- Improved community-based health service training and education capacity

1.3 Telehealth As An Agent of Change

Keewaytinook Okimakanak Telehealth is also witnessing how the introduction of clinical, educational and wellness services is helping First Nations communities change their approach to health service practice and delivery. Increasingly, Nurses and Community Health Representatives, for example, are consulting validated health web resources that facilitate early intervention and preventative measures for managing chronic illness. Similarly, people living in remote communities have access to self-care and self-management information to help them negotiate lifestyle changes in order to modify their individual and family health status.

In these and many other minute ways, telehealth is supporting a change management strategy for improving the well-being of First Nations communities. When fully implemented in 2009, KO Telehealth will be the most advanced Indigenous telemedicine network in the Americas. It will provide comprehensive access to health and wellness services to the province's most vulnerable populations by removing longstanding social and geographic barriers and by placing quality health care closer to home. At the same time, the accelerated access plan (AAP) will enable a shared network environment, defined both by the cultural character of its communities and by the local and regional capacities of the provincial and federal health systems.

1.4 First Nations Capacity and socio-economic development

The introduction of telehealth services has similarly contributed to First Nations capacity development. In a direct way, telehealth has opened up new worlds of education and training for health and social service staff in northern and isolated communities. *Appendix B* describes the scope and variety of health training and continuous quality improvement programming that KO Telehealth coordinates specifically for First Nations service providers.

In a broader sense, KO Telehealth has animated interest in how information and communications technologies can contribute to local well-being by making concrete connections between illness and timely access to treatment, chronic disease and self-management skills, health programming and cultural competence. KO Telehealth's service model has demonstrated that the adoption of ICTs can and should include a community capacity to influence and direct services provided through the community and regional networks.

The telehealth program has stimulated wide ranging socio-economic development for First Nations by describing the 'realm of the possible'. This is made true not only by the fact that it works, but more importantly, that the system is working on behalf of each community. Specifically, the Community Telehealth Coordinator workforce – a full-time and highly motivated network of community-based staff liaises with family members, peers, neighbours and political leaders to constantly feed back new ways for technology to address local service requirements, fill gaps and deliver integrated solutions. In this sense, community well-being regards a larger end than technological innovation – it engages a community-driven capacity to think past longstanding barriers and the cultural wherewithal to make change happen.

1.5 In The Beginning...

The expansion of KO Telehealth has been built up from the collective experiences of the five original Keewaytinook Okimakanak First Nations – Deer Lake, Fort Severn, Keewaywin, North Spirit Lake and Poplar Hill. These five communities constituted the first clinical First Nations telehealth network in Canada, facilitating more than 1,500 telehealth sessions since March 2002.[2] This effort leveraged more than $50M in both private and public investments in regional network upgrades since 1998 and introduced new standards of performance, documentation and service uptake among remote First Nations. *Table One* describes the key KO Telehealth developmental milestones.

The incremental growth and development of services in these communities is a testament to the value that telemedicine and telecare services have for people living in some of Canada's most remote and under-serviced communities. Similarly, KO Telehealth's success is evidence that the time has come to make these services broadly available to First Nations experiencing similar conditions and needs. Accordingly, this paper proposes both that the KO Telehealth model be used a program development tool for sustaining First Nations telehealth and shared as a strategy for 'turning the corner' in Aboriginal communities across Canada.

[2] The total on-reserve population of the five Keewaytinook Okimakanak communities is about 2,500. Project implementation began in October 2001 with the first consult – a family visit – occurring on 20 March 2002. As a group, these sites have hosted almost 550 clinical sessions and nearly 1,000 health education and training sessions.

2 INTRODUCTION

Spontaneous consults happen regularly in remote and isolated First Nations communities. These consults are usually urgent situations that require timely physician decision-making. It used to be that these consults occurred over the phone between the on-call physician and the local health staff. Now spontaneous consults are conducted via videoconference and involve the patient, their family and the local health team. So when the Community Telehealth Coordinator in Keewaywin was woken up at 0200 she knew the routine. By 0215 the telehealth room was open and a connection established with the Menoyawin Hospital. At 0220, the Doctor-on-call was on-screen in Keewaywin and assessing a 10-year-old child who was experiencing severe abdominal pain and having difficulty breathing. After talking with the boy's mother about her concerns the decision to Medevac was made. By 0400 the Medevac was on the runway in Sioux Lookout and the Community Telehealth Coordinator was on her way back home to grab a couple of hours sleep.

Ida Fiddler, Community Telehealth Coordinator, Keewaywin

This position paper highlights the introduction and growth of telehealth services in five Keewaytinook Okimakanak communities. Deer Lake, Fort Severn, Keewaywin, North Spirit Lake and Poplar Hill have been utilizing comprehensive telehealth services for the past three years. Their experiences shine a light into a largely unseen corner of First Nations health innovation and underscore the need for coordinated policy and program development to support the diffusion, uptake and sustainability of First Nations telehealth service models in Canada.

KO Telehealth developed as a pragmatic response to community demand for access to quality health services closer to home. By the late 1990s, most First Nations in the Sioux Lookout Health Zone felt that the regional health service delivery model, in which physicians, nurses and allied health professionals intermittently fly-in into communities to triage and treat clients and clients fly-out to secondary and tertiary facilities to receive specialized care and support, was not – on its own – able to meet the holistic health needs of their members.

Specifically, First Nations noted that the itinerant medical model was not well-suited to building and sustaining health teams, that it contributed to significant discontinuities in care and that it disempowered local health workers by marginalizing their capacity to acquire new skills and transfer health knowledge to their community client base. At the same time, the model tended to reinforce health dependencies between medical 'experts' and people living in remote and isolated communities. First Nations gained access to health expertise when the doctor visited or during a nurse's clinic. Accordingly, diffusion of disease self-management strategies and uptake of self-care protocols was dismal.

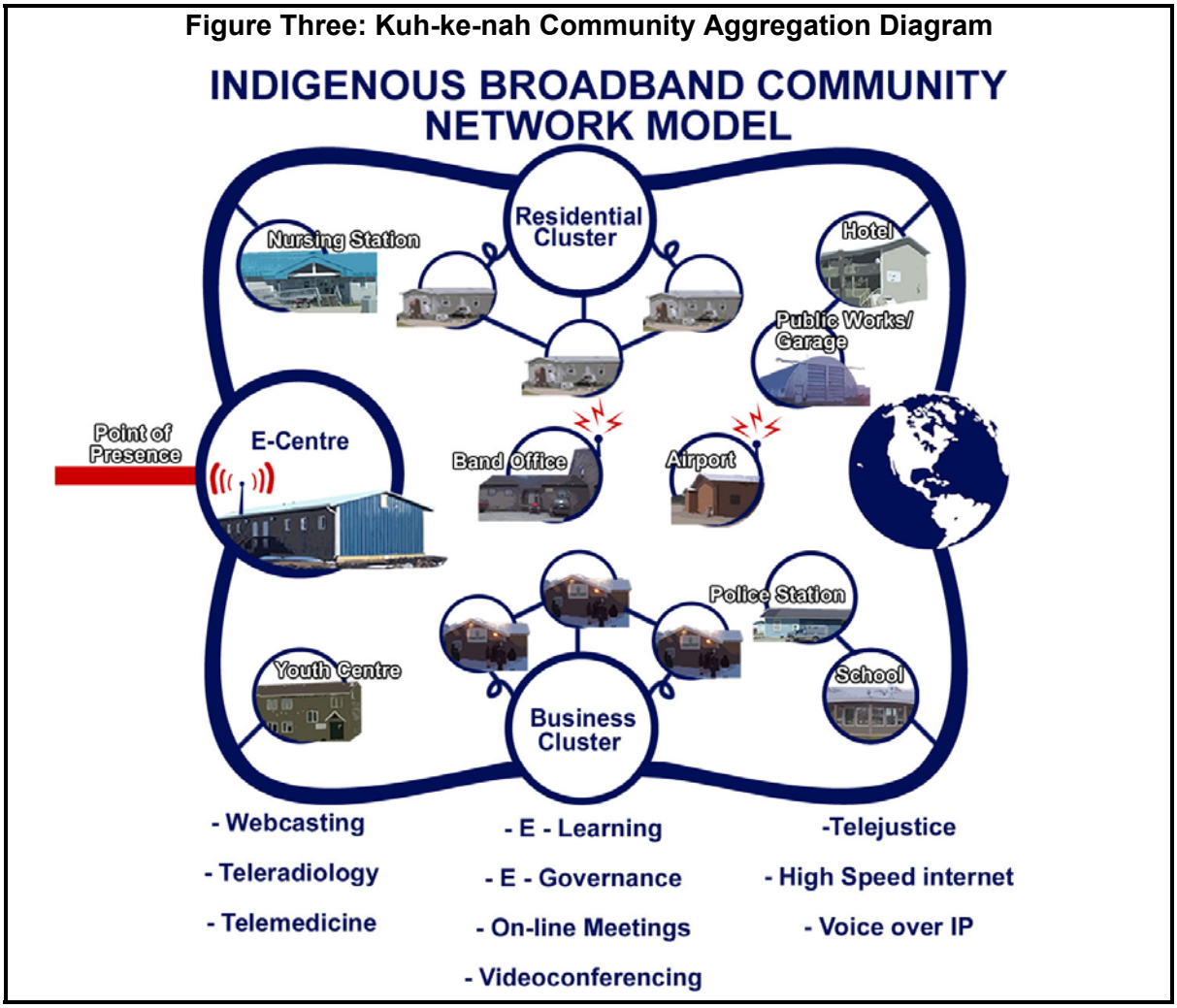
2.1 PRACTICAL INNOVATION

The practical innovation that KO Telehealth contributed in the Sioux Lookout Health Zone is its ability to enhance and improve existing services. Simply put, telehealth does not suppose a radical restructuring or reinvention of the health system. Rather, telehealth proposes a way for managing regional change and for integrating previously distinct jurisdictional health programming at the community-level. Accordingly, telehealth – as per the example offered above -- has enabled timely evidence-based decision making and improved communication between families, clients and service providers. Similarly, telehealth supports health professionals and

health workers by providing access to targeted training and educational programming at the point of care (http://telehealth.knet.ca/index.php?module=ContentExpress&func=display&ceid=247).

Telehealth engages the broader spectrum of community well-being. It brings with it high speed community internet access to on-line health resources, shares in the cost of local broadband services, contributes to the local economy through job creation and leverages new opportunities for community development. Telehealth also respects the cultural diversity and practice of First Nations. Community Telehealth Coordinators translate videoconferences between clients who speak their native language and distal service providers, telehealth facilitates local access to Elders who have had to leave their community to reside in urban-based long-term care facilities and telehealth expands community choices by enabling access to traditional healers and care-givers. These connections are illustrated in *Figure Three*.

Figure Three: Kuh-ke-nah Community Aggregation Diagram



The developmental rationale for KO Telehealth is important because it describes conditions not unlike those experienced in most regions of Canada and illustrates scenarios familiar to service providers in far flung First Nations. Whether the community is located on the northeast coast of Labrador, within the Hudson's Bay watershed or tucked into a cove in British Columbia's Broughton Archipelago, the logic and wherewithal that informs KO Telehealth proposes a scaleable approach to longstanding First Nations health service challenges in Canada and engages a service model that is based on tri-partite collaboration, regional integration and community capacity to influence health service delivery.

2.2 Telehealth Development in Keewaytinook Okimakanak Communities

Telehealth development in northwestern Ontario is closely tied to the infrastructural groundwork laid by Keewaytinook Okimakanak's telecommunication service – the Kuh-ke-nah Network (K-Net). Network implementation anticipated community-based demand for broadband services and developed community and regional capacity required for implementing and managing a regional telemedicine service. A K-Net/KO Telehealth developmental timeline describes service milestones in *Table One.*

In May 1999, K-Net's Broadband consultation demonstrated widespread interest in telehealth services by community members and health staff. People agreed that improved access to health services and information would be an important network service. At about the same time, Keewaytinook Okimakanak's Health Director identified mental health services as a priority application for telehealth. Over the next year-and-a-half, KO Health designed a telepsychiatry pilot project and implemented services in two Keewaytinook Okimakanak communities. Despite significant technical and logistical challenges, community members responded enthusiastically to the new service and the project's final evaluation signalled the opportunity to continue and expand this service model.

In January 2000, Health Canada announced funding to support a regional telehealth consultation in northwestern Ontario. Keewaytinook Okimakanak was asked by Health Canada to participate in the consultation and to represent First Nations in the regional development of telehealth services. The consultation engaged regional and community-based health workers and professionals and reflected local needs and priorities. The final report supported implementation of telehealth in the KO First Nations and became the basis for a working partnership between Keewaytinook Okimakanak and the provincial telehealth service provider, NORTH Network.

This partnership has been supported since 2001 by First Nations communities, Health Canada's Canadian Health Infostructure Partnership Program, FedNor, the Northern Ontario Heritage Fund Corporation, Health Canada's First Nations and Inuit Health Branch – Ontario Region and Headquarters – and Health Canada's Primary Care Transition Fund. At the same time, KO Telehealth's investment in its service model has supported similar implementations in other Canadian jurisdictions. The business processes, tools, and network resources developed by KO Telehealth staff have been widely shared and adapted by telehealth service providers and Aboriginal telehealth advocates alike.

Table One: K-Net/KO Telehealth Developmental Timeline/Milestones

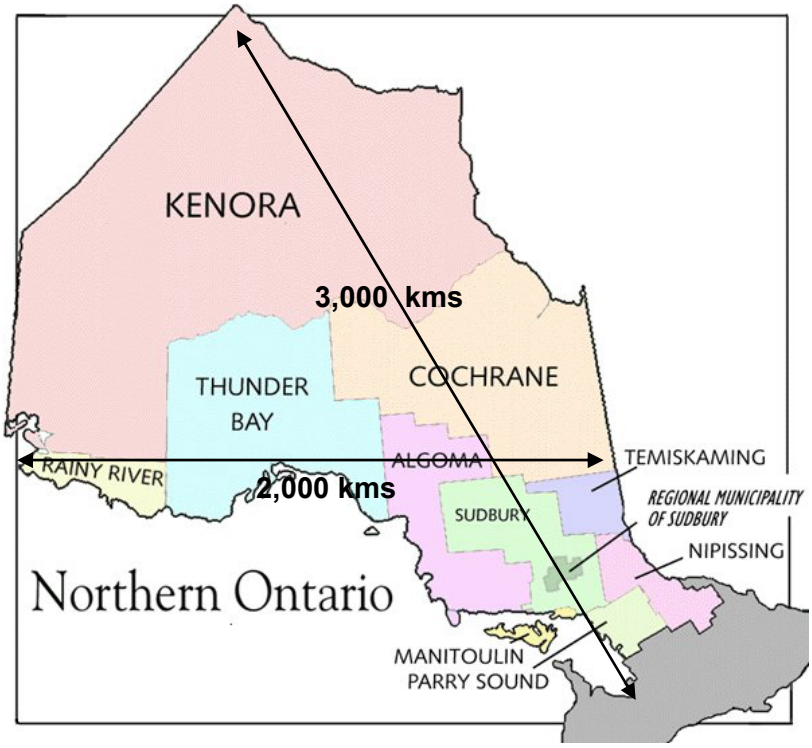
Milestone	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Kuh-ke-nah (K-Net) Bulletin Board System is introduced to First Nations across the Sioux Lookout Zone to support community-based training (Band Managers, technicians, web developers…)												
K-Net invents MSAT modem/caching-router solution for use in Sioux Lookout communities with unreliable or no telephone services												
K-Net Telecommunications Infrastructure Upgrade Partnership (Bell Canada)												
KO Communities identify telehealth as a priority application for broadband development												
Keewaytinook Okimakanak designated as the SMART Aboriginal Community for Canada (Telehealth targeted for development)												
Broadband Available in all five KO communities												
Community Telehealth Needs Assessment identifies priority applications for KO First Nations												
KO Telehealth partnership with NORTH Network												
KO Delivers Clinical Telehealth Services												
KO Telehealth begins 3 year project funding to expand services to 20 additional sites (Primary Health Care Transition Fund)												
KO Telehealth adds new community-based sites												
KO Telehealth successfully hosts regional telehealth services migration and integration workshop												
Original five KO Communities host their 500th clinical telehealth consult												
KO Telehealth launches Education/Training program for community health service providers.												
K-Net manages National Satellite Initiative public benefit bandwidth for Ontario, Manitoba and Quebec												
KO Telehealth establishes first community telehealth partnership outside of the SLKT Zone (Beausoleil FN – Christian Island)												
Original five Keewaytinook Okimakanak communities host their 1500th telehealth session												

3 Improving Access

Imagine that your 80 -year-old father or grandfather is living in an isolated community. There are no sidewalks or paved roads. Because of his Parkinson's disease he spends most of his day in a wheelchair unable to accomplish even simple motor tasks without the assistance of his wife. Imagine also how tied he is to this community, to the people who speak and understand his Ojibway-Cree dialect, to the grand children who visit after school and to his children who drop by to bring him fresh caught fish or share geese or moose. He and his wife are worried that he'll fall and have to go to the hospital in Sioux Lookout. They need some help understanding what they can do to stay in the community, but neither of them wants to travel. That is why they saw the Geriatrician from Thunder Bay via telehealth. By using the Community Telehealth Coordinator to translate for him, the Doctor was able to assess the Elder's motor skills and balance and talk to the couple about the disease and strategies for improving quality of life in the community. After the session was over the Elder responded that he was "happy it had happened and that it felt like the Doctor was in the room with him."

Pauline Winnepetonga – Community Telehealth Coordinator, Wunnumin Lake

Covering an area of more than one million square kilometres, Ontario is Canada's second largest province. Nearly two-thirds of the province is designated as northern Ontario (more than 620,000 square kilometres). The North stretches approximately 2,000 kilometres from east to west and more than 3,000 kilometres from its southern- to northernmost point. Like other Canadian provinces, the North is sparsely populated and, by default, most communities in Ontario are described as rural, isolated and/or under-serviced.



Ontario is home to Canada's largest status off- and on-reserve population,[3] distributed across 134 reserves.[4] Most communities are small with uneven access to standard health, education and wellness services. Similarly, most First Nations – even those located within areas such as southern Ontario's 'golden triangle' have sub-standard access to

[3] The Chiefs of Ontario estimates that there are 157,062 status on- and off-reserve First Nations people living in Ontario.

[4] Almost 200,000 Aboriginal people live in Ontario. Among the 188,315 Aboriginal people identified in Ontario as part of the 2001 Census, 131,560 identified as North American Indian (69.9%), 48,345 as Métis (25.7%), and 1,380 as Inuit (0.7%). *Census 2001 Highlights*, Ontario Ministry of Finance. http://www.gov.on.ca/FIN/english/demographics/cenhi6e.htm

connectivity resources. For example, 22 percent of Ontario reserves receive high speed internet services via asynchronous satellite subscription services.[5]

The Sioux Lookout Health Zone is the largest and most geographically isolated health region in Ontario. It covers an area of more than 385,000 square kilometres – almost one-third of the total landmass of Ontario and encompasses 25 First Nations Only one First Nation – Mishkeegogamang – has full-time road access. Accordingly, most First Nations have limited access to health service providers and health information and most medical transportation requires round trip airfare, frequently attached to three-to-five day travel commitments. And while this environment contributes to reduced health status among First Nations it has also stimulated intensive innovations among First Nations searching for ways to both retain their connection to their traditional territories and improve and enhance community well-being.

3.1 Health Status

There is increasing evidence of compromised health status and reduced quality of life among rural and remote First Nations populations. The sources of disparities in health status between Canada's First Nation and non-First Nations populations have been the focus of substantial public debate with little consensus about causes, cures or prevention. As the Health Council of Canada reports, Aboriginal Peoples experience poorer social and economic conditions than other communities in Canada. For example:

- Significantly more Aboriginal students do not complete high school as compared to all Canadians (52 per cent versus 33 per cent);

- The official unemployment rate of Aboriginal Peoples is significantly higher than the non-Aboriginal rate (19 per cent versus 7 per cent).

The health of First Nations, Inuit and Métis people is worse than that of the general Canadian population on virtually every measure of health and every health condition. For example:

- Non-Aboriginal men live nine years longer than Aboriginal men living on reserves and four years longer than Aboriginal men living off-reserve; for females the gaps are eight and four years;

- The suicide rate in Inuit communities is three times that of First Nations and six times that of the general Canadian population;

- The infant mortality rate for First Nations is much higher than the Canadian rate (8 per 1000 live births compared to 5.5 in1999);

And while differences exist among First Nations, Inuit and Métis populations (for example, rates of diabetes are highest in First Nations communities whereas rates of tuberculosis are highest in Inuit communities), access to health care services is an issue for all Aboriginal communities. Although much effort has been devoted to improving delivery of First Nations health services, the standard of care is still far below baseline services in the rest of Canada. Telemedicine and telehealth provide a new opportunity to address service imbalances in the health system and to contribute to community well-being.

[5] *This data is drawn from K-Net's Ontario First Nations SchoolNet program. Of the 144 service locations, 31 still require 'pizza-sized' dishes to provide community-based network access.*

3.2 Scaleable Service Model

Indeed, the KO Telehealth service model anticipates at a regional level changes recommended by the Health Council of Canada. In its January 2005 report *Accelerating Change*, the Council underscores health disparities for Aboriginal populations in Canada and offers five pieces of advice to policy makers and program developers. Table Two describes these elements in relation to existing KO Telehealth services.

Table Two: Health Council of Canada Advice on how to Improve Aboriginal Health Services in Relation to the KO Telehealth Service Model

Advice from the Health Council	Status[6]	Notes
1) Develop an Aboriginal health work force to improve service delivery in the North — linguistic and cultural issues can be addressed and services can be provided closer to home.	PM	Community Telehealth Coordinators (CTCs) provide point-of-care interface with health and social service providers. CTCs provide dialect-specific language translation services.
2) Target education programs at Aboriginal youth to encourage them to consider a health career.	PM	Telehealth makes the spectrum of health and health career choices visible to youth in the community. For example, the Northern Ontario School of Medicine will use telehealth to support medical students during community placements in First Nations.
3) Develop health professions training programs that recognize traditional Aboriginal healing practices and are focused on providing services to northern and remote communities.	PM	KO Telehealth programs health training and education sessions via videoconference and webstreaming. A monthly listing is available at: http://telehealth.knet.ca/index.php?module=ContentExpress&func=display&ceid=247
4) Develop primary health care models to address the broader social determinants of health which are particularly relevant to Aboriginal communities.	PM	The telehealth service supports community well-being. It delivers and supports quality point-of-care services, health education and health training and contributes to the sustainability of the local broadband network.
5) Accelerate the use of information technology to improve services in Aboriginal communities.	FM	Telehealth is a technology driver. It demands the highest standards of service and security and facilitates uptake of related services such as on-line journal access, secure e-mail, tele-radiology, and voice over IP (VOIP) services.

3.3 Telehealth and Improved Access

Access is a principle embedded in the *Canada Health Act.* It directly addresses demand for portable, affordable and comprehensive services for all Canadians. Similarly, the access principle anticipates contemporary system migration requirements for integrated service models, team-based practice and continuous quality improvement. These modern expectations of the health system are captured by KO Telehealth and the work that it does with First Nations communities and its system partners. KO Telehealth's capacity to enable a community-based engagement and learning model for first and second year students enrolled in the Northern Ontario School of Medicine, highlights connections between access, health innovation and the institutional development of integrated service models for First Nations communities.

[6] Status refers to the capacity of the current KO Telehealth model to fulfil this recommendation: FM=fully meets; PM=partially meets; P=Pending completion of full implementation.

In addition to facilitating local access to new services and service providers, the KO Telehealth service model also demonstrates a significant capacity to meet community demand for quality health services and provide direct feedback to KO Telehealth during regular bi-weekly team meetings. By way of example, an urgent need for speech and language services was identified by Coordinators in the Sioux Lookout Zone. KO Telehealth communicated this need to medical and telehealth network partners. In a matter of weeks, service capacity was identified among an SLP group in Thunder Bay and a service delivery protocol was initiated. And though not all service gaps are able to be addressed that rapidly, the health network environment encourages delivery of priority services at community points of care. Tables *Three*, *Four* and *Five* highlight the priority service similarities and differences by identifying the top three uses of telehealth by fiscal year.

Table Three: Top Three Telehealth Services - FISCAL YEAR 2002 – 2003				
Deer Lake	**Fort Severn**	**Keewaywin**	**North Spirit**	**Poplar Hill**
Psychiatry – 11 Diabetes – 8 Family Medicine – 8	Family Medicine – 9 Psychiatry – 6 Diabetes – 4	Diabetes – 5 Psychiatry – 2 Family Medicine – 1	Psychiatry – 20 Family Medicine – 8 Dermatology – 1	Psychiatry – 11 Diabetes – 9 Family Medicine – 2

Table Four: Top Three Telehealth Services FISCAL YEAR 2003 – 2004				
Deer Lake	**Fort Severn**	**Keewaywin**	**North Spirit**	**Poplar Hill**
Psychiatry – 50 Diabetes – 22 Cardiology – 2	Psychiatry – 6 Diabetes – 5 Family Medicine – 3	Diabetes – 23 Psychiatry – 11 Family Medicine – 1	Psychiatry – 19 Diabetes – 13 Family Medicine – 6	Family Medicine – 17 Psychiatry – 8 Diabetes – 4

Table Five: Top Three Telehealth Services: FISCAL YEAR 2004 – 2005				
Deer Lake	**Fort Severn**	**Keewaywin**	**North Spirit**	**Poplar Hill**
Psychiatry - 47 Family Medicine – 20 Diabetes – 18	Diabetes – 16 Cardiology – 3 Nephrology – 2 Pediatric Surgery – 2 Genetics – 2 Gastroenterology – 2	Diabetes – 13 Psychiatry – 3 Family Medicine – 2 GastroEnt - 2	Diabetes – 18 Family Medicine – 6 Psychiatry – 3	Family Medicine - 31 Diabetes – 7 Psychiatry – 6

Telehealth has also enabled community-based access to complementary services such as mobile retinal screening programs.[7] Initiated in 2002 as a KO Telehealth partnership with the University of Toronto and NORTH Network, the tele-ophthalmology pilot project provided retinal screening services in three First Nations communities – Sandy Lake, Keewaywin and Fort Severn. Over a 12 month period, the project screened 186 persons, finding that 14% of the readings had anomalies that required further followup.

An internal partner review validated the benefits of the program and a revised service model was launched in early 2005. The current iteration of the tele-ophthalmology project provides comprehensive diabetic teaching and support services to persons who are screened and directly

[7] Retinal screening provides community-based capacity to detect ocular anomalies. The focus of this work is to identify persons who may have diabetic retinopathy. Diabetic retinopathy is the number one cause of adult blindness in North America and presents in virtually all persons who have had diabetes for 20 years or longer. Retinopathy is also treatable through laser surgery if detected in its early stages. Due to the prevalence of T1 and T2 diabetes among First Nations population and the huge cost of transporting diabetics to Ophthalmologists, community-based screening has been recognized as both a medically efficacious process and a more effective use of existing transportation resources. See, *Diabetes Practice Atlas*, Institute for Clinical and Evaluative Sciences, 2002.

engages community health workers as part of the screening team. The results of the new service model show that almost 80 percent (78%) of the clients were saved a trip out of their community for retinopathy assessment. Further, the network environment within communities supported the electronic transfer of ocular imaging data to the ophthalmology web server – an innovation that reduced specialist response time to just 48 hours.

4 Reducing Patient and System Transportation Burden

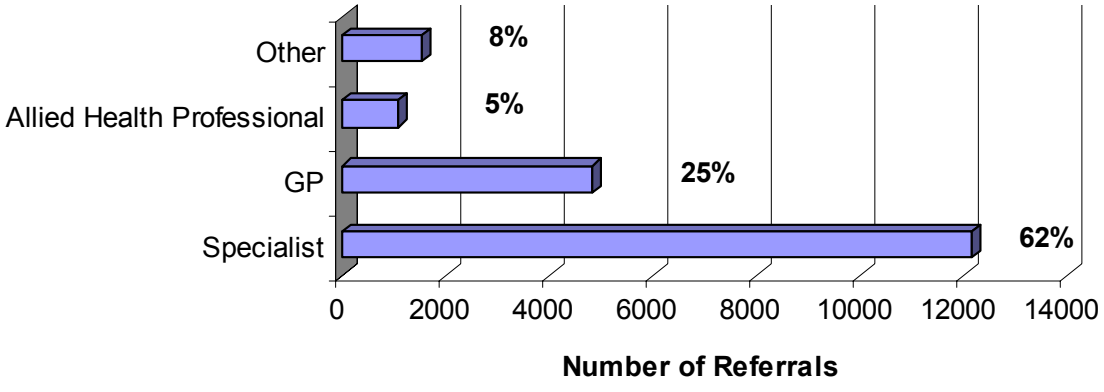
Art therapy is a valuable tool for getting children to open up and talk about difficult subjects like physical or sexual abuse. But for kids and parents living in northern First Nations communities, seeing an art therapist usually means leaving the comfort of home and heading to Toronto or Sioux Lookout. This year Nodin Family Services began offering Art Therapy via telehealth. During the hour long video sessions children draw their pictures on the document camera's light table. The child, parents and therapist use this imagery to understand how and why the child feels the way they do and to develop ways for making life better.

Nancy Greaves, Telehealth Coordinator, Sioux Lookout First Nations Health Authority

4.1 Medical Transportation Data

Like most northern and isolated regions of Canada travel for access to health services has been the rule in the Sioux Lookout Zone, rather than the exception. Although the range of services provided at community clinics – variously classified as health stations, health centres and nursing stations – has expanded[8], access to health professionals routinely has required that the community client fly, drive or take a bus to the regional referral Centre. In the Sioux Lookout Health Zone, these centres are Winnipeg, Thunder Bay, Toronto and Sioux Lookout. By way of example, *Figure Four* describes almost 20,000 medical transports in the Sioux Lookout Zone during the 2002-2003 fiscal year. More than 12,000 trips were made to see medical specialists

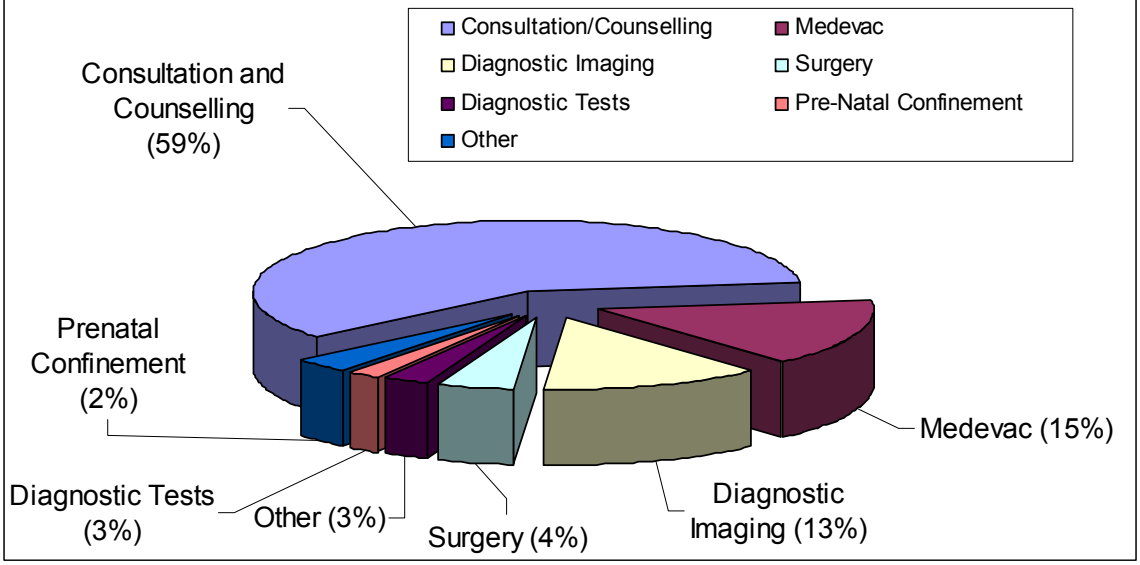
Figure 4: Approved Medical Transport, Specialist Appointments Sioux Lookout Health Zone - April 2002 - March 2003 N=19,924



[8] First Nations Community Health Representatives were integrated with the primary care environment in the 1970s. Since then community health centres have also accommodated Brighter Futures workers, Crisis Team Coordinators, Healthy Babies/Health Children workers, Home and Community Care staff, Maintenance workers, Radiology workers, Medical Transportation clerks, Mental Health and NNADAP workers and Tobacco Prevention workers.

and almost 5,000 additional trips (one-quarter of all approved travel) were made so that community members could see a general practitioner. Figure Five uses the same data to illustrate the reason for medical travel.[9] Notably, fully 15 per cent of all medical travel is captured by medevacs – medical evacuations. [10] Similarly, 16 per cent of travel is related to diagnostic tests and/or imaging. Pre-natal confinement (primarily young mothers leaving their communities prior to their due date), surgeries and other reasons account for eight per cent of transports. Significantly, almost 60 per cent of all medical travel was elective -- categorized as consultations and counselling.

Figure 5: Reason for Health Transport In the Sioux Lookout Health Zone - 1 April 02 - 31 March 03 (N=19,924)



These data show the potential for telehealth services to avoid medical transports and to improve community-based access to elective specialist services.

4.2 Preliminary Telehealth Transport Avoidance Data

Uptake and acceptance of telehealth in Deer Lake, Fort Severn, Keewaywin, North Spirit Lake and Poplar Hill are already demonstrating the value of telemedicine as a way to enhance existing services and make more effective use of existing health and human resources. For example, *Table Six* describes the frequency of clinical telemedicine and educational/training telehealth services in the five KO communities.

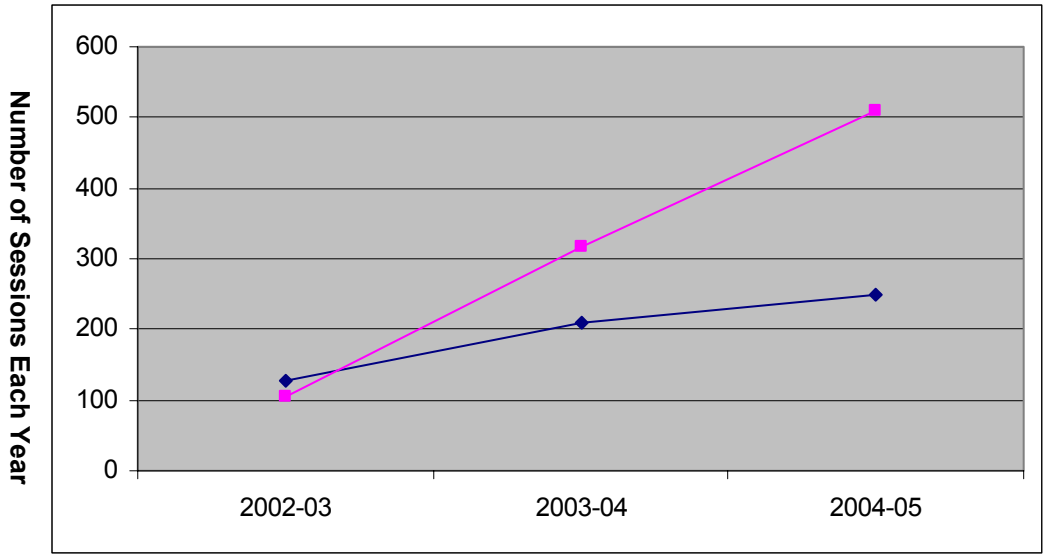
[9] The non-insured health benefits medical transportation budget for the Sioux Lookout Health Zone in fiscal 2002-2003 was approximately $15M dollars, an average of $753.00 per patient transport.

[10] Medevacs are emergency air transports. This is a service provided by the Ministry of Health and Long-term Care. Physicians generally order medevacs in situations where the patient's life or safety is threatened. The high frequency of medevac transport reflects higher rates of traumatic injury among First Nations and the reduced capacity at the Nursing Station to treat and hold seriously ill patients.

Table Six: Telehealth Utilization: 5 KO Communities March 2002 to March 2005				
	Clinical Sessions	Training/Ed	Family Visits	Total
2002-03	113	105	13	231
2003-04	202	318	8	528
2004-05	230	509	19	758
	545	**932**	**40**	**1517**

The data show a 129 percent increase in clinical utilization of telehealth services from the 2002-2003 to the 2003-2004 fiscal years and a 44 percent increase between 2003-2004 and the 2004-2005. Non-clinical utilization mirrors these increases – though in greater numbers. In the 2002-2003 and the 2003-2004 fiscal years, non-clinical utilization increased by 68 percent. In the following year, non-clinical utilization increased by an additional 38 percent. Figure 6 represents growth in service uptake from March 2002 to March 2005.[11]

Figure 6: Year over Year Growth of KO Telehealth Services in the Five Original First Nations: Deer Lake, Fort Severn, Keewaywin, North Spirit Lake and Poplar Hill



These trends demonstrate community acceptance of telehealth services and suggest continued demand for telehealth services in First Nations communities.[12] Similarly, growing familiarity with telehealth by health service providers will support integration of community-based service

[11] By way of comparison, NORTH Network generated a total of ***123*** clinical sessions during its start-up phase (March 98 to May 02). North coordinated 11,253 patient consultations in the 2004-2005 fiscal year.

[12] Using a conservative growth factor of 30% for the five Keewaytinook Okimakanak communities would result in the delivery of almost a 1,000 telehealth sessions in fiscal 2005-2006.

delivery, improve the scale and scope of community-based choices and accelerate adoption of complementary e-Health services and technologies such as electronic health records (eHRs), home-based telemetry and validated web-based First Nations health resources.

5 TURNING THE CORNER – FACILITATING CHANGE AND SERVICE INNOVATION

When Cindy Albany's oldest daughter was just ten years old she was diagnosed with Type II Diabetes. Now that her daughter is 16 Cindy is very familiar with the routines, the treatments and the consequences of this all-too-common chronic disease. That 's why she invited her 9 year old son to a scheduled telehealth diabetes clinic in Big Trout Lake. "I didn't really think he'd come, but he did and he stayed for the whole session. He also seemed interested in what the Diabetic Educator was saying. After the session he asked me about the handouts and what high and low blood sugar meant and how people get diabetes. 'What is high risk?' he asked. We talked about his sister and how diabetes is in the family. We also talked about eating right. On the way home that night we stopped at the Northern Store and he surprised me by buying fruit, yogurt and cheese instead of junk food.

Cindy Albany, Community Telehealth Coordinator, Big Trout Lake

In most Canadian jurisdictions First Nations health services are more or less a distinct sector of the territorial and provincial health systems. Funded largely by Health Canada's First Nations and Inuit Health Branch and delivered through small and often remote community-based clinics, First Nations health programming has taken on a life of its own. Similarly, provincial agencies that are mandated to deliver or support programming for Aboriginal populations often do not have the wherewithal to send staff into remote and northern communities.

Accordingly, deficiencies in federal, provincial, municipal and First Nations/Aboriginal planning processes, service delivery and coordination result in a loss of existing resource efficiencies, gaps in desperately needed health services and a loss in the capacity to implement new and effective best practices towards improving the health and well-being of First Nations and Aboriginal peoples. The disparities in the health status of Aboriginal peoples comparative to the rest of the Canadian population underscore the need for integrating health services so that health service providers can better address health challenges facing Aboriginal communities.

5.1 SERVICE MIGRATION

KO Telehealth facilitates integration between federal and provincial health systems to ensure maximum interoperability (see Appendix E). During the past four years, KO Telehealth has developed in-house migration expertise in multiple domains. Currently, KO Telehealth – through K-Net – is migrating broadband services to unserved communities so that they can link with KO Telehealth – for example, Attawapiskat and Peawanuck First Nations on Ontario's James Bay Coast will be installed this summer. Similarly, KO Telehealth is distributing its service coordination functions, such as telehealth coordination, community engagement, telehealth evaluation and health education moderation, to First Nations staff living in northern and isolated communities.

Interoperability refers to the ability of two or more systems* to interact with one another and exchange information in order to achieve predictable results [*refers to more than technical systems]

Bergman, D. 2000. Telehealth Technical Interoperability Standards. Alberta Research Council.

In addition, KO Telehealth retains a full-time Service Migration Coordinator to telehealth-enable federal and provincial health services currently available only at hospitals or in urban areas. The following programs are currently being migrated to telehealth: services for mentally-challenged adults living on-reserve; FASD assessment follow-ups, psychiatry case conferencing, Eating Disorder Clinics, Art Therapy and access to Traditional healers.

5.2 Knowledge Management and Transfer

The challenge of managing and transferring health knowledge in the northern and isolated First Nations has two dimensions, namely the applied and the research and planning dimensions. The applied dimension addresses the need to keep health service providers informed, skilled and credentialed. Regular community-based access to health education programming builds bridges between health workers and health professionals and facilitates interdisciplinary teams and practice for community-based services.

KO Telehealth has embedded distributed methods of teaching and learning into its new site training and community telehealth coordinator training and continuous quality improvement programming. Accordingly, site coordinators learn their job and participate in regular training sessions via videoconference. Recently this approach was recognized by the First Nations and Inuit Health Branch as a national model for First Nations communities. FNIHB funding supports an Education Coordinator position. In Fall 2004, the Education Coordinator survey community-based health staff and administrators about their learning needs and is using this data to program regular teaching and learning events via videoconference. Direct learning has recently been augmented by webstreaming. This feature now provides health workers to review teaching events and training sessions and archived on the KO Telehealth Website: http://telehealth.knet.ca/index.php?module=ContentExpress&func=display&ceid=231. KO Telehealth has also invested in Macromedia Breeze Webinar software. This tool enables live and archived presentations and structured learning through the use of individual web browsers.

5.3 Sustainability

The sustainability of First Nations telehealth services is distributed across several dimensions, each of them interfacing with sectoral uncertainties (e.g. shifting funding and policy directions and changes in jurisdictional political environments) and process dependent questions – such as capacity of federal/provincial/municipal agencies and departments to collaborate. Currently there is no provincial or federal policy that supports First Nations telehealth programming. Accordingly, KO Telehealth has cobbled together elements of many programs to demonstrate the effectiveness of its community-based service model.

At a fundamental level, telehealth sustainability exists within three domains – network infrastructure, health service integration and coordination and community participation. Each domain presents significant change management challenges and – as a group -- they present an important opportunity for 'turning the corner' for First Nations health and well-being.

5.3.1 Network Services

KO Telehealth relies on K-Net's broadband network infrastructure to support community-based service delivery.[13] The network service model aggregates contributions from network users – health, education, economic development and residential and business subscribers. The aggregator model distributes community risk across a wide range of applications and makes a community-wide service affordable. It also delivers secure network connections to community points of care and provides culturally appropriate technical support to local service providers.

Similarly, this model resources the net cost of operating and maintaining broadband connectivity in small, northern and isolated First Nations communities[14]. K-Net's success in bringing payers to the network demonstrates the value of these services both at the community and service provider level. However, because most of the network contributions are project funded, this model proposes a heightened risk environment for the network as a whole. Accordingly, as projects end, new projects must begin or the network capacity to provide comprehensive services is threatened. Policy and program development could eliminate this network risk for First Nations, thereby securing the infrastructural certainty that telehealth services require.[15]

5.3.2 Health Service Integration and Coordination

The gradual increase in broadband networking services at the community-level highlights the role that service providers and health policy makers play in the on-going sustainability of First Nations telehealth services. Doctors, nurses and traditional healers must use, and policies have to support and enable their participation. Although important barriers such as medical licensure, liability coverage and remuneration have been largely addressed,[16] change management remains an important focus for ensuring that health service providers and clients are able to satisfactorily engage in telehealth activities. The newness of the technology, concerns that it will replace community service providers and that it is less private than face-to-face services and the requirement to telehealth-enable medical and non-medical services prior to their introduction on the network, present a constant challenge for KO Telehealth staff and management.

Accordingly, KO Telehealth has integrated change management into its service model. The organization maintains a full-time Migration Coordinator in Sioux Lookout (the regional health service delivery hub), a full-time Education Coordinator and a Regional Telehealth Coordinator. The Migration Coordinator works directly with new provincial and federal service providers to address barriers and facilitate telehealth access to their client base. The recent addition of Art Therapy as a telehealth service, for example, was a direct result of this process. The Education Co-ordinator works directly with community-based service health administrators and service providers to link their educational and training needs to a regional programming schedule (the Education schedule can be viewed at: http://telehealth.knet.ca/index.php?module=ContentExpress&func=display&ceid=247). Finally, the Regional Telehealth Coordinator works directly with regional service provider agencies, physicians and telehealth network principals to telehealth-enable needed services at the community and regional level. Together, these three individuals promote service provider uptake

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[13] K-Net provides a secure 100 mbps network interface with the provincial telemedicine network at the Sunnybrook and Women's College Health Sciences Centre in Toronto.

[14] The cost of community circuits in remote northern communities is approximately $2,700 per month – or about $32,000 dollars per year.

[15] For example, Ontario's SMART Systems for Health Agency purchases telecommunications services that sustain linkages between its hospital infrastructure and its three telemedicine networks.

[16] Ontario has not yet settled on an OHIP fee schedule. Physicians in Ontario are paid through telemedicine networks on a fee-for-service basis.

and ensure a high level of continuous quality improvement as the network expands its capacity to deliver clinical and wellness services via videoconferencing. Similarly, they provide a practical interface for integrating federal and provincial programming by making these services widely accessible within First Nations communities and enabling system innovation and sustainability through the use of culturally appropriate delivery and design.

At the policy level, sustainability is grounded in the need to make telehealth services a standard of practice and to demonstrate telehealth's capacity to address specific health population needs and system requirements. Sustainability, at this level, is not so much a question of wires and boxes or return on investment, but a series of questions that address system stakeholder interests and system principles…

- The clinical utility of the specific service to be implemented: *Is it good medicine? Does it improve timely decision-making and the delivery of care?*

- The community need for the specific service to be implemented on a community specific basis: *Is there an absence of ability to deliver that service locally?*

- The cost effectiveness of the specific service within the healthcare system: *Is there sufficient demand and sufficient benefit to justify additional resources?*

- The cost effectiveness of the specific service in the aggregate: *Are there additional economic benefits to patients or to the whole economy*?

Provincial policy makers across Canada have answered these questions in the affirmative. Over the past three years, provinces have uniformly accelerated their telehealth programming to address system gaps that standard service models have been unable to address. From Newfoundland – where Canada's oldest telemedicine program is based – to British Columbia – where a telemedicine fee schedule has been recently approved – provinces are building telehealth system infrastructure to make more effective use of existing health resources and to improve access to health information and services for the general population. Following 25 years of pilot projects, telehealth is entering the mainstream as a standard of practice for quality health services at multiple points of provincial care.

Unfortunately, most provincial domains have neither incorporated how telehealth will be able to address specific health needs of vulnerable First Nations populations nor fully considered the health system requirements for provisioning services across underserviced communities. For the time being, KO Telehealth is filling this gap by demonstrating how telehealth improves timely decision making and delivery of care and how it is addressing specific community needs. Similarly, KO Telehealth is modeling a cost-effective, comprehensive and integrated service that can be favourably compared to any telemedicine network in Canada. This work has placed KO Telehealth at the leading edge of research into how cost matrices can capture the full scope of short- and long-term financial savings, reduced patient travel burden and community and health system benefits that flow from of improved well-being among First Nations people.

5.3.3 Community Participation

The third sustainability factor for First Nations telehealth is community acceptance and uptake of services offered. Community-based research in 1999 and again in 2000, indicated that telehealth services – particularly real-time video consultations with physicians and distributed health education and training – were viewed by Keewaytinook Okimakanak First Nations as the single greatest value of having broadband services available in their communities and that their introduction would be welcome.

Community endorsement of telehealth did not come without conditions. Pre-implementation research also highlighted community concerns about telehealth services – a shortlist of 'must haves', 'should haves' and 'could haves'. Many people wondered about the privacy and confidentiality of the videoconferencing sessions and some felt that telehealth should not be used for certain procedures (OB/GYN for example). Nurses identified workload and workflow considerations and physicians reserved judgement on picture quality and diagnostic accuracy of tools such as digital stethoscopy. KO Telehealth built these concerns, and others identified as part of a regional engagement process, into its service model.

Diffusion of the telehealth model has grown in each of the KO communities over the past three years . These increases demonstrate community acceptance and enthusiasm for telehealth services and network success in recruiting community-based health service providers to engage telehealth as part of their practice. This level of acceptance and uptake is also evident in communities that have been connected as part of the KO Telehealth regional expansion phase in the Sioux Lookout Health Zone. *Tables Seven* and *Eight* describe utilization by activity and by site, recording more than 1400 bookings and almost 2,600 sessions[17] across 21 sites during the 2004-2005 fiscal year.

5.3.4 Project Evaluation

The KO Telehealth project has incorporated formative, summative and dynamic evaluation into its service model from the very beginning. This information has supported a best practices and continuous quality improvement environment and has also begun to enumerate the start-up and on-going costs and the service provider and community benefits associated with the introduction of telehealth services in remote First Nations setting. For example, the evaluation of Keewaytinook Okimakanak's first telehealth initiative – a tele-psychiatry pilot project – KO worked directly with the Queen's Centre for Health Services and Policy Research to determine client/provider satisfaction with the service and to unravel the various cost centres within which non-insured health benefits medical transportation funding is distributed (for more information please see Appendix C). In the 2002 release of the final report, Health policy researchers concluded that:

> Clients demonstrated perfect attendance and expressed consistently positive perceptions of the confidentiality and benefits of the service that were maintained over time. The distance created by not being face-to-face with the psychiatrist appears to have helped clients feel comfortable with the psychiatrist. While many clients (60%) indicated they felt nervous during their session, the majority (80%) said they felt comfortable with the psychiatrist asking personal questions of them. Almost all the clients indicated that the psychiatrist had helped them with their emotional problems and that they would recommend the service to people they care about who have emotional problems."

Community client satisfaction was replicated in the University of Toronto's evaluation of NORTH Network's Canada Health Infostructure Partnership Program (CHIPP) project. The 2003 report looked specifically at services in the KO communities and concluded that

> Participants in the patient focus groups in the First Nation's communities were very satisfied with their telemedicine experience and felt that it was increasing access to other health care specialties (e.g. mental health counseling) and was more convenient with respect

[17] Many sites may choose to participate in a single booked event – this primarily relates to education and training sessions – however, it also encompasses events such as case conferencing.

> to time and cost-savings. They valued the program and wanted it to continue. This sentiment was reflected in the comment of one participant who stated "*please don't take away the telemedicine program.*

In 2004, KO Telehealth launched a community engagement process to determine how the service was working for First Nations communities. During that process a number of elders were interviewed and asked to relate their telehealth experience. Joseph Leo Anishinabe – a 69 year old resident of Keewaywin said that he "enjoy[ed] using Telehealth to visit my family and friends that can't come home because the doctor has told them they would get better medical care in the city…It's like the person is right there in the room with you. It's that close." KO Telehealth also launched a more extensive research exercise in 2004. Working in partnership with Laurentian University's Centre for Rural and Northern Health Research and the University of Guelph, KO Telehealth has instituted a process and program evaluation that will determine KO Telehealth's success in meeting its PHCTF objectives and build community capacity to participate in the research process. An on-line video that describes the Evaluation process can be viewed at: http://telehealth.knet.ca/index.php?module=ContentExpress&func=display&ceid=180.

5.3.5 Testing Sustainability

Accordingly, KO Telehealth meets a variety of sustainability tests. It is based on a network services model that provides secure health connections at community-based points of care, distributes the cost of access across a range of users and provides culturally appropriate technical support to community telehealth coordinators. In addition, KO Telehealth has anticipated a key change management role for itself and has dedicated human and system resources to enable the integration of programs and providers for First Nations communities. At the same time, KO Telehealth's service model directly addresses health system principles by improving access to comprehensive and quality care and by meeting longstanding community health and wellness needs. These values are embedded in a commitment to make more effective use of existing health resources and undertake longitudinal cost/benefits analyses.

Finally, KO Telehealth has been successful in its ability to introduce and diffuse telehealth innovations at the community level. Community participation is high – in large part because of the work performed by community telehealth coordinators to shape the service to community needs, promote its use among community leaders, clients and administrative bodies and facilitate sessions at busy Nursing stations. Community members understand the ways that telehealth has positively changed the local health service access environment and are eager to see the service expand.

Still, telehealth exists in a policy and program vacuum. It is largely sustained by project funding, extensive collaboration among First Nations health service agencies, strategic partnerships, and directly by First Nations who contribute what they can to keep local broadband networks on-line.[18] While it meets or exceeds numerous sustainability tests, KO Telehealth has no programmatic means of ensuring that services will continue at the end of its current project. This reality presents an issue of wide ranging significance for Ontario First Nations and for Aboriginal communities seeking to 'turn the corner' right across Canada. It also signals the need for tri-partite collaboration so that investments made in developing, implementing and integrating First

[18] INAC does not recognize telecommunications/broadband network services as an O&M line item.

Nations telehealth service innovations are available to address the clinical and social determinants of health for First Nations communities.

Table Seven: KO Telehealth Network Utilization by Activity – April 2004 to March 2005								
Mth	**Clinical Consults**	**Health Admin Meetings**	**Education Sessions**	**Family Visits**	**Demos**	**Training**	**Tests**	**Total**
Apr	61	12	15	1	0	22	1	112
May	63	10	17	2	2	15	2	111
June	65	16	13	4	10	28	6	142
July	50	10	1	0	1	15	7	84
Aug	33	12	1	1	2	21	3	73
Sept	62	18	16	1	2	38	3	140
Oct	43	18	36	1	2	27	6	133
Nov	40	11	33	1	6	14	2	107
Dec	37	6	10	2	5	10	1	71
Jan	46	24	30	2	10	27	5	144
Feb	56	31	41	2	1	19	1	151
Mar	51	16	45	2	8	31	6	156
Total	607	184	258	19	49	267	43	1427

Table Eight: KO Telehealth Network Utilization by Site – April 2004 to March 2005[19]																					
Mth	**BM**	**BT**	**CL**	**DL**	**FS**	**KS**	**KW**	**KF**	**MI**	**NO**	**NC**	**NS**	**PH**	**RL**	**SL**	**SH**	**SLKT**	**WB**	**WP**	**WN**	**KNet**	**Total**
Apr	22	0		22	8	0	15	8			0	3	12	0	12	0	40		1	0		143
May	21	0		21	6	0	7	3			0	5	11	1	8	0	46		5	3		137
June	36	0		22	10	0	7	17			0	4	10	5	11	1	57		11	11		202
July	18	4		8	3	0	10	4			2	4	2	0	11	0	33		10	5		114
Aug	25	3		7	0	0	3	5			6	2	5	0	5	0	26		1	6		94
Sept	52	3		11	7	0	7	23			5	8	10	2	16	0	49		11	1		205
Oct	44	8		9	9	10	8	14			9	11	14	1	18	1	61		11	10		238
Nov	33	9		11	14	5	4	13			8	12	8	0	12	1	57		17	11	2	217
Dec	20	4		9	11	4	11	8			7	2	5	0	9	0	19		6	4	6	125
Jan	46	11	2	17	13	9	13	14	15		7	9	16	1	18	4	52		12	10	44	313
Feb	41	9	7	26	22	22	12	17	21	2	19	23	17	1	17	4	74		18	23	43	418
Mar	65	14	17	28	14	25	21	28	17	2	6	20	15	0	17	0	48	1	20	13	25	391
Total	423	65	26	191	117	75	118	154	53	4	69	103	125	11	154	11	562	1	123	97	120	2602

[19] Key: **BM** – Balmertown, **KW** – Keewaywin, **PH** – Poplar Hill, **WP**– Wapekaka, **BT** – Big Trout Lake, **KF** – Kingfisher, **RL** – Red Lake Hospital, **WN** – Wunnumin, **CL** – Cat Lake, **MI** – Mishkeegogamang, **SL** – Sandy Lake, **KNet** – Community Health Worker Education/Training, **DL** – Deer Lake, **NO** – NODIN (Sioux Lookout Fist Nations Health Authority), **SH** – Shibogama Tribal Council, **FS** – Fort Severn, **NC** – North Caribou Lake, **SLKT** – Menoyawin Health Centre, **KS** – Kasabonika , **NS** – North Spirit Lake, **WB** – Webequie. Check all fonts here

6 List of Appendices

7 Appendix A: Health Council of Canada Advice and Recommendations

ADVICE - Overall

The First Ministers' focus on reducing health disparities is important and Canada has invested in a number of promising initiatives. This work should be given a high priority and we recommend the following:

1) Broaden the Healthy Living Strategy to move beyond lifestyle issues to focus on health disparities and engage sectors beyond health to contribute to reducing the gap. The contribution of non-health organizations and sectors is central to this discussion. They are necessary partners.

2) Engage Canadians in understanding the importance of non-health care factors in determining individual and community health. Use strong language. Health disparities are the number one health problem in the country and health care alone is powerless to overcome them. The health disparity between groups in Canadian society and the impact of the gap must be reported and highlighted. This is a difficult message to get across in the current environment where the public is pre-occupied with funding for health care. But it needs to be done.

3) Set targets for reducing health disparities and build a health disparity focus into the comparable health indicators process. Place a particular focus on reducing health disparities between Aboriginal and other Canadians.

ADVICE – Aboriginal Health

We recommend the following:

1) Develop an Aboriginal health work force to improve service delivery in the North — linguistic and cultural issues can be addressed and services can be provided closer to home.

2) Target education programs at Aboriginal youth to encourage them to consider a health career.

3) Develop health professions training programs that recognize traditional Aboriginal healing practices and are focused on providing services to northern and remote communities.

4) Develop primary health care models to address the broader social determinants of health which are particularly relevant to Aboriginal communities.

5) Accelerate the use of information technology to improve services in Aboriginal communities.

8 Appendix B: KO Telehealth Education and Training Schedule

Date	Time(CST)	Presenter	Topic
Dec 1	10:00-11:00	KO/Dr.Edye	SuicideRisk Assessment
Dec8	10:00-11:00	KO/Dr.Edye	SuicideRisk Assessment
Dec 15	10:00-11:00	KO/Dr. Edye	Schizophrenia
Jan6	3:00 - 4:30pm	KO/MaryEllen Johnson	Carefor theCaregiver
Jan12	10:00 - 11:00am	KO/Dr. Fran Edye	Schizophrenia
Jan13	3:00 - 4:30pm	KO/Canadian Diabetes	WhatisDiabetes?
Jan18	3:00 - 4:00pm	KO/Karen Thorne	TimeManagement and
Jan19	10:00 - 11:00am	KO/Dr.Fran Edye	Schizophrenia PartII
Jan20	3:00 - 4:00pm	KO/EmilyGregg	AHealthyPregnancy AHealthy Baby
Jan27	3:00 -4:30pm	KO/Canadian Diabetes	Preventionof Diabetes
Jan28	11:00 -1:00pm	KO/M. Desrochers	EldersLuncheon: NutritionAwareness
Feb 2	10:00 - 11:00am	KO/Dr.Fran Edye	Depression
Feb3	3:00 - 4:00pm	KO/EmilyGregg	AHealthyPregnancy AHealthy Baby
Feb8	3:00- 4:00pm	KO/Lorraine Carter	MakingEffectivePresentations byVideo Conference
Feb10	3:00 - 4:30pm	KO/Canadian Diabetes	LivingWell
Feb 15	3:00 - 4:00pm	KO/RuthLondry	Dementia:Myths and Realities
Feb 16	10:00 - 11:00am	KO/Dr.Fran Edye	Depression
Feb 17	3:00 - 4:00pm	KO/EmilyGregg	AHealthyPregnancy A Health Baby

Date	Time(CST)	Presenter	Topic
Feb 22	9:00 -10:00am	KO/Margaret Lawson	Understanding&Translating MedicalTerminology into Ojibway&Oji-Cree
Feb 23	10:00 - 11:00am	KO/Dr.Edye	Depression
Feb 24	3:00 - 4:30pm	KO/Canadian Diabetes	DiabetesResources
Feb25	11:00 -1:00pm	KO/M. Desrochers	EldersLuncheon: Nutrition Awareness
Feb 28	1:30 - 3:00pm	KO/Carmen Blais	HBHC Tracking Template: ReportingRequirements
Mar1	9:00 - 11:00am	KO/Margaret Lawson	Understanding&Translating MedicalTerminology into Ojibway&Oji-Cree
Mar1	3:00 - 4:00pm	KO/EmilyGregg	HealthyPregnancy, HealthyBaby Part 2
Mar3	3:00 -4:00pm	KO/Keith Graber	Introductionto Basic First Aid
Mar8	9:00 - 11:00am	KO/Margaret Lawson	Understanding&Translating MedicalTerminology into Ojibway&Oji-Cree
Mar8	3:00 - 4:00pm	KO/EmilyGregg	HealthyPregnancy, HealthyBaby Part 2
Mar9	10:00 -11:00am	KO/Dr. Edye	AntiDepressants
Mar9	2:00 - 4:00pm	KO/Sandra Brown	Crisis Team Coordinator:Annual Submission&Quarterly Reporting
Mar15	9:00- 11:00am	KO/Margaret Lawson	Understanding&Translating MedicalTerminology into Ojibway&Oji-Cree
Mar10	3:00 - 4:00pm	KO/KeithGraber	Introductionto Basic First Aid
Mar17	3:00 - 4:00pm	KO/KeithGraber	Introductionto Basic First Aid

Date	Time(CST)	Presenter	Topic
Mar22	9:00- 11:00am	KO/Margaret Lawson	Understanding&Translating MedicalTerminology into Ojibway&Oji-Cree
Mar23	10:00 - 11:00am	KO/Dr. Edye	AntiDepressants
Mar23	2:00 - 2:30pm	KO/Aileen Malcolm	The Day the Animals-Learned About Diabetes
Mar29	9:00 - 11:00am	KO/Margaret Lawson	Understanding&Translating MedicalTerminology into Ojibway&Oji-Cree
Mar30	10:00 - 11:00am	KO/DrFran Edye	DepressionTherapies
Mar31	8:00 - 9:00am	KO/Donna Williams	Telehealthfor Nurses
Mar31	3:00 - 4:00pm	KO/Sheryl Mitchell	Women on the Web
Apr5	10:00 - 11:00am	KO/Sheila Wilson	Sign Language: Talking Hands
Apr6	10:00 - 11:00am	KO/DrFran Edye	DepressionTherapies
Apr7	10:00 - 11:00am	RuthLondry RN	Dementia:Types, Testing & Medications
Apr12	10:00 - 11:00am	KO/Sheila Wilson	Sign Language:Talking Hands
Apr13	10:00 - 11:00am	KO/DrFran Edye	HealingOld Traumas
Apr14	8:00 - 9:00am	NancyMuller RN	TeleOphthalmology Project
Apr14	9:30 - 11:00pm	KO/KathyHusack	FamilyViolence: TheImpact on Children whoWitness
Apr19	10:00 -11:00am	KO/Sheila Wilson	SignLanguage:Talking Hands
Apr20	10:00 - 11:00am	KO/DrFran Edye	HealingOld Traumas
Apr21	9:30 - 11:00am	KO/GwenMedicine	HIV,AIDS: Information and Update
Apr26	10:00 - 11:00am	KO/Sheila Wilson	SignLanguage:Talking Hands

Date	Time(CST)	Presenter	Topic
Apr28	9:30 - 11:00amKO/Armin Schatzler		Street Drugs, What to Lookfor: A Guide for Health Professionals
May3	10:00 - 11:00am	KO/Michael Morrison	Suicide Intervention & Prevention
May4	10:00 - 11:00am	KO/Dr.Edye	Relaxation Techniques
May5	10:00 - 11:00am	KO/Aileen Malcolm	TheDay the AnimalsLearned AboutDiabetes
May10	10:00 - 11:00am	KO/Michael Morrison	Suicide Intervention & Prevention
May12	9:30 - 11:00am	KO/Donna Stanley	ReducingInfection in the home
May17	10:00 - 11:00am	KO/Michael Morrison	Suicide Intervention & Prevention
May19	9:30 - 11:00am	KO/Ashley Korobanik	Physical Activity for Elders & Elder Visitation
May24	10:00 - 11:00am	KO/Michael Morrison	Suicide Intervention & Prevention
May26	10:00 - 11:00am	KO/Steve Fonso	RiskFactors forHeart Disease & Stroke
May31	10:00 - 11:00am	KO/Michael Morrison	Suicide Intervention & Prevention

9 APPENDIX C – 2002 KO TELEPSYCHIATRY PILOT PROJECT EVALUATION REPORT

The 122 page report is available as a PDF Document at:

http://knet.ca/documents/KO-Telepsychiatry-Report-2002-12-21.pdf

Appendix D: Evaluation Framework – PHCTF

Evaluating the KO Telehealth initiative's contribution to Aboriginal primary health care renewal

KO Telehealth is a needs-based program organized to respond to clinical and non-clinical health service gaps identified by health care providers and people in each community. Because needs identified in one community cluster may be far different from those in another, the proposed evaluation framework will provide the flexibility to capture baseline and prospective data from each cluster. For example, the evaluation strategy will be able to document the impact of the delivery of telehealth services in large First Nations such as Sandy Lake as well as the utility of telehealth in relatively small communities such as Wapekeka. The project is also proposing to include a specific First Nation population research project with Health Canada, the Northwestern Ontario District Health Council, the Red Lake Hospital, the Ministry of Health and Long term Care and the Keewaywin First Nation.

The proposed KO Telehealth expansion project will allow evaluation to proceed on three levels:

1) implementation evaluation, achievement of technical success
2) process evaluation, assessment of use of the system, and
3) outcome evaluation, assessment of the impact of the system on the delivery of health services.

Levels 1 and 2 will be conducted as the project expansion proceeds and will provide critical information to PHCTF regarding the success or failure of the expansion. Level 3 will proceed as a research project, with a view to developing measurement and evaluation tools that can be used to assess the impact of telemedicine services. An integral component of the PHCTF project will be development of data standards which will greatly enable outcomes research in this field.

Implementation Evaluation
Implementation will be assessed for each of the components of the expansion. Objective success factors will be specified for each component *a priori*. For example, does each new site have the appropriate equipment installed properly and functional. Most of the information required for the implementation evaluation will be collected as part of project management. However, there will be the need for some information to be collected through focus groups and interviews with participants. This will be particularly true when success is not achieved in implementation, and the evaluation must assess the reasons for this so lessons can be learned and communicated for future projects.

Process evaluation
For each of the components operational measures to assess the function of the system have been developed. Measures include: satisfaction with consultations on the part of patients, referring physicians and consultants; or time required for scheduling. These measures were identified in collaboration with the NORTH project team during the CHIPP demonstration project. Some measures, such as timeliness, will be generated from the system's existing data, most require special data collection. For example, satisfaction is assessed through ongoing surveys.

Impact evaluation
This component of the evaluation represents the biggest challenge. Many of the questions raised by the PHCTF objectives relate to the impact of the system on primary care health services. These questions will be addressed by a program logic model – a tool that is often used in program

evaluation to assess such links. The model links the components of the program to process measures, and then the process measures to outcomes. Specific target populations must be identified for each component.

Many health care outcome measures, such as accessibility to health services, can be affected by several different factors. Thus the measures have to be selected carefully, so they are specific to the intervention being evaluated. In the case of telemedicine systems this is critical, since the system can only play a limited role in many episodes of illness. A patient with end-stage renal failure needing health provider support for peritoneal dialysis may have a more timely consultation as a result of telehealth being available, however, the major impact on quality of life will come from the kidney transplant.

KO Telehealth will work with the external evaluators to develop a program logic model. Based on this model specific outcome measures will be selected and measurement tools will be developed. As part of the program of research, the tools will be assessed for feasibility, reliability and validity. Thus the result will be a detailed 'toolkit' that will be used for the impact evaluation of the KO Telehealth service and, perhaps, for other First Nations telehealth initiatives.

Preliminary Activity Data Collection Matrix		
Item	**Data Source**	**Indicator[20]**
• Approved Medical Travel (frequency)	• Non-Insured Health Benefits/KO Health Services	• Extrapolate historical baseline for pre-implementation period (May 2003 to April 2004)
• Estimated Cost of Medical Transport	• Non-Insured Health Benefits/KO Health Services	• Baseline (May 2003 – April 2004) establish a categorical medical transport cost metric that reflects mean cost of medical travel by specialty in the Sioux Lookout Health Zone.
• First Nations Health Status	• KO Health Status Working Group (KO First Nations, Red Lake Hospital, Northwestern Ontario District Health Council, Health Canada Public Health Unit, SLFNHA)	• Protocol established to extract hospital separation data for First Nation patients by March 2005.
• Integration with regional First Nations health systems	• Telehealth Steering Committee • Telehealth Professional Advisory Committee	• MOU to migrate telehealth services to a regional health organization is in place by 3rd Quarter 2005. •
• Existing community-based primary care services and health service workers;.	• Community Consultation, visiting professional programs data	• Pre-implementation baseline of primary care services and health service workers.

[20] All dates refer to federal fiscal quarters (Q1=April-June; Q2=July-September; Q3=October-December; Q4=January-March)

Preliminary Activity Data Collection Matrix		
Item	**Data Source**	**Indicator[20]**
• Estimated value of telehealth investment	• KO Telehealth/Health Canada	• Travel Cost metric by monthly consults
• Estimated Patient Cost Savings	• Patient Questionnaire (Q14-19)	• Participants identify telehealth savings
• Provincial telemedicine infrastructure investment	• Ministry of Health/NORTH Network	• Baseline infrastructure metric established quarter: contribution of network integrator/hospitals.
• Coverage	• On-reserve population data and KO Telehealth logs	• Population using telehealth each month is > or = one percent of population by 3rd Qtr 2006. • Number of scheduled consults each month is > or = 150 by the 3rd Qtr of 2005.
• Timeliness	• KO Telehealth logs/NORTH Network Central Scheduling office	• Time to access service providers using telehealth is < or = average time required to receive care in a face-to-face consult.
	• KO Telehealth logs	• Spontaneous consults (Health Centre to Nursing Station/ Nursing Station to On-call physician) occur once or more per site/week by end of project term.
	• KO Policies and Procedures	• Trauma telemedicine protocol developed and implemented by end of project term.
• Priority Services	• Telehealth Service Integraton Priorities Report	• Report adopted at joint Health Services Provider workshop - 3nd Qrtr 2004
• Enhanced Access to Existing clinical programs	• KO Telehealth logs/Service provider questionnaires	• Telehealth used at least once per month to augment community-based delivery of existing services (e.g. Sioux Lookout Diabetes program, Nodin Counselling, TB Methadone program).
• Comprehensiveness and Service Integration	• KO Telehealth logs/NORTH Network Central Scheduling office	• Service providers accept 90 percent of all telehealth consults requested. • More than 20 distinct services use telehealth by the end of

Preliminary Activity Data Collection Matrix		
Item	**Data Source**	**Indicator**[20]
	• Interviews with physicians providing services to KO First Nations. • Radiology logs	project term. • Team conferences account for 5% of all monthly scheduled sessions by the end of project term. • Telehealth integrated into the service model at the Menoyawin Health Centre and the Red Lake Hospital. • Teleradiology used for 100% of digital imaging in Fort Severn, Deer Lake and Menoyawin Health Centre.
• Educational and Training Services	• KO Telehealth logs • Provider Satisfaction Evaluations	• 90% of Nursing Stations participate in scheduled CME and CHE programming • Telehealth is utilized as a training tool for community-based health services staff: (Child & Family Services, NNDAP, Community Futures, Homecare, Health Babies/Healthy Children) by end of project term. • Zone Nursing Program is delivering quarterly CNE to community based Nurse Practitioners before the end of the project term.
Quality of Service	• K-Net monthly network utilization records • NORTH Network Remedy Database	• Community-based terrestrial videoconference bandwidth is 1 Mbps or better for each telehealth session. • Community-based satellite videoconference bandwidth is 512 Kbps or better for each telehealth session. • Videoconference bridging services connect up to 24 simultaneous sites.
Troubleshooting	• NORTH Network Remedy Database	• Average level 1 response time (problem to solution) is less than 1 hour. • Average level 2 response time (problem to solution) is less

Preliminary Activity Data Collection Matrix		
Item	**Data Source**	**Indicator**[20]
		than 8 hours. • Average level 3 response time (problem to solution) is less than 24 hours.
• Cost	• Vendor Research and published tariffs	• Cost of comparable bandwidth is < or = managed services provided by regional vendors.
• Traffic	• Secure Network Monitoring Protocol (SNMP)	• Traffic is < or = 5kbps/site per 24 hour period
• Service integration	• FNIHB e-Services	• K-Net and FNIHB/HC Informatics and Connectivity Branch (Ontario/Nunavut) sign a scalable Service Level Agreement on or before the end of the 2nd Quarter. • 100% of KO Nursing stations/Health Centres are ready to deliver FNIHB Nursing portal & FNHIS services by end of project term.
Patient Satisfaction	• NORTH Network Patient Satisfaction Questionnaire • NORTH Network Focus Group Interviews. • Staff Training	• Majority of patients feel that telehealth provides faster access to consultant services. • 85% or more patients agree or strongly agree that their telehealth session was satisfactory (Q11). • 85% or more patients would be pleased or very pleased if their family physician suggested that they have another appointment by telehealth (Q13).
Service Provider Satisfaction	• KO Health Professional Questionnaire - delivered to all first time providers. • NORTH Network Focus Group Interviews	• 100% of all new providers complete the Health Professional questionnaire. • 80% or more of all new providers are able to identify something that they enjoyed about their telemedicine session (Q5).

Preliminary Activity Data Collection Matrix		
Item	**Data Source**	**Indicator**[20]
		• 80% or more of all new providers are able to identify ways that their telehealth experience could be improved.
• Community Satisfaction	• Kuh-ke-nah SMART First Nations Community Engagement Process • Staffing	• Telehealth rated in the top 3 e-services delivered in the SMART First Nations project in each of 3 years. • 100% of CTC staffing is local
• Quality Assurance	• KO Personnel Records	• 25% or less staff turnover each year. • 100% of KO Community Telehealth Coordinators have completed the CTC training program. • 100% of KO Community Telehealth Coordinator Backups have completed the short-backup course. • 75% or more of all staff are of Aboriginal ancestry. • 100% of all management are of Aboriginal ancestry.

10 APPENDIX E: INTEROPERABILITY GUIDELINES – CANADIAN SOCIETY OF TELEHEALTH

- **Quality of health service provided is paramount**

- **Compliance with principles of Canada Health Act**

Any clinical standards or guidelines for using emerging technologies for clinical activities must comply with relevant legislation, regulations and other instruments including the Canada Health Act. The design of any telehealth or ehealth initiative should demonstrate consistency with the federal government's commitment to universality, accessibility, comprehensiveness, portability and public administration of health care services.

- **Full disclosure**

Patients should be provided with understandable information that explains how telehealth or ehealth technologies work and what is involved in their clinical application. Patients who are the recipients of telehealth/ehealth interventions should be informed of the potential risks (e.g. limitations to securing transmissions over network) and benefits. They should be given the choice to participate and be asked for their consent (at least verbally) before any telehealth/ehealth intervention . They should be respected if they wish to refuse participation and be given the choice to end their participation at any time and choose an alternative option.

- **Emphasis on security and privacy**

The increasing use of telecommunications technology in the delivery of health care raises new questions about issues of privacy, confidentiality and security of health information. Adequate privacy and security protection measures for health information should be an integral part of the development of telehealth programs. The following are fundamental measures that need to accompany the initiation of this technology in patient care:

- previously established confidentiality and privacy protections of health information must be maintained as well as scrutinized to establish if they are sufficient for telehealth

- provision of appropriate storage and security of telehealth medical records

- patient access to information generated through telehealth is guaranteed

- the recording and/or dissemination of patient data or identifiable patient images will be controlled by the explicit consent of the patient

- patients are informed if other individuals outside the health team (e.g. technical staff, observers) are involved

- physical security measures when equipment is not in use

- confidentiality clauses in employees' contracts

- appropriate training of employees regarding confidentiality

- individuals who violate established privacy, confidentiality and security regulations and misuse information will be subject to enforceable penalties

- **Safety**

Telehealth/ehealth technologies and processes must comply with equipment and safety standards. Procedures should be written and in place to clean and maintain equipment according to facility health and safety codes and infection control standards. Safety instructions should be given to healthcare staff and/or patients regularly.

- **Risk management plan**

The deployment of new technology and new processes into the clinical setting inevitably encounters obstacles and problems. Some of these 'uncertainties' or risks are predictable and can be systematically managed to increase the likelihood of meeting project or program objectives. Risk management involves the identification of potential risks, the assessment of the potential impact and the degree of likelihood, and the development of mitigation strategies to reduce risk. In the process of telehealth/ehealth implementation, new risks – both big and small – will continually emerge and program managers must be prepared to monitor and respond to these risks on an ongoing basis. Positive, creative problem-solving helps build strategies to best meet these challenges.

- **Backup system for technology failure**

Responsible staff should demonstrate the ability to correctly use the technology and troubleshoot common problems. Written troubleshooting guidelines should be available and a plan for follow-up should be established if problems are not resolved quickly. A contingency plan should be developed to provide alternatives in the event of significant equipment failure (e.g., access to an in-person visit in the case of a failed teleconsultation or over-ground transport of diagnostic images for interpretation in the case of teleradiology).

- **Technologies should not be used to replace needed access to in-person health care services**

The strength and promise of telehealth lies in providing increased access to health care services by augmenting existing services, not in replacing them. The potential abuse of these technologies by providing a substitute for in-person care needed in homes, communities, schools, nursing homes, hospitals and other settings requires the development and enforcement of standards that ensure these technologies will be used appropriately. E.g. Position Statement on the Use of Videoconferencing Technology in Queensland Mental Health Services *"Wherever possible, the MHS conducts face-to-face assessments but may use telephone and video technologies where this is not possible due to distance or the consumer's preference."*

- **Protocols or guidelines must not replace clinical judgement**

The use of new technologies has also allowed the increased use of protocols for triage, consultation and advice by telephone or computer. The use of protocols, standardized guidelines or computerized algorithms should not be allowed to substitute for the independent assessment and judgement of healthcare providers who extend the assessment process to obtain contextual and situational information and will determine whether a particular guideline fits a specific patient's condition and needs.

- **Evaluation is essential**

Neither healthcare nor technology is static. Systematic ways of evaluating and monitoring the impact of social, economic and technological change will always be needed. Research on the outcomes and effectiveness of new and established healthcare technologies is critical to successful program building.

Emphasis should be placed on evaluation early on to ensure that evaluative data is reliably collected and to allow the prompt identification of applications or processes that are not successful. Controversy surrounds the measures by which programs can best be evaluated. Performance measures such as quality, satisfaction, cost, time, and patient outcomes all provide meaningful input to others building and optimizing telehealth programs.

Specific to Telemedicine Programs with Interactive Consultations:

- **Equivalent Standard of Care**

Patients must be provided with the equivalent standard of health care as would be delivered in a face-to-face clinical consultation.

- **Maintenance of Existing Referral Patterns**

Successful telehealth programs strive to make telehealth complementary rather than competing with traditional healthcare service delivery in a community or region. By maintaining existing referral patterns, telehealth is able to capitalize on already well established relationships and avoid over-burdening of some specialists.

- **Comprehensive Services**

The physician and hospital services provided under a telehealth program should be insured health services as defined by the Canada Health Act. There should be no fees charged to the patient for using telehealth services.

- **Local Leadership/Champions at Every Site**

Are clinicians involved at consulting and remote sites amenable to telehealth? Getting staff comfortable and committed to using telehealth technology is a necessity; otherwise, the program is likely to fail. Local physician (and other) champions are able to overcome resistance among their peers more effectively through discussion of issues and concerns and by practical demonstration of clinical applicability. Ongoing promotion of telehealth is critical to building utilization and sustainability of a program or network.

- **Staff at every locale**

Dedicated staff is essential to the success of a telehealth program. Each telehealth site should have a Telehealth Coordinator who is responsible for the following:

- respond to telehealth inquiries
- ensure end-users are adequately trained
- coordinate and schedule access to telehealth equipment
- regularly check equipment to ensure optimal functioning
- maintain security of equipment
- identify clinical needs that may be met through the use of telehealth
- conduct telehealth awareness and promotional activities
- inform and support patients during teleconsultation
- maintain telehealth transaction logs and equipment repair and maintenance records
- ensure completion of user and client evaluation surveys

- **Turnkey Technology Management**

Successful technology implementation requires a broad range of skills that must be provided by the vendor, the client, or outsourced elsewhere. To reduce cost and complexity, healthcare consumers are

looking for easier-to-deploy products and total solutions to ensure that they can get up and running quickly and start getting value from their investment.

- **Integration of electronic information, video, images, data, HER into a single package**

The introduction of multiple technologies into healthcare facilities has typically resulted in 'silos' of activity – teleradiology in the DI department, an HIS system managed by the IT department, videoconferencing in the administrative boardroom, etc. Similarly, limitations of telehealth technology to date have not allowed for the easy integration of different levels of functionality (videoconferencing, store-and-forward, patient information or sheduling, etc.) into a single platform. Future development will see much greater integration of products and programs to achieve optimal management of and access to patient information.

- **Network User Education and Promotion**

Education and training is an important aspect of any telehealth service as it will promote more reliable and effective use of the equipment as well as provide the information necessary to address staff and patient concerns. Minimum training for endusers should include a demonstration on how to use the equipment, trial usage of the equipment, and usage in specific clinical applications. A user's guide for the equipment and other educational information should be provided at each site. Additional training as well as telehealth awareness and promotional activities for healthcare workers should be ongoing in order to facilitate network utilization and evolution. Educating the patient population can be a powerful way to stimulate and increase the demand for the new opportunity of receiving specialty care within their own community.

- **Payment of Fee-for-Service Practitioner**

A long standing barrier to utilization in telehealth has been the lack of physician reimbursement for services delivered over this medium. Physicians in Nova Scotia, Newfoundland, Saskatchewan, Manitoba and Alberta are currently able to bill their Provincial Health Plans for most teleconsultation services from approved sites. With the goal that telehealth be fully integrated into our healthcare delivery system, care providers must receive remuneration for telehealth services. In the absence of a fee schedule, facilities should be prepared to explore alternative methods of payment such as sessional fees or service contracts. A number of variables should be considered in establishing a fee schedule such as the fact that teleconsultations typically take longer than in-person assessments and the frequency of no-shows.

- **Central Administration**

Effective program management is the key to utilization and long-term sustainability of telehealth networks. The role of a program management team is to promote and manage the network including the following responsibilities:

- Strategic planning: vision, network evolution, policy
- Operations: scheduling, technical service/support, budget, evaluation, quality improvement, service contracts, support for site coordinators
- Governance: responsibility/accountability, policies and procedures
- Promotion: build awareness of the network, liaison with content experts, clinical program development and delivery, promote utilization

Central management can provide the ability to recognize greater efficiencies in program delivery.

11 APPENDIX F: KO TELEHEALTH AS IT RELATES TO WHO DETERMINANTS OF HEALTH

Project Review: KO Telehealth/K-Net Network Services Capacity to Meet Meeting Key Determinants of Health for First Nations

Prepared by: Donna Williams, Regional Telehealth Coordinator, KO Telehealth

Income and Social Status

Factors influencing the income and social status of First Nations include employability, skills building, and economic development opportunities available within their home and community. Telehealth is a tool to bridge resources and build capacity within remote communities to affect income and social status. Some examples that are currently implemented include:

- **Skills building for Community Telehealth Coordinators, Community Health Workers and Technical Support Personnel- Transferable skills development improves employment options**
- **Technical skills built at community level- equipment installation, Ethernet cabling, technical support for Telehealth equipment, computer, community network**
- **On-line business opportunities**

Social Supports Network

Support from families, friends, communities and colleagues is associated with better health. Telehealth is utilized to link families over distance. Some examples include:

- **Family visits – Scheduled visits with family members in long term hospital care. Reduce isolation for both hospitalized patients and decreases worry for community members who can not afford travel to visit hospitalized family members**
- **Elders' Luncheon Series– Connecting Elders via the Telehealth Network**
    - **share stories, cook healthy meals and visit**
- **Case conferences for Elder care – building support networks for high needs patients – allows them to remain in community**
- **Personal web pages – a tool to keep youth connected to family and community while away at larger centres for secondary and postsecondary education**

Education

Health status improves with level of education. Education increases job security and options for employment are known factors that influence health. The Health Council reports that "Significantly more Aboriginal students do not complete high school as compared to all Canadians", 2005, p. 5. Often this gap is due to geographical and financial barriers to accessing further education. Some applications of the technology utilized to address education include:

- **Keewaytinook Internet Highschool – successful model of educating youth while remaining in community**
    - **Successfully implemented in communities in Sioux Lookout Health Zone, Thunder Bay Zone and Moose Factory Zone**
    - **Model transferable to other Provinces, Treaty areas, and Health Zones – Manitoba will implement similar model in Fall of 05**

- **Continuing education for community health workers – Community Health Representatives, Mental Health Workers, HBHC Workers, Personal Support Workers, Home Care Coordinators, etc.**

Future applications include working with educational institutions to create certification programs for health programs to be delivered via Telehealth. It is also essential to integrate Health Canada FNIHB programming to utilize training, professional development and peer support opportunities available over the network. KO Telehealth currently has an Education Coordinator facilitating this Telehealth application.

Employment/Working Conditions

This determinant of health is closely tied to income and social status. Unemployment, underemployment and stressful work are associated with poorer health. Telehealth can be used to improve work environments by providing support and capacity to health workers.

- **Administrative support for health programming – weekly videoconferencing support for programs**
- **Peer support – supports best practice**
- **Case Management – supporting community health workers dealing with complex health cases.**
- **Community economic development/employment possibilities**

Social Environments

Social environments refer to the values and norms of society and affect the health of populations, particularly marginalized groups within society. First Nations input into service delivery is essential to successful health outcomes associated with Telehealth.

- **Recognition of diversity for First Nations Telehealth Network**
- **KO Telehealth FN driven**
    - **Community consultation incorporated into model of service delivery**
- **Cultural norms integrated into Telehealth model**

Physical Environments

The physical environments in which people live have a more tangible influence on health status. Promoting injury prevention initiatives and safe environments impact healthy lifestyles.

- **Public health education on topics such as mold, SARS, MRSA Virus**
- **Injury prevention education – safe school grounds, bicycle safety**
- **Future applications**
    - **All season road planning – linking Provincial, Federal, Municipal and First Nations jurisdictions to facilitate planning**
    - **Support water treatment plant operators**

Personal Health Practices and Coping Skills

Telehealth can facilitate environments that enable and support healthy lifestyles. Affecting change through knowledge exchange to promote positive coping mechanisms and to reinforcing positive behavior which key to influencing health outcomes. Some examples include;

- **Mental Health education sessions – Positive Coping Skills**
- **Building community support for clients with mental health needs– Psychiatrists meet with Chief and Council to discuss community support and intervention**
- **Psychiatrists meets with Mental Health Worker to case conference and build community support**
- **Education sessions promoting healthy lifestyles – Diabetes, Healthy Eating, Exercise**
- **Tobacco Cessation Support groups**
- **Administrative support for Tobacco Control Strategy in First Nations – pilot project was successful and will be expanded to other First Nations**

Healthy Child Development

First Nations children are at risk for low birth weight, poor nutrition and developmental delays. As noted in the Health Council report, infant mortality rate for First Nations is much higher than the Canadian rate (2005, p. 43). Prenatal care, early intervention and comprehensive services are essential to reversing these risk factors and the resulting poor outcomes in adulthood.

- **Healthy Babies education series promotes healthy pregnancy, safety issues and early development**
- **Education sessions promoting healthy child development**
- **Speech and Language Therapy utilizing the Network**
- **Fetal Alcohol Syndrome assessments done over Telehealth**
- **Pediatrician consults**
- **Future Applications:**
    - **Education series for parents on topics such as – nutrition, healthy development, discipline**
    - **Early literacy programs**
    - **Spelling and writing skills development**

Culture

First Nations face additional health risks due to socio-economic environments determined by dominant cultural values. Marginalization, stigmatization, loss of language and lack of access to culturally appropriate care can impact health outcomes. The migration of First Nations youth to obtain education results in loss of community and cultural ties. Some of the initiatives undertaken by the network to maintain and promote First Nations culture include;

- **Community consultation process integrated into network migration. Vision and Mission Statement of KO Telehealth came from community consultation process**
- **Utilization of specially trained Community Telehealth Coordinators (CTCs) to promote Telehealth and coordinate all sessions.**
- **CTCs provide interpretation and culturally appropriate care for community members**
- **Education sessions targeting First Nations community members and Community Health Workers (as opposed to education sessions offered out of large urban centres that may be of little relevance to First Nations communities)**
- **Promotion of First Nations cultural values to funders and KO Telehealth partners**
    - **Importance of CTCs**
    - **Community, family and Elders needs set priority for services**
- **KIHS allows youth to remain in community – enhancing culture and community/family bonds**

Health Services

According to the Health Council report (2005), access to health care services is an issue for all Aboriginal communities (p. 5). Access to health services, particularly those designed to promote health, contribute to population health. KO Telehealth was initially modeled upon the clinical model developed by their provincial partner, NORTH Network. Although the KO Telehealth model has now expanded to include services beyond clinical sessions, there are many benefits for accessing both primary and secondary health services.

- **Removing geographical barriers to accessing physician, nursing and specialist services.**
- **Patients who do not want to leave community now have access to primary health care and specialist services**
- **Access to medical care no longer weather dependant**
- **Education sessions targeting community members**

Gender

Many health issues are a function of gender-based social status or roles. Women can be more vulnerable to low income positions and single parenthood, for example. Measures to address gender inequality within and beyond the health care system will impact population health.

- **Many Community Health Workers are women. Families will benefit from capacity building resulting from training, education, and support available over the network for these workers.**
- **Future applications: Women's Health Series, Reproductive Health, Men's Health Series**

Biology and Genetic Endowment

Biology refers to the inherited predisposition to illness or disease. In some circumstances, Genetic circumstances predispose certain individuals to particular diseases or health problems.

- **Genetic counseling done for families over the network**
- **Determine risk for further pregnancies**

<table>
<tr><td colspan="2">KO Telehealth- Meeting Key Determinants of Health Matrix</td></tr>
<tr><td colspan="2">Income and Social Status</td></tr>
<tr><td>• Skills building for Community Telehealth Coordinators, Community Health Workers and Technical Support Personnel- Transferable skills development improves employment options</td><td>• Technical skills built at community level- equipment installation, Ethernet cabling, technical support for Telehealth equipment, computer, community network
• On-line business opportunities</td></tr>
<tr><td colspan="2">Social Support Networks</td></tr>
<tr><td>• Family visits – Scheduled visits with family members in long term hospital care. Reduce isolation for both hospitalized patients and decreases worry for community members who can not afford travel to visit hospitalized family members
• Elders' Luncheon Series– Connecting Elders via the Telehealth Network
○ share stories, cook healthy meals and visit</td><td>• Case conferences for Elder care – building support networks for high needs patients – allows them to remain in community
• Personal web pages – a tool to keep youth connected to family and community while away at school</td></tr>
<tr><td colspan="2">Education</td></tr>
<tr><td>• Continuing education for community health workers – CHRs, Mental Health Workers, HBHC Workers, Personal Support Workers, Home Care Coordinators, etc.
• Next steps -
○ create certification programs over network for health programs
○ integrate Health Canada FNIHB programming to utilize training,</td><td>• Keewaytinook Internet Highschool – successful model of educating youth while remaining in community
○ Successfully implemented in communities in Sioux Lookout Health Zone, Thunder Bay Zone and Moose Factory Zone
○ Model transferable to other Provinces, Treaty areas, and Health Zones – Manitoba will implement similar model in Fall of 05</td></tr>
</table>

KO Telehealth- Meeting Key Determinants of Health Matrix	
Income and Social Status	
professional development and peer support opportunities available over the network	
Employment/Working Conditions (Closely tied to Income and Social Status)	
• **Administrative support for health programming – weekly videoconferencing support for programs** • **Peer support – supports best practice** • **Case Management – supporting community health workers dealing with complex health cases.**	• **Community economic development possibilities**
Social Environments	
• **Recognition of diversity for First Nations Telehealth Network** • **KO Telehealth FN driven** ○ **Community consultation incorporated into model of service delivery** • **Cultural norms integrated into Telehealth model**	• **Kuh-ke-nah Network meeting regional connectivity needs** • **Building community capacity with regards to technology support of Network**
Physical Environments	

• **Public health education on topics such as mold, SARS, MRSA Virus**
• **Injury prevention education – safe school grounds, bicycle safety**
	• **Future applications**
	  ○ **All season road planning**
	  ○ **Support water treatment plant operators**

Personal Health Practices and Coping Skills	
• **Mental Health education sessions – positive coping Skills** • **Building community support for clients with mental health needs– Psychiatrists meet with Chief and Council to discuss community support and intervention** • **Psychiatrists meets with Mental Health Worker to case conference and build community support** • **Education sessions promoting healthy**	

KO Telehealth- Meeting Key Determinants of Health Matrix	
Income and Social Status	
lifestyles – Diabetes, healthy eating, exercise	
Healthy Child Development	

• **Healthy Babies education series promotes healthy pregnancy, safety issues and early development**
• **Education sessions promoting healthy child development**
• **Speech and Language Therapy utilizing the Network**
• **Fetal Alcohol Syndrome assessments done over Telehealth**
• **Pediatrician now doing consults**
• **Future Applications:**
  ○ **Education series for parents on topics such as – nutrition, healthy development, discipline**
	• **Future applications**
	  ○ **Early literacy programs**
	  ○ **Spelling and writing skills development**

Health Services	
• **Education sessions targeting community members** • **Removing geographical barriers to accessing physician, nursing and specialist services.** • **Patients who do not want to leave community now have access to primary health care and specialist services** • **Access to medical care no longer weather dependant**	
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KO Telehealth- Meeting Key Determinants of Health Matrix	
Income and Social Status	

Health Workers.
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  ○ **Importance of CTCs**
  ○ **Community, family and Elders needs set priority for services**	

Gender	
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