Final Report:

KO Telehealth Service and Management Documentation

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Canada Health Infoway
Inforoute Santé du Canada

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Preface

In May of 2005, Keewaytinook Okimakanak and Canada Health Infoway initiated a project to codify and document the processes and systems developed as part of the KO Telehealth implementation process and to summarize lessons learned and emerging best practices in delivering telehealth services – the use of secure videoconferencing to improve and enhance access to clinical and health education and training services – in isolated First Nations.

As Canada's largest and busiest First Nation governed telehealth network, this work anticipates widespread roll-out of Aboriginal and First Nations telehealth initiatives and supports shared objectives of improving telehealth coverage in isolated Aboriginal communities, increasing clinical utilization of telehealth services and supporting the adoption and diffusion of telehealth innovations by health service providers and First Nations and Aboriginal people in Canada.

The project was led by the Keewaytinook Okimakanak Research Institute (KORI – http://research.knet.ca) and supported by KO Telehealth and K-Net managers and approved by the Keewaytinook executive. Brian Walmark led the project team at KORI and Krista Balenko at Canada Health Infoway. Products were developed by Jesse Fiddler, Cal Kenny, Wes McKay, Franz Siebel, John Rowlandson, Florence Woolner and Jennifer Morrow. KORI would like to thank community members in Sandy Lake and Keewaywin First Nation for their participation in focus group interviews and Community Telehealth Coordinators Ida Fiddler and Joshane Fiddler for their guidance and assistance during the community engagement sessions.

Products

The documentation project addresses three areas of shared interest, namely:

- KO Telehealth Business Processes
- First Nations Telehealth Evaluation and Engagement
- First Nations Telehealth Network Services

Products have been developed within each area of interest to meet the needs of First Nations leadership, Health Directors and workers, health administrators and service providers, telehealth practitioners, and health program consultants.

Documents reflect input from primary and secondary sources and were validated with community members and KO Telehealth, KORI and K-Net Services staff and management as part of the documentation project. Products appear in five formats: thematic narratives, annotated diagrams and charts, matrices, video clips and multi-media. Together they summarize knowledge gained during almost five years of telehealth implementation.

Part 1: Summary of KO Telehealth Business Processes

Section A: Organizational Structure and Human Resources

- KO Telehealth Organizational structure
- KO Telehealth Job Descriptions
- KO Telehealth Start-up Roles and Responsibilities
- Major Human Resource Lessons Learned

Section B: Community Outreach and Training

- Lessons Learned: Community Telehealth Coordinator Outreach
- Community Telehealth Coordinator Remote Training Plan

Section C: Health Service Partnerships, Dependencies and Risks

- First Nations Partnership Development
- Effects of Nurse/Physician Turnover on Telehealth Service Delivery
- Telehealth Service Development Risk Mitigation

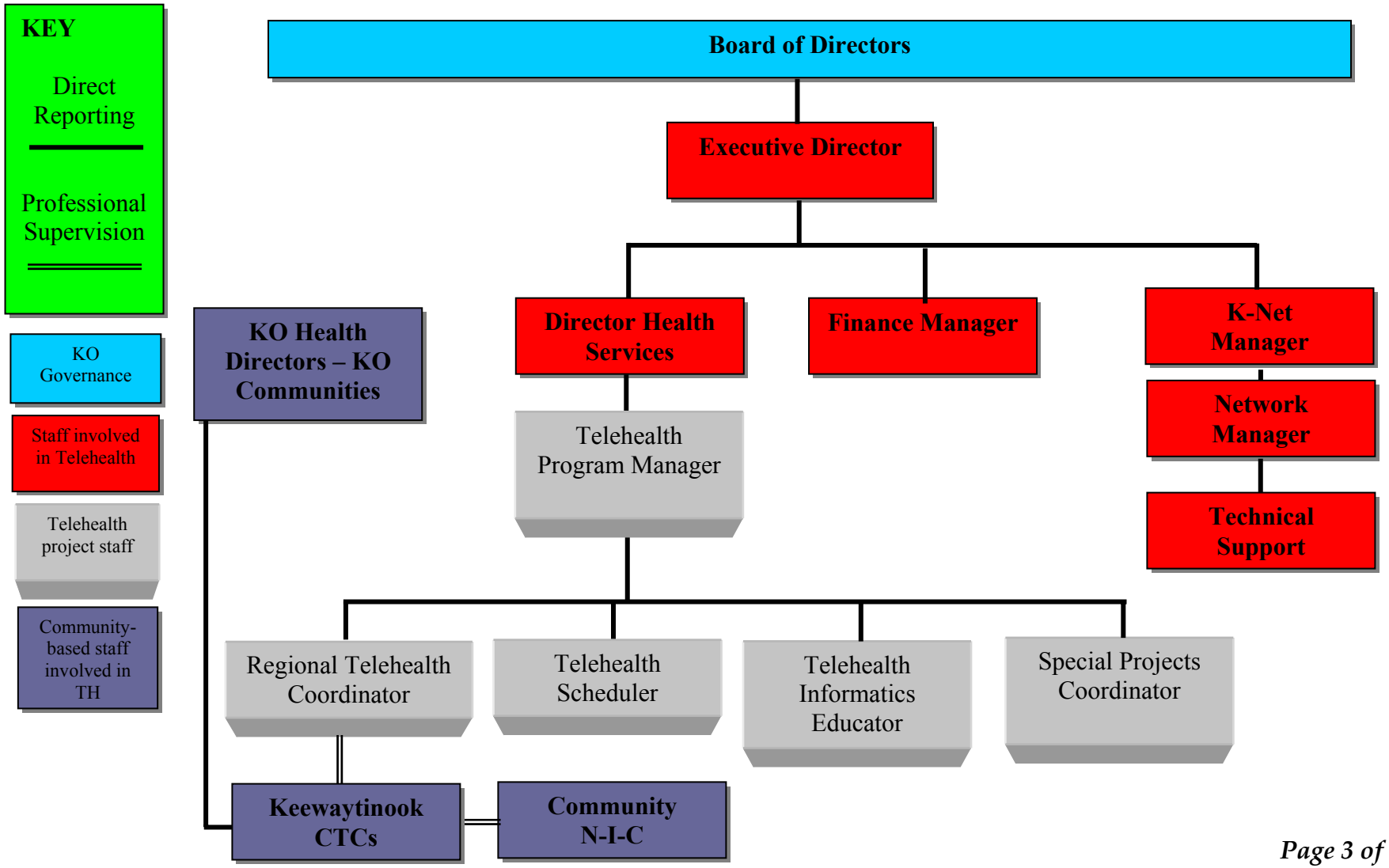
Section D: Management Systems

- KO Telehealth Governance Structure
- KO Telehealth Business Practices
- Annotated Telehealth Policies and Procedures

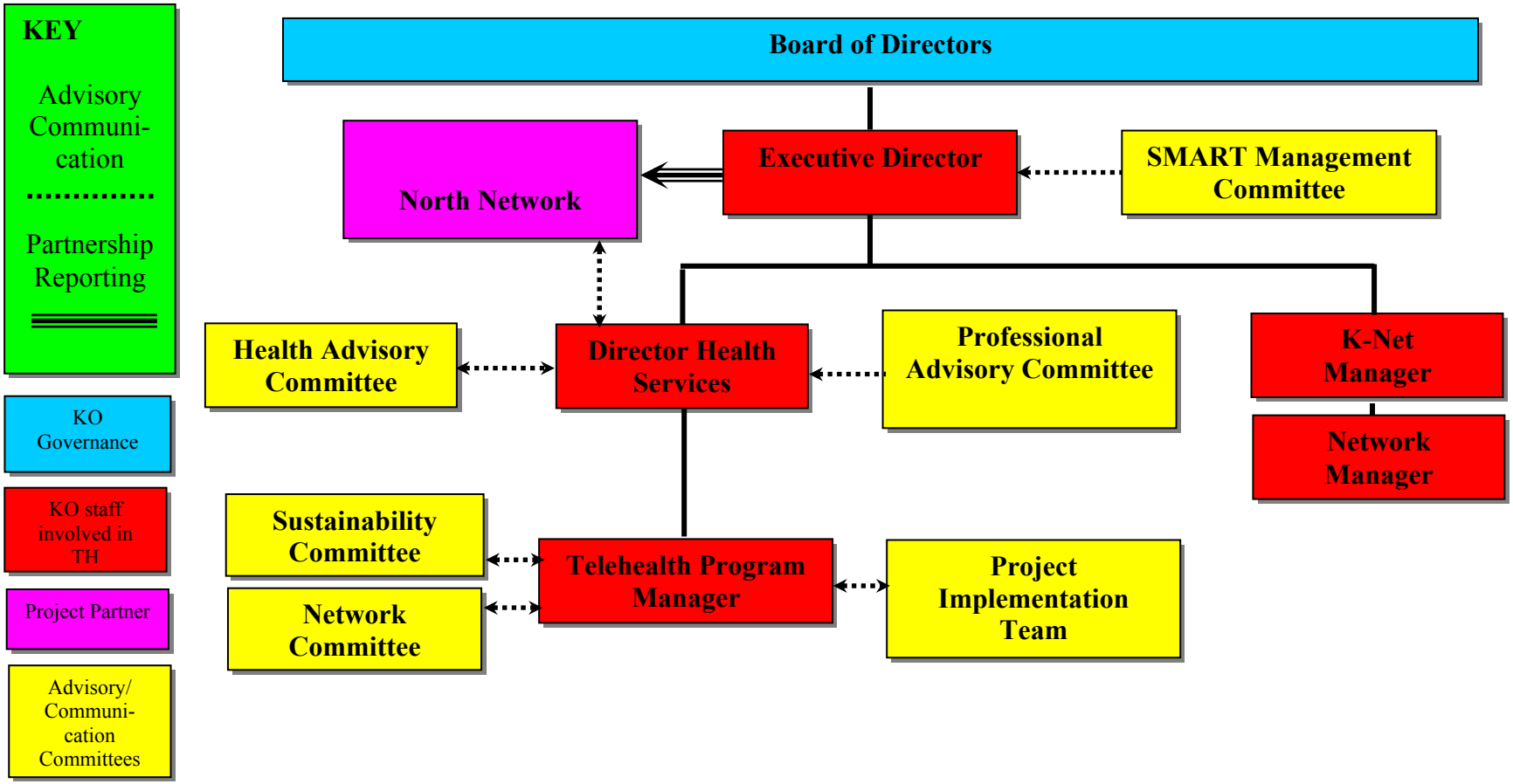
Section A: Organizational Structure and Human Resources

KO Telehealth Organizational structure

Organizational Structure 1 - Keewaytinook Okimakanak (KO) Telehealth March 2003 – Demonstration Phase: Staff Relationships



Organizational Structure 2 - Keewaytinook Okimakanak (KO) Telehealth March 2003 – Demonstration Phase: Operational Mechanisms



KO Telehealth Job Descriptions

The following are considered to be core KO Telehealth positions.[1] Unless otherwise noted, all staff members are full-time.

1. Community Telehealth Coordinators (Community-based & Distributed)[2]

2. Telehealth Informatics Educator (Hub Services)[3]

3. Telehealth Scheduler (Hub Services)

4. Special Projects Coordinator (Hub Services)

5. Regional Telehealth Coordinator (Hub Services)

6. Program Manager (Hub Services)

7. Service Migration Coordinator (Community-based)[4]

8. Education Program Coordinator (Hub Services)

9. Telehealth Secretary (Hub Services)

10. Help Desk Support Analyst (Hub Services)

[1] In addition to the positions listed, KO Telehealth works closely with K-Net Services. K-Net primarily supports network services and applications. Accordingly, KO Telehealth regularly draws on K-Net network management, architecture, programming and video bridging capacities.
[2] Many Community Telehealth Coordinators have received specialized training to perform distributed functions within the network. For example, the CTC in Kasibonika also schedules all northern diabetic education sessions and the CTC from Kingfisher Lake moderates KO Telehealth's Training and Education sessions. Similarly, three KO Telehealth CTCs have been certified as Ethernet installers and the CTC from Sandy Lake supports the Community Engagement Coordinator's site visits.
[3] Hub Services refers to staff based at the KO Telehealth Balmertown offices.
[4] The Telehealth Service Migration Coordinator is located at the Sioux Lookout First Nations Health Authority Offices in Sioux Lookout, Ontario.

Community Telehealth Coordinator (CTC)

Summary

Community Telehealth Coordinators (CTC) ensure the delivery of quality telehealth services in their communities. S/he plans, promotes and organizes all uses of the telehealth system and participates as a team of regional CTCs who work together to acquire the skills and knowledge required to provide the best service possible to telehealth clients.

Supervised by	Community Health Director
Telehealth Supervisor	Regional Telehealth Coordinator

Key Activities

1. Provide the principal point of contact for KO Telehealth to manage the day-to-day delivery of telehealth.
2. Liaise with health care staff in the community to ensure a high comfort level in using telehealth equipment.
3. Participate in training and professional development to achieve certification as a Community Telehealth Coordinator and to continue to upgrade skills as required.
4. Promote the use of telehealth for patient consultations by talking about it and demonstrating it to health care professionals, patients and the community at large.
5. Communicate with other CTCs to provide support and to share knowledge and best practices.
6. Participate as a member of the regional CTC team to create and implement policies, procedures and guidelines for telehealth use.
7. Liaise with all staff/organizations in the community to facilitate the use of the network for education and doing business.

Required Skills, Education and Abilities

1. Post secondary diploma in health services, computer technology or equivalent experience;
2. An understanding of, or willingness to learn, extensive computer technology skills;
3. High comfort level in working with and supporting people to use telemedicine equipment;
4. Bilingual with strong English oral and written communication skills and strong oral skills in Cree, Ojibway or Oji-Cree.
5. Program planning, implementation and problem-solving skills;
6. Demonstrated ability to treat confidential information in a mature and professional manner.

Telehealth Informatics Educator (TIE)

Summary

The Telehealth Informatics Educator (TIE) coordinates telehealth training and educational services for Community Telehealth Coordinators and other KO Telehealth staff. S/he assesses training needs, provides telehealth training, supports the acquisition of specific telehealth skills and knowledge, monitors learner success and performance and develops continuous learning plans and sets skills goals with CTCs. S/he prepares hands-on learning materials, documents standard telehealth procedures and prepares and updates training manuals. The TIE assesses CTC skills, suggests procedures or approaches to improve the delivery of telehealth, identifies training issues related to the introduction of new telehealth services and takes the lead role in certification of CTCs.

Supervised by Program Manager

Key Activities

1. Coordinate the training and skills development of CTCs, assessing needs and designing and delivering appropriate distributed learning programs.
2. Document technical procedures used to initiate, troubleshoot and terminate telehealth sessions and enhance skills acquisition to respond.
3. Prepare and update telehealth training manuals and references that support day-to-day telehealth delivery skills development.
4. Respond rapidly to emergent needs and/or skills deficiencies and track learner performance and achievement.
5. Coordinate tele-education and training for Keewaytinook Okimakanak health staff, provide orientation to the equipment and facilitate the use of the network as an educational/business medium.

Required Skills, Education and Abilities

1. Registered Nurse or other health professional designation with a minimum of 2 years First Nation community health care delivery experience;
2. Knowledge of adult education program design and delivery strategies;
3. Experience in facilitating workshops and/or providing hands-on training with adult learners in the workplace;
4. Understanding of and interest in the use of ICTs in health care delivery;
5. Ability to learn, adopt and transfer new technical and clinical skills and practice;
6. Experience preparing, editing and/or updating manuals and reference materials;
7. Strong presentational and interpersonal skills;
8. Bilingual English and Ojibway, Cree or Oji-Cree;
9. Fluent in wordprocessing and online computer applications.

Telehealth Scheduler

Summary

The Scheduler books clinical consults, educational sessions and project and business meetings within the KO Telehealth Region. S/he works closely with the Regional Telehealth Coordinator and North Network scheduling office to ensure that all clinical consults and educational sessions are arranged and documented. The Scheduler maintains the master record of scheduled telehealth events for the KO Region and is the primary liaison between service providers and the NORTH Network Central Scheduling Office.

Supervised by

Regional Telehealth Coordinator

Key Activities

1. Schedules clinical consults, contacting service providers and preparing required documentation of sessions.
2. Liaises with the NORTH Network Central scheduling Office to confirm site access and order information, request bridging or gateway services, report connection issues/problems and forward activity log information.
3. Schedules education sessions by liaising with providers and CTCs to confirm participation by site and by preparing and circulating session documentation.
4. Schedules and supports Telehealth and other program staff business sessions on the network.
5. Prepares bi-monthly summaries of telehealth activity for the KO Region.

Required Skills, Education and Abilities

1. College degree with community-based experience working with diverse partners on integrated projects;
2. Knowledge of telehealth scheduling and referral processes and procedures;
3. Understanding of and interest in the use of ICTs in health care delivery;
4. Fluent in wordprocessing and online applications;
5. Ability to maintain accurate and highly detailed records;
6. Experience preparing, editing and/or updating manuals and reference materials;
7. Strong organizational skills and dedication to service excellence;
8. Able to work as part of a team with an ability to complete work on schedule;
9. Excellent interpersonal skills, particularly using distance communications tools – telephone, video conferencing, online;
10. Knowledge of the people, culture and history of Nishnawbe Aski Nation; in-depth knowledge of the cultural and health development priorities of regional First Nations.

Special Projects Coordinator

Summary

The Special Projects Coordinator coordinates specific initiatives to assist in the development, promotion and integration of Telehealth into the routine delivery of Health Care in the region. S/he identifies key clinical areas for innovative applications for Telehealth and takes the application from idea through development and testing to integration into the KO model.

Supervised by

Program Manager

Key Activities

1. Animate and develop to completion projects which expand the use and health care reach of the Telehealth Program.
2. Work with health professionals to document clinical service integration priorities and partnership opportunities.
3. Travel to communities to meet with leadership and community committees to research health and wellness needs in which Telehealth might be used for solutions.
4. Carry out communications and information sharing processes required during project roll out.
5. Produce regular reports, analysis and advice to the KO Telehealth Team on the development of the projects assigned.

Required Skills, Education and Abilities

1. Nursing or Social/Health Services Degree or equivalent in work experience;
2. Demonstrated ability to animate and co-manage community-based initiatives;
3. Strong oral and written communication and research skills (including report and proposal writing);
4. Knowledge and proven experience in computerized word processing;
5. Competence in a database program(s) a definite asset;
6. Ability to speak Cree, Oji-Cree or Ojibway a strong asset;
7. Knowledge of and commitment to the services provided by Keewaytinook Okimakanak;
8. Knowledge of the people, culture and history of Nishnawbe-Aski Nation; in-depth knowledge of the cultural and health development priorities of regional First Nations.

Regional Telehealth Coordinator (RTC)

Summary

The Regional Telehealth Coordinator leads the team of CTCs to operate telehealth services in the region. Acting as a resource for CTCs, s/he facilitates communication between referring and specialist sites to achieve seamless integration of telemedicine into everyday health care delivery. S/he provides clinical supervision to CTCs at First Nations sites. The Regional Telehealth Coordinator works with senior project staff to design and diffuse functional service models across the region and to ensure standard quality of telehealth delivery in communities. S/he coordinates the review and assessment of telehealth activities at each site and animates solutions in concert with clinical and operative staff and partners.

Supervised by Program Manager

Key Activities

1. Leading a team of Community Telehealth Coordinators, direct the development and operation of regional telehealth services.
2. Liaise with health care providers and clients to identify needs for telehealth consultations and to match needs with appropriate consultants where possible.
3. Design and refine the KO telehealth service model for deployment of new and existing services.
4. Collaborate with Medical Director, Telehealth Informatics Educator and Telehealth Coordinators to establish protocols and standards for the delivery of telehealth throughout the region.
5. Work with CTCs to ensure that evaluation and research requirements are met.
6. Coordinate telehealth promotion and communications activities locally, regionally and nationally.

Required Skills, Education and Abilities

1. RN or other health professional designation or equivalent First Nation community health care delivery experience;
2. Demonstrated understanding of and interest in the use of ICTs in health care delivery;
3. A self-starter with an entrepreneurial spirit, comfortable working in a rapidly changing environment;
4. Experience working with physicians and other health care professionals in a developmental cross-cultural framework;
5. Able to work as part of a team with an ability to complete work on schedule with excellent interpersonal and communicative skills;
6. Bilingual (Ojibway, or Oji-Cree, or Cree and English);
7. Strong oral and written communication and presentational skills (including report and proposal writing).

Program Manager

Summary

The Telehealth Project Manager oversees the operations of the KO/NORTH Network Telehealth partnership. S/he establishes and manages the operational infrastructure for delivering and migrating First Nations telehealth services. S/he coordinates clinical, technical and organizational teams to plan, implement and document a working telehealth services model in the Sioux Lookout Zone. S/he works with KO Managers to support the advancement and sustainability of the regional network infrastructure.

Supervised by Director of Health Services

Key Activities

1. Coordinate clinical, technical and organizational teams to plan and implement the KO telehealth services model and its migration to district First Nations.
2. Manage human resources for the project ensuring timely and appropriate recruitment, hiring, supervision, professional development and evaluation of all project staff.
3. Ensure human resource systems and activities are consistent with Keewaytinook Okimakanak Policy and Procedures and harmonized with community HR norms.
4. Lead project planning processes resulting in the timely preparation of proposal, workplan and budget forecasts to ensure the procurement of funds to complete projects.
5. Prepare project reports and be project contact with all funding and other partners.
6. Represent the project in strategic external processes, conferences, and forums.
7. Coordinate telehealth promotion and communications activities.
8. Ensure system protocols are consistent with KO and NORTH Network policies and procedures and reproducible at a regional level.

Required Skills, Education and Abilities

1. Post-secondary degree in health information systems, health policy/public administration, or other appropriate discipline;
2. Must have a minimum of five years pertinent work experience;
3. Ability to speak/write Cree, Oji-Cree or Ojibway a strong asset;
4. Total competence in written and oral English;
5. Familiarity with network systems, technologies and architectures; applied knowledge of ICT applications and pricing;
6. Applied knowledge of negotiating and monitoring agreements and contracts;
7. Knowledge of participatory research design and quantitative statistical analysis of needs and evaluation;
8. Experience in implementing and managing large-scale community-based projects; familiarity with project management tools and techniques.

Service Migration Coordinator

Summary

The Service Migration Coordinator engages with service providers and community health leaders to facilitate service introduction and integration within the Sioux Lookout Health Zone. As the project link between KO and the Sioux Lookout First Nation Health Authority (SLFNHA), s/he coordinates all aspects of the establishment of activities and tasks that will help ensure the success of Telehealth in the Sioux Lookout Health Zone. The Service Migration Coordinator animates the creation and operations of KO Telehealth in each community and co-directs the community engagement and evaluation activities and processes as set down by the Telehealth Program Manager. S/he assists Community Telehealth Coordinators to promote the programs and products developed throughout the project.

Supervised by Program Manager

Key Activities

1. Animate delivery of key SLFNHA services via telehealth (Nodin - mental health, Child and Family Intervention).
2. Work with a health consultant to document non-clinical service integration and partnership opportunities.
3. Facilitate the migration of integrated telehealth services in the Sioux Lookout Health Zone by working with regional health partners to plan and introduce high priority services.
4. Travel to communities regularly to meet with leadership and community committees.
5. Coordinate all aspects of the establishment of communication between Keewaytinook Okimakanak, SLFNHA and the First Nation communities.
6. Produce regular current and accurate reports, analysis and advice to the KO Telehealth Team on the development of the tasks assigned in order to meet the reporting guidelines in the contribution agreement.

Required Skills, Education and Abilities

1. Social Services (community development) or Economic Development (Business) degree or diploma or equivalent in work experience;
2. Must have a minimum of two years experience as a manager in community/business animation and development with senior supervisory experience;
3. Ability to speak Cree, Oji-Cree or Ojibway a strong asset
4. Demonstrated ability to animate and co-manage community-based initiatives;
5. Strong oral and written communication skills (report and proposal writing);
6. Must have knowledge and proven experience in computerized word processing; competence in a database program(s) a definite asset.

Education Program Coordinator

Summary

The Education Program Coordinator works with education programs, First Nations health organizations, Health Canada and community health providers to identify priorities for providing

education and support to community health workers in First Nations communities. Education, support and training is tested and designed to be integrated into the framework of organizations using telehealth as a sustainable delivery system.

Supervised by Program Manager

Key Activities

1. Initiate and coordinate the procurement and delivery of education opportunities for Health Service Providers in First Nations in the Sioux Lookout Zone.
2. Determine education needs by designing and implementing a needs assessment strategy.
3. Outline a model of service delivery with a special focus on sustainability.
4. Identify and collaborate with key informants and partner organizations.
5. Identify and secure potential presenters/educators from partner organizations.
6. Coordinate and implement continuing education and professional development sessions; compile participant evaluations for each educational session.
7. Oversee development of educational resources for Health Service Providers.
8. Conduct program evaluation, gather statistics, and document lessons learned.

Required Skills, Education and Abilities

1. Bachelor of Science in Nursing or equivalent;
2. Must have a minimum of two years experience working with First Nations communities in a health care discipline;
3. Knowledge of adult education program design and delivery strategies;
4. Experience in facilitating workshops and/or providing hands-on training with adult learners in the workplace;
5. Understanding of and interest in the use of ICTs in health care delivery;
6. Ability to speak Cree, Oji-Cree or Ojibway a very strong asset;
7. Awareness of health programs offered by Health Canada and First Nations organizations within First Nation communities;
8. Experience in planning health programming for First Nation communities;
9. Strong oral and written communication skills (including report and proposal writing skills);
10. Knowledge and proven experience in computerized word processing;
11. Competence in a database program(s) a definite asset;
12. Knowledge of and commitment to the services provided by Keewaytinook Okimakanak.

Telehealth Secretary

Summary

The Telehealth Secretary supports the KO Telehealth project team by providing reception, clerical, and administrative services.

Supervised by Program Manager

Key Activities

1. Provide general office support as required such as wordprocessing, photocopying, and processing incoming and outgoing mail and faxes.
2. Develop and maintain a digital and hardcopy file management system.
3. Make all travel arrangements for the Telehealth staff and partner organizations.
4. Create, maintain and administer a health/telehealth resource library.
5. Coordinate arrangements for telehealth meetings and workshops.
6. Record and distribute minutes of meetings.
7. Administer payroll timesheets for all department staff.
8. Administer purchase order system for department.
9. Order office supplies for Telehealth office and communities.

Required Skills, Education and Abilities

1. Grade 12 or equivalent and\or training in Secretarial Arts or a minimum of 2 years secretarial experience;
2. A minimum of 2 years experience in office support and/or secretarial work;
3. Office procedures skills and knowledge;
4. Computer literate with strong wordprocessing skills;
5. Excellent interpersonal and communications (written and oral) skills;
6. Ability to work well in a service setting and with the public;
7. Ability to speak Cree, Oji-Cree or Ojibway would be an asset.

HelpDesk Support Analyst

Summary

The KO Telehealth HelpDesk Support Analyst provides technical/network support, problem resolution/management/escalation, customer service and call trend analysis to KO Telehealth staff in the central office and at community sites. S/he is responsible for the operation and maintenance of the Balmertown office LAN and supports community technicians to deal with hardware and software and network problems. The HelpDesk Analyst develops standards and procedures for handling trouble tickets to ensure minimum critical breakdowns and crises.

Supervised by Program Manager

Key Activities

1. Install, configure, maintain, upgrade, troubleshoot and repair computer equipment and peripherals including network servers and hubs, PCs, monitors, printers, cables and workstations.
2. Design and maintain a network services log and maintain hardware and software.
3. Communicate with vendors to coordinate repairs, service, parts orders, source equipment and costs, and arrange warranty repairs.
4. Maintain and trouble-shoot network operating systems and servers, making adjustments and modifications to ensure effective system maintenance.
5. Monitor, diagnose, and secure the integrity of network services.
6. Provide operational support for administrative computer systems to local technicians.
7. Provide operational support for community LANS and related equipment, troubleshooting and repair of LANS.

Required Skills, Education and Abilities

1. College diploma or its equivalent in computer studies, supplemented by one year relevant experience;
2. Working knowledge of electronic systems and audio-visual hardware;
3. Working knowledge of computer systems, peripherals and communication hardware;
4. Working knowledge of application software to assess problems in the execution of applications;
5. Ability to work independently and in a team to achieve predetermined goals and meet deadlines;
6. Excellent problem solving skills and a commitment to quality service;
7. Understanding of industry standard safety practices and procedures for electrical/electronic equipment and hazardous material exposure.

KO Telehealth Start-up Roles and Responsibilities

List of Acronyms

C&C	Chief and Council
CEC	Community Engagement Consultant, position based at KO
CTC	Community Telehealth Coordinator
FN	First Nation
FNIHB	First Nation and Inuit Health Branch, Health Canada
HD	Health Director
KO	Keewaytinook Okimakanak, (Northern Chiefs Council), regional First Nation council for the 5 initial Telehealth communities
KO HD	KO Health Director
NN	North Network, Ontario's Provincial telehealth services partner (PTSP)
PM	Project Manager, later Program Manager, based in the KO offices in Balmertown
PTSP	Provincial Telehealth Services Partner (in this case, North Network)
RTC	Regional Telehealth Coordinator, position at KO in Balmertown
TH	Telehealth
TIE	Telehealth Informatics Educator, trainer for CTCs based at KO office in Balmertown

Introductory Comments

Community staff in the KO Telehealth project (CTCs) were located originally in the remote First Nations of Keewaywin, North Spirit Lake, Deer Lake, Fort Severn and Poplar Hill – all in Northwestern Ontario; First Nations Council staff of the KO Telehealth project were located in Balmertown, Ontario, a distance of from 300 – 1000 kilometres from the communities where the Telehealth services were delivered by community staff. The matrixes below describe some of the key roles and responsibilities taken on by the KO Telehealth staff in order to ensure the successful implementation of the Telehealth pilot project during 2001-2003. Each matrix looks at the work of a position, i.e. Project Manager, Community Telehealth Coordinators, etc, with the major output areas for the position listed across the top of the matrix.

Project/Program Manager			
Relationship with partners and funders	**Building relationship with PTSP**	**Consultation and community engagement**	**System and service build**
- Numerous face to face events and activities in the communities including trips to the communities, radio shows, C&C meetings; stayed overnight in communities - Learn about nurses' perspectives, their needs and possible barriers they see - Advocate for additional funds where required from funder(s); try to ensure flexibility in funding arrangements - Continually demonstrate value to all funders with oral and written reporting, anticipating questions and concerns with information,	- Organize initial 1.5-day meeting between KO and PTSP to learn from their experiences, successes and problems and to establish good information exchange and working relationship - This forum important so the provincial partner understands the needs and unique service demands of the remote First Nations	- Carry out intensive (door to door) community consultation before project begins (in every community) - Community Consultation Coordinator became the PM, thus building the project on first-hand knowledge of community needs and perspectives - Hire CTCs 4-5 months before start of service deliver so they were able to do intensive engagement and orientation	- Keep extensive records of all interactions during pilot phase for use when adding on new communities - Use workshops (2) involving unserved community health decision-makers and KO TH to demonstrate telehealth, show what KO TH has learned, and to build interest - First district-wide workshop: introduces TH as a service to area FNs, demonstrate it (hands-on), address any concerns; explain funding platforms that may be available - Second district-wide workshop: create a shared district-wide vision for Telehealth; create list of new TH services needed by communities (e.g. education program for non-CTC health workers); continue to build interest by answering questions and concerns - Telehealth project took advantage of broadband champions within the organization, e.g. community Health Directors who were familiar with broadband because of tele-psychiatry and other SMART project applications
Staff training and development	**Political and governance issues**	**Human Resources**	**Relationship with health professionals**
- Ensure funds for fulltime trainer in proposal - This is critical because of turnover in community staff and need to develop training program and materials - Hire training staff who are practical, good communicators, detail-oriented and culturally-sensitive - Expect periods where no qualified staff appear available; don't hire until they do.	- Use existing organizations or committees if existing structures can do the work - Do not create new structures but spend time on education, influencing and getting appropriate advice from existing structures	- Recruitment and hiring require comprehensive and time-consuming approach at beginning, but essential - Understand, respect and integrate community hiring process into project hiring process - Maintain open and accessible relationship to remote community staff by being in communities for enough time to develop one on one relationships	- Work to inform and consult with community nursing staff through district office of FNIHB, KOTH medical director (physicians), directly as often as possible - Ensured funds available to create a KO Medical Director position (parallel to NN Medical Director) to answer physician questions, help build a unique KO service, liaise with district doctors, etc

Community Telehealth Coordinators	
Consultation and community engagement	**System & service build**
- Carry out house to house visits to the extent possible but especially with Elders - Visit key workplaces and talk to employees - demonstrations when people waiting in Nursing Station - give demonstrations of equipment such as the otoscope to patients, visiting physicians and nurses, community members - Invite Elders to demonstration sessions geared at them and their needs - Non-medical uses, especially visit between Elders, families and students and families, increase TH popularity and acceptance - Make education sessions (diabetes, asthma, post-traumatic stress disorder, suicide intervention) for health workers available to other members of the community as another way of demonstrating the technology - Anticipate and address concerns: ▪ that TH will replace doctor visits ▪ that TH is not confidential (both that the information is not protected, and that they will appear on people's TV sets) - Turn on the radio outside the TH room during sessions to help protect confidentiality - Hire a person who has gained the trust of the community in a previous position to minimize confidentiality concerns - Explain that TH will reduce the need to travel from the community - Focus on building acceptance of TH with C&C - give community monthly TV (radio) updates on TH - promote TH in other communities through their own family and professional contacts - at first, need to remind people about their appointments several times before actual appointment - Work hard to keep Nurse in Charge abreast of TH and all developments, to build her/his support from the beginning	- check equipment every week using a check-list to ensure equipment functions - do orientation and training with back-up staff and CTCs from other communities (experienced CTCs) - ensure service meets the needs and cultural beliefs of patients by continually informing KO TH staff about community criteria

KO Senior Management Team (Finance Manager; Health Director; Executive Director; K-Net Manager)		
Relationship with Partners & Funders	**Human Resources**	**Budget and Finances**
- build strategic partnerships through information-sharing, committees, frequent contact to maximize attractiveness of project and proponent (KO) to funders - financial accounting and reporting is complex because of multiple sources of funding and reporting requirements - raise enough "seed" funds to leverage remainder of funds required - Carry out community consultation to ensure community support before undertaking serious fund-raising	- ensure a hiring process is in place for project staff; the process meets community norms and follows KO hiring guidelines wherever possible - An important role was working with the community HDs to find the right people in the community for the CTC job - CTC qualities included: credibility, health background, someone who could bridge nurses/doctors and community - When it became clear not all CTCs had these qualities, used the training program to help CTCs train each other - An important role was supporting the CTCs on their steep learning curve	- project budget is built collaboratively, approved as per policy and communicated clearly to project management - timely submission of project claims and advance requests to ensure adequate cash flow - open and frequent communications with bank regarding project and requirement for overdrafts, etc - Build into budgeting system the ability to allow TH savings to reward TH expenditures
Planning and expansion	**Community Consultation**	**Staff Training & Development**
- Management mix of technology specialists, visionaries and planners and accountants; all are needed to plan and sustain a project of this magnitude - prior involvement with broadband makes TH planning easier - Determine source of funds for all foreseeable expenditures before proceeding - Key managers having formal project management training is a definite asset - Maintain a sense of humour at all times - Stick to original vision and avoid short-cuts - Be a link between the communities and medical professionals. Understand both the nurses' perspective while acting with the community interests at heart - Important to work closely with the community nurses (through the Health Committee) and address any reluctance based on past experiences with First Nations initiatives, as well as any concerns	- Work with the community HD to identify a local champion to carry out the community consultation - Ensure that the KO Chiefs (board) are informed of TH and onside - Engagement /Liaison Worker to develop community engagement and involve Elders - Keep community HDs informed throughout project planning, development and pilot phases	- Push for community-level participation at external conferences and events not only to ensure a broadly based vision, but to build staff confidence and perspective - Ensure sufficient travel funds for community-level participation at external events

regarding loss of control of their service delivery
- It is important to design one's own TH project (rather than soliciting proposals) to ensure that it meets the needs of the community people.
- It was important to have people on staff at KO who could see how the technology would work, and could show the Chiefs and staff in a way that made TH seem viable and possible.
- In developing TH it is important to see the technology first-hand, and to make sure that the other stakeholders also see the technology at work. Without seeing the technology, it can be difficult to imagine how it works.
- Ensure a broadly-based vision by ensuring community representation at all levels
- teamwork very important amongst the senior management team in review and planning. HD, ED and technical staff reviewed documents and provided input to the PM on the rollout
- A communication strategy is very important, including these elements:
  - proper community consultation
  - the right person or team who understands the different political & social commitments in a particular community who will go into the community to talk about TH and answer questions
  - significant community involvement in the various committees
- With new managers a team approach is important to help them to understand community realities		

Network Department		
Network Design and Build	**Choice of equipment; upkeep and repair**	**Human Resources**

- Build network infrastructure for multiple uses, not only for Telehealth
- Spend a significant amount of time before start of project planning and defining roles relating to the network build (e.g. equipment purchase, responsibility in the event of break-downs, payment terms, etc.)
- Develop and document realistic expectations for capacity of service
- build good planning into the design to ensure agreement on costs, results, reasons, beneficiaries, etc
- Accept occasional delays as inevitable and do not be rushed
- Build broadband network to be multi applications, multi protocol, and high capacity
- Make network a community network whose services can be sold to many users to reduce costs
- Visit other organizations to learn what they have done, and how they have done it.
- Have good understanding of desired results, then build on how to achieve them
- Establish and maintain good relationships with service providers
	- Do not buy new, untested equipment because of several issues:
	  - the product may not be on the market for long
	  - there may not be enough technicians trained to support the product
	  - the software may not be fully tested to meet the rigours of the field
	  - it may not interoperate with legacy equipment or protocols.
	- Develop standards that equipment must meet; make purchase decisions accordingly (e.g. availability of parts, location of support)
	- Build on the technology KO is already using; this ensures familiarity with equipment as well as reducing the number of parts/ components
	- Choose equipment that is as easy as possible for people without a technical background to use.
		- Set clear delineation between jobs and responsibilities to ensure the people do not work outside of their capacity; for example, technicians should not be providing advice on telehealth service questions, Physicians should not be instructing others on the operation of equipment
		- Hire technical staff already proven to be competent
		- Encourage staff to understand broader context of their work so they understand the rationale for the network and feel a part of the service being delivered

Regional Telehealth Coordinator		
Consultation and community engagement	**Staff training and development**	**Human Resources**
- Maintain good communications with key stakeholders (Chief and Council, Health Director, NIC, community physician, etc) in all communities to overcome distance and cultural separation - Hire a Community Engagement Consultant (CEC), based at KO, to help bridge communications and cultural gap between KO TH and communities / CTCs - CEC helps to engage community members within a culturally appropriate context - CEC provides valuable insights on how to operate the program, based on own understanding of communities, culture and language - Make connections with others doing the same work	- Develop training checklists based on assessment of CTC learning needs - Anticipate steep learning curve for CTCs - Provide extensive support for CTCs at outset to overcome fears and discomfort - Assume a skill has been learned only once it has been successfully demonstrated - Start with the basics (e.g. computers, equipment, confidentiality, work ethic) and do not proceed to other topics on until they are solid - Incorporate repetition and hands-on learning into the training program - Make use of videoconference technology for follow-up training and constant communication - TIE position is of critical importance and difficult to fill - TIE has health background, understanding of TH model, and cultural sensitivity - TIE acts as a bridge between PTSP and First Nations By enabling FN traditions, practices, beliefs to be incorporated into community TH model - Training includes instilling confidence in CTCs that problems can be solved - Once CTCs understand the importance, train them to ensure client arrives half an hour ahead of time with frequent reminders - Begin with a core group of community CTCs and train them first. - Then use core CTCs as mentors when expanding the network to other communities - Initiate a weekly equipment check among CTCs: group CTCs into pairs each week to contact each other and run through their equipment together	- Functional and clinical supervision of CTCs off-site while they answer to the HD in the community; this requires sensitivity and excellent communications at a distance - Communicate job expectations - Clear up any confusion at the beginning regarding CTCs supervisor and the supervision protocols (see org chart) - Expect CTCs to have little health background or even work experience - Work with all stakeholders in community to ensure most qualified candidate is hired despite possible barriers (family, political, etc) - Have patience and perseverance when dealing with high turnover amongst CTC staff, which is inevitable - Train CTCs in punctuality and work ethic if it is their first job - CTCs may resent being asked why they weren't at work - Always be aware of CTCs location in community so as to be able to reach her easily - Maintain frequent, open and bi-directional communication between KO TH staff and the CTC - Hold weekly meetings with all CTCs coordinated and chaired by RTC to review what was done, what not done, and to plan for the coming week - Maintain frequent and open communication between communities to ensure all stakeholders know what is happening (for example, the power is off in one community) - Have CTCs make use of each other to troubleshoot and problem solve (this becomes essential if network expands relatively quickly) - Use technology to link nurses to satellite communities, such as Deer Lake nurse to Keewaywin or Weagamow nurse to Muskrat Dam - Ensure CTC has own space, separate from other uses e.g. nursing station, for her office & suite

Telehealth Informatics Educator
Staff Training and Development

- Anticipate certain barriers on part of new community staff:
  ▪ Shyness
  ▪ Fear of expensive equipment
  ▪ Feeling overwhelmed
  ▪ Newness of all technology, especially computer technology
- Never rush training, particularly video-based training
- Carry out training incrementally – review the material each time, then add a little bit more
- Use mock sessions as a way of testing skills and helping staff feel comfortable in clinical situations
- Encourage CTCs to make use of community resources (technically competent staff of other departments within community)
- Offer one-on-one training when CTC having a specific difficulty
- For technical difficulties, CTCs are taught to make use of troubleshooting manual before contacting help desk
- Hold four days of face-to-face training first, then all follow up is by distance
- Should give existing CTCs an area of expertise to train new CTCs in translation, technology, setting up meetings; sufficient funds are required to train community workers on new equipment and technology

Community Health Directors			
Consultation and community engagement	**System and service build**	**Staff training and development**	**Human Resources**
- Open houses are a good way to teach the community about TH and get people interested. Even before the equipment has arrived, use pamphlets and a presentation. Offer food to attract people. - Anticipate and attempt to address these confidentiality concerns: 1. Some Elders are afraid they will appear on everyone's television set. 2. Concern for the security of the system (e.g. hackers). Get encrypted lines. In KO, hacking has not been a concern. - Work with the KO HD to find a community champion who will be sure that the needs of the project and the community are met - Be neutral about TH and not "push it down anyone's throat." "If they trust you, they will begin to ask questions and then try it." - Do not force community acceptance. Take your time and allow people to come to their own acceptance. - Engage a community member to work with the PM to facilitate the community consultation process ahead of time - If possible, engage the community member hired to do the consultation as the CTC. This history with TH builds community confidence in the CTC. - attend meetings at least once per week at project outset in order to communicate community perspective effectively	- Ensure sufficient space for the project. If necessary, negotiate an extension on the nursing station and ensure it is of adequate size and that the CTC has an office space that is separate from the TH suite. - Know the community's needs in order to better bridge community and PTSP needs	- Lobby for sufficient face-to-face as well as distance training for the CTC.	- Ensure systems in place to address supervisory issues between community HD and RTC. For example, member of Health Board signs CTC time sheet when community HD is unavailable.

Major Human Resource Lessons Learned

List of Acronyms

C&C	Chief and Council
CEC	Community Engagement Consultant, position based at KO
CTC	Community Telehealth Coordinator
FN	First Nation
FNIHB	First Nation and Inuit Health Branch, Health Canada
HD	Community Health Director
KO	Keewaytinook Okimakanak, or Northern Chiefs Council, a regional First Nation council for the five initial Telehealth communities
KO HD	KO Health Director
NN	North Network, Ontario's Provincial telehealth services partner (PTSP)
PM	Project Manager, later Program Manager, based in the KO offices in Balmertown
PTSP	Provincial Telehealth Services Partner (in this case, North Network)
RTC	Regional Telehealth Coordinator, position at KO in Balmertown
TH	Telehealth
TIE	Telehealth Informatics Educator, trainer for CTCs based at KO office in Balmertown

Lessons Learned in Human Resources Management			
Category	**Issue**	**KO Response**	**Lessons Learned**
Recruitment and Hiring	Few potential community people are financially able to work in a half-time position. Not all qualified community members apply because the job is half-time.	Position is now full-time but this may be a challenge for future ongoing funding.	CTC position should be full-time.
	Most candidates for CTC are unfamiliar with the technology – computers, network, telehealth workstation, peripherals, etc.	KO hired a full-time Trainer; she designed a program to cover technological learning needs of CTCs	In remote communities where all technology is relatively new, TH technology will be unfamiliar to majority of new staff. It is important to hire a full-time trainer to ensure staff learn appropriately in a supportive environment.
	High turnover in the CTC position threatens project continuity within the community and increases the need for training.	Accepted high turnover, especially while position was part-time. Mitigated turnover by developing and implementing a continuous intake training/mentoring approach	High turnover is inevitable and must be factored into operational planning (i.e. ongoing training and orientation). Recruiting and training back-up staff is critical as well.
	If community workers are hired without the full participation of community stakeholders, community confidence in the project may be compromised.	Ensured community stakeholders participated fully and agreed with hiring processes and decisions. KO staff waited to be invited to be included in the hiring process	Full community-level and hub participation is essential to successful CTC hiring practices.
Performance Standards and Accountability	Community staff forget about or are late for appointments. Being on time for appointments	Emphasized, especially in the early days, the importance of meeting appointments, and that clients	Community-based staff and clients need time and experience to participate in the TH appointment

Lessons Learned in Human Resources Management			
Category	**Issue**	**KO Response**	**Lessons Learned**
	means being there 30 minutes before for both CTC and patient, a protocol which does not apply with other medical appointments	needed to be reminded repeatedly of their appointments.	protocols.
	Back-up/replacement CTCs did not dress appropriately for a telehealth consult (occurred rarely).	Dress and comportment problems were handled individually.	HR policy contains dress standards for staff. Deal with lapses on an individual basis.
	For some CTCs, this was their first job and they did not understand the importance of punctuality, reporting, and other accountability measures.	KO treated this as a training issue and built in accountability measures to their ongoing training and in-service program.	Training programs should be tailor made for community staff. Once you have an experienced work force, peer mentoring is effective in orienting new staff to work standards.
	The supervision of the CTC is shared by the HD and RTC and this can be problematic depending on the people involved. E.g. HD may or may not want to act on RTCs concerns re: discipline, evaluation, etc. The RTC is supervising at a distance while the HD is on site so this can cause difficulties in communication.	Maintained open, two-way communication between HD and RTC in regular, planned tele-sessions. Performance appraisal of CTCs involved both RTC and HD	Human Resource policies outline guidelines for the joint supervision of community staff. RTC is the functional or clinical supervisor while the HD is the direct supervisor. These dual roles must be spelled out and regular frequent supervisory communications meetings built into operations.
	CTCs working in widely dispersed communities performing clinical services under pressure (video consults) using uniformly high standards may have trouble at the beginning working with the precision that these consults require.	KO TH worked out standards of performance (such as how much time ahead of a consult it was necessary to be at work; how to complete the various forms, technical maintenance check lists, etc) that were continually communicated to the CTCs at weekly staff meetings and in-service training sessions (also weekly).	Develop standards of performance and communicate them to the CTCs frequently and appropriately.
	Some CTC staff encountered personal problems while travelling for work outside of their community.	Working in a health environment made it easier to get the counselling or other help that the staff required when they needed it.	Working as a team with internal standards, support and monitoring is an effective means of setting and keeping standards of behaviour and comportment, particularly when travelling.
	Because it is a new service the TH positions had evolving job tasks and performance requirements.	Annual performance evaluations of central office KO TH staff were used to make significant changes to evolving job descriptions with the consent of the staff person. These were very useful in verifying how work was changing and evolving in the first year of the project. The structured feedback from staff about their changing roles in the project was very useful.	Performance evaluations are a significant human resources management tool in any project but are especially useful during early implementation stages in order to track changing job requirements.

Lessons Learned in Human Resources Management			
Category	**Issue**	**KO Response**	**Lessons Learned**
Training and Staff Development	Most of the training is done by distance, using the TH workstations. The lack of face-to-face training can be problematic in transferring certain skills, especially in those areas where the trainee should practice the skill with support and supervision from the trainer (e.g. giving public presentations)	KO began training with face-to-face sessions to ensure new staff were familiar with trainers, other staff, and equipment. Attempts made to bring staff together on a regular basis (budget permitting) for face-to-face training.	Distance training using the telehealth network works remarkably well, especially given the need for continual upgrading, in-service and quality assurance training. However, distance training will be more effective if initial orientation and training is done in a face-to-face setting.
	CTCs in general are not skilled at performing the public relations and promotions functions of their positions. These are covered in training but not in sufficient depth for the skills to be transferred	These skills were dealt with in v/c settings on numerous occasions but staff continued to be reluctant to use them in their work.	Training programs for CTCs should include hands-on pr modules. Teaming up CTCs with community leaders with expertise in this area may be necessary in the beginning.
	Quality assurance is difficult to maintain when operating sites spread out over thousands of kilometres and when the network is expanding, adding new sites each month.	Video technology enabled KO to provide ongoing training and orientation in a flexible and responsive mode so that problems could be dealt with as they happened.	Hire a full-time telehealth trainer; make full use of workstations and network in ongoing training and quality assurance issues review. Ongoing training is necessary both because of new protocols and technologies, and because it is important to repeat training, especially if a CTC has not used a procedure or piece of equipment in a long time
	High staff turnover creates a need for re-training which can cause time and resource problems. All staff require ongoing training.	Designated a full-time trainer position for project and ensured funds available for this position. Trainer provided ongoing as well as start-up training. Worked with experienced CTCs to build their confidence as peer trainers as peer support and skills transfer became increasingly important as network expanded.	Community-based telehealth services require a full-time educator and a training program that is adequately resourced and ongoing. Peer-to-peer training is an important element of network expansion.
Professional conduct	Some code of conduct problems took place for staff who had not previous experience working in a primary health care setting	KO followed an agreed to process in working with staff conduct problems, with significant input from community HD.	Hire staff with a health care background if possible; experienced staff are preferable.
	Confidentiality is a constant issue relating in part to the fact that services are delivered in small communities Many new staff are unaware of the importance of maintaining confidentiality Although breaches were rare, continual staff training and upgrading in this area is	KO developed an Oath of Confidentiality in consultation with the community HDs. Training sessions explained the oath; CTCs signed it along with Health Directors. With young/inexperienced CTCs community trust in their ability to maintain confidentiality developed slowly and it was necessary in certain sites to compensate in the	Emphasize the Oath of Confidentiality and underline the importance of maintaining confidentiality, and the consequences of a breach, throughout all aspects of training and in-service staff development. Minor breaches (e.g. mentioning patient information in an e-mail and announcing that people have telehealth appointments on the radio) are discussed in staff

Lessons Learned in Human Resources Management			
Category	**Issue**	**KO Response**	**Lessons Learned**
	required. .	interim , i.e. use other community health staff for consults.	meetings.
Salaries and Benefits	A half-time position does not provide sufficient income for most qualified potential staff to take and keep the CTC job, but in the beginning of the project there wasn't enough work to justify full-time positions.	The position was made full time as the work requirements increased at the community level. CTC time not used in delivering services is used in staff training and development, including the coordination of in-service training for other community staff.	The cost of living in isolated communities can be prohibitive. With a half-time position, qualified staff are less likely to apply and turnover is increased from staff moving on to full-time positions when they become available. The CTC position should be full-time if possible. If not, planning for turnover is required.
	KO did not pay benefits to part-time staff at the beginning creating community staff morale problems	Six months into the project KO amended its policies to include benefits for part-time staff.	Amend policies, if necessary, to ensure any part-time staff receive benefits received by full-time employees.
	Staff beginning a project may be required to work significant amounts of over time, which at KO could not be compensated.	Special measures were taken to compensate staff who were required to do excessive overtime work in the beginning of the project.	Before project begins establish human resources policies and confirm they are in harmony with host organizational policies
	CTC salaries are sometimes problematic as they need to be high enough to attract good staff but not higher than comparable work in the community	KO worked with community partners (HDs) to ensure salaries were comparable with community norms wherever possible.	Research community salary norms and build appropriate salaries into funding proposals in consultation with community partners.
Policies	No specific telehealth policies were in place for the project at the outset, causing some confusion and staff morale problems as issues were resolved	KO dealt with this by using existing KO policies as an operating guide and by following the direction of senior managers in the central office of KO and in the communities. When there were personal problems, it was necessary to work closely with community HD's and the KO HD to resolve as per established and accepted custom.	Draft policies that are appropriate to Telehealth and deal with all telehealth specific issues before the project begins; amend as you go along but it is good to have some guidelines in place before you start

Section B: Community Outreach and Training

Lessons Learned: Community Telehealth Coordinator Outreach

Overview

CTC experience recommends a paced approach to promoting telehealth, being careful not to "push it down anyone's throat." They advised against forcing community acceptance but suggested rather that community staff should take their time and allow people to come to their own acceptance of the service through growing familiarity and comfort with it.

Telehealth promoters can anticipate certain concerns from community members right from the start. These include:

- telehealth will replace doctor visits (already few enough)
- they may not be properly diagnosed if they do not see a doctor in person
- the system is not secure
- telehealth is not confidential (both that the information is not protected, and clients – especially Elders – will appear on people's television sets).

CTCs reported that they did their best to address these concerns through explanations and demonstrations, particularly effective one-on-one. Healthcare workers (nurses, CHRs) have also helped to address concerns about the accuracy of diagnoses, explaining that a specialist can have a client sent out of the community if s/he deems it necessary. CTCs report that most of these concerns have gradually dwindled. They emphasize the importance of time and experience in the acceptance level for the service. In general it is important to reiterate that telemedicine is *an add-on to rather than a replacement* for health care provision.

Addressing some specific confidentiality concerns:

- If possible, hire a CTC with a health background or one who has otherwise gained the trust of the community in a previous position. This minimizes confidentiality concerns.
- Ensure sufficient closed space for telehealth equipment and administration to avoid situations in which CTCs must share space with other parties (e.g. nurses).
- Techniques for CTCs to increase client confidence:
  - Turn on the radio outside the Telehealth room during sessions to help block any noise. Remind all parties to speak quietly.
  - Inform all clients of the oath of confidentiality and other measures taken to protect confidentiality.
  - Inform all clients that they can stop their session at any time, for any reason. One CTC reports that this never happened but she thinks it reassured clients.

While addressing concerns, it is also important to explain the benefits of telehealth:

- Explain that telehealth will reduce the need to travel from the community. This works particularly well for Elders, people who are afraid of flying, and people who have difficulty finding escorts or child care when they need to leave the community. One CTC reported that now the Elders vastly prefer telehealth, to the point that they are frustrated when a specialist is not available for a telehealth consult.
- Explain that telehealth appointments might entail a shorter waiting period to see a specialist.

Based on KO's experience, certain groups may be easier or more difficult to convince of the merits of using the service. In general, teen-aged to middle-aged people were more difficult to convince than Elders. Concerns in the reluctant group revolved primarily around confidentiality, especially for telepsychiatry appointments. They expressed surprise that they were on their own in the session – they had expected a community member would be in the session with them. In other cases, some teenagers are reported to request psychiatric and other appointments simply as a means to leave the community for a while. Some CTCs report a protocol whereby if a client has previously failed to attend an appointment in Sioux Lookout, then for future sessions they are booked via telehealth.

Outreach Techniques

One-on-one Approach

Many CTCs and community Health Directors reported that talking to community members one on one was the best way to promote Telehealth – to explain what it is, to address concerns, and to promote its benefits. These are carried out in the language the client is most at home with, often Ojibway or Oji-Cree. After several months of promotion via different means, described below, some CTCs reported receiving telephone calls from community members who wanted to know more about the service. These conversations were also very useful although it was noted that much of the ground covered in the promotional material was covered again.

Some further guidelines to community engagement were suggested:

- Work with the KO Health Director to find a community champion who will ensure that the needs of both the project and the community are met.
- With the Project Manager, this community member carried out an intensive door-to-door community consultation, especially with Elders, before the project began.
- Bring pictures of the equipment in action to meetings, community TV and to homes.
- If possible, engage the community member ("champion") hired to do the consultation as the CTC. This history with telehealth helps to build community

confidence in the CTC and in the service. It also enables the CTC to build on skills and awareness of community needs acquired during the community consultation.
- Hire CTCs four to five months before the start of the service if possible. The lead-time enables them to do intensive engagement and orientation.
- Visit key workplaces and talk to employees, using visual aids
- Focus on building acceptance of telehealth with Chief and Council

Demonstrations

Live demonstrations of the equipment were also very important in promoting telehealth to the communities. Demonstrations included open houses, visitations, education sessions, and approaching people while they were sitting in the Nursing Station waiting room.

- Begin open houses before the equipment has arrived, using pamphlets and a presentation.
- Offer refreshments and make sure the whole community knows they are welcome with plenty of advance warning by poster, radio, and internet and community television.
- When the equipment has arrived, continue the open houses and demonstrate the equipment, such as the otoscope.
- Gear some open houses to particular groups such as Elders, pregnant moms, and teen-agers.
- Use open houses to arrange visitations between communities. Elders reported particularly appreciating visiting friends and relatives in other communities whom they would not otherwise be able to see. Visitations helped people to become comfortable with the technology and accept the medical services it can offer.
- The Home and Community Care program sponsors video lunches with visits between Elders from different communities.
- Visits between families in different communities, and between students and their families, also increase popularity and acceptance.
- Organize and promote telehealth-facilitated education sessions for health workers (on issues such as diabetes, asthma, post-traumatic stress disorder, suicide intervention) available to other community members as another way of demonstrating the technology. Promote these sessions by poster, community radio or community television.
- Invite patients waiting for appointments at the nursing station in to view a demonstration of the equipment. (This works well if the telehealth suite is located near the nursing station waiting room.)
- Give demonstrations to visiting physicians and nurses to build acceptance of the service in this sector. Give these demonstrations as often as once per week in the event of high nurse turnover, to reach as many professionals as possible.
- Work hard to keep the Nurse-in-Charge abreast of telehealth and all developments, to build her/his support from the beginning.

Community TV and Radio Promotion

Depending on the community, television and/or radio promotion might work to help community become aware of and curious about telehealth. One CTC reported that after several months of television promotion, she began to receive telephone calls from people of all ages asking for more information, and even for appointments.

- Carry out a series of programs for community television. Take pictures of the equipment and make flipchart posters using the digital camera to take pictures of the equipment. Set this up at the TV station and use the TV camera to do close-up shots, explaining the equipment to the audience as you do so.
- Read out and translate the procedures (what happens at a telehealth appointment) on radio or television at least once a week.
- Give monthly television or radio updates.

Training for CTCs

Some CTCs were uncomfortable promoting the service and felt they lacked training/experience in this area.

- Community staff training programs must ensure the transfer of the skills required to promote telehealth in the community – in person, by radio or television, through demonstrations and visitations, etc. Some peer-to-peer support may assist CTCs to try a promotional initiative. They can discuss their concerns and strategies with a peer who has more experience in this are thus building their own knowledge base and confidence.

Community Telehealth Coordinator Remote Training Plan

CTC Training Manual

A ***CTC Training Manual*** and certified training program were developed by the Keewaytinook Okimakanak Telehealth staff for use in training Community Telehealth Coordinators (CTCs) in First Nations during the pilot project. The manual/program was the result of extensive development during the first year of the project and was designed to assist CTCs to acquire the many skills identified as necessary to do their jobs. Many CTCs had little or no health care background and so needed to become familiar with both the technical aspects of Telehealth and the communication skills necessary to work with Health Professionals in urban areas. The TIE who developed and delivered the initial CTC training program is a Registered Nurse with a strong clinical background experienced in the technical aspects of the Telehealth equipment. All aspects of training were incorporated into the manual, and upon completion of its modules, CTCs are certified by KO.

The manual contains a series of checklists developed to ensure that the CTCs receive the skills required in their work. The TIE ensures that the CTCs have demonstrated their proficiency in all the skills before certification.

Training: Phase One

Phase one of the CTC training program outlines the technical skills and background knowledge required to implement Telehealth services. The information presented in this phase was initially delivered face to face. These sessions are individual or group sessions, depending on logistics, technology and CTC/learner work requirements.

The manual includes the following training outlines:

- Job Descriptions

  Job description is reviewed with the CTC at the onset of training.

- Confidentiality Expectations

  Soundproofing protocol
  Oath of Confidentiality

- Certification Criteria for the Community Telehealth Coordinator and Backups

  The Checklist of certification criteria is found below.

Certification Checklist for Community Telehealth Coordinators

Certification Criteria for Community Telehealth Coordinators

To receive certification the Community Telehealth Coordinators will demonstrate to the Educator or designate that she/he is able to perform the following:

- ❑ Complete "Computer Skills Checklist"
- ❑ Complete "Technical Training for the Telehealth Workstation Checklist"
- ❑ Complete "Health Care Skills Checklist"
- ❑ Review Body Systems Checklist
- ❑ Complete three mock Telehealth sessions, one with the Regional Medical Directors (see Criteria for Mock Session Training)
- ❑ The three mock sessions will consist of one psychiatric assessment, one cardiac assessment and one pediatric assessment. The Telehealth Informatics Educator will evaluate each mock consult (see attached Checklist for Telehealth Informatics Educator)
- ❑ Demonstrate Aboriginal language proficiency during mock consults by completing "Aboriginal Language Proficiency Checklist"
- ❑ Demonstrate ability to use NORTH Network Manual as reference

It is recommended that all CTCs receive CPR and First Aid Training

- Computer Skills Checklist

The computer skills checklist ensures that the CTCs have the basic skills necessary to operate a computer. Computer technicians are available in every community to work with the CTCs to provide this training.

- Technical Training for the Telehealth Workstation

This skills checklist provides the CTC with the skills required to operate the Telehealth equipment and make video connections necessary for Telehealth consultations. It is recommended that this training take place in a face-to-face environment with ongoing support provided by videoconferencing.

- Health Skills Checklist

CTCs become familiar with normal health findings and recognize medical terminology. This skills checklist in no way certifies the CTC to independently provide health assessments but is intended to help CTCs who have little health background understand common health terms and basic assessment skills. Face-to-face instruction is essential for this section.

- Medical Curriculum Checklist

This checklist is a tool to ensure that some basic knowledge of body systems is obtained by the CTCs. As health care providers, working with health professionals, it is useful for CTCs to have a base knowledge of body systems and the medical terminology used to describe these systems. The medical curriculum in the manual consists of lectures given by the medical directors with some drawings and diagrams included. It is recommended that this training occur through videoconferencing sessions. Topics covered:

a. Musculoskeletal Exam
b. Neurological Exam
c. ENT Exam
d. Respiratory System Exam
e. Cardiovascular System Exam
f. Abdominal Exam
g. Pediatric Exam
h. Definition of EKG and when it might be required
i. Frequently ordered x-rays
j. Lab tests and terminology

- Aboriginal Language Proficiency Component

CTCs are expected to be bilingual and provide translation services during Telehealth sessions. This checklist outlines a method used to evaluate the translation skills of the CTC and includes common words used in Telehealth. The CTC works with local health translators to interpret these words into language that will be accepted by the community. It is recommended that this training take place in a ftf workshop setting, supplemented by videoconferencing.

- Scheduling and Documentation Information

CTCs learn the process and documentation required to schedule consults.

- Mock Sessions

Mock session training allows the CTC to practice the skills they have learned in a role-playing scenario. CTCs are expected to complete three mock sessions using the telehealth workstation peripherals prior to the start of consultations.

Training: Phase Two

Phase Two training focuses on promoting Telehealth in First Nations, on building community support for Telehealth using health promotion and media relations strategies.

- Working with Key Community Members

Outlines the steps necessary to engage community support for Telehealth.

- Planning for Local Telehealth Launches

Outlines the steps to follow when planning the community launch of Telehealth.

- Tips for Writing Newsletter and Press Release

Covers the steps required to write and submit articles for local papers with samples.

- Radio Announcement for Telehealth

Provides tips on doing radio announcements for the local launch.

- Telehealth Open House

Includes the steps necessary to host open houses in the communities as part of the Telehealth launches.

- Telehealth Demonstrations

Includes the steps necessary for doing Telehealth demonstrations.

Lessons Learned

The following matrix contains a summary of some of the key lessons learned by KO TH during the initial development and delivery of the CTC training program.

Issue	What KO Learned
Orientation	KO coordinated 3 events/meetings in the hub offices prior to TH service launch (included the PSTP). These were combined training sessions and team building. These initial ftf sessions were important for developing a team between KO TH and community staff and for giving community staff a "critical mass" orientation, outfitting them to go back to their communities to operate on their own.
	Result · Face-to-Face sessions bring good return on investment as training and teambuilding tools.
Training Priorities	One of the problems with the initial training was trying to train too many people at once (i.e. combining training and community engagement). It became important for KO to insist that the key people (CTCs, Nurses, etc) got the required training first so that they could pass it on
	Result · Training program for CTCs is an operational priority amongst many urgent engagement priorities.
Quality Assurance	The underlying goal of the CTC training program is to ensure quality of service – similar (high) standards being met in each community. The adoption of these standards is a successful outcome of the training program. The program transfers skills while emphasizing a service orientation element often missing from other community-based training. KO teaches and models "going the extra mile," staying late to be sure a session happens, coming in on weekends, and having good working relationship with all clients. This service orientation of the training is achieved through team building and through emphasis that this is the way service is provided in KO TH. KO TH goes out of its way to help CTCs and they expect CTCs to go out of their way to help clients and partners.
	Result · All investment made in training is more than justifiable when the training is geared to the identified needs of learners and when its outcomes are tied to standardized quality of service across the service region.

Issue	What KO Learned
Training Program Development	Initially, KOTH planned to train CTCs on telehealth workstations using supplier training tools. They realized early in the development stage, however, that CTCs who have little or no health/ICT/Communications background would need much more training and ongoing upgrading on not only the equipment but also in a range of over pertinent skills sets. Learning curve steep in initial stages. Project had to create its own training program to meeting specialized needs and isolated locations of CTCs. KO realized that community staff are the backbone of the service and so must be trained in short order to meet certain skills standards. KOTH dedicated a trainer to the project so that CTCs could be given whatever strategies were required to master a needed proficiency.
	Result · Developed a KOTH-specific Training Program and Manual · Full-time Trainer/Developer · Trainer/Developer has a combination of health, technology and adult ed skills · CTC peer-to-peer transfer training · Weekly staff sessions (by phone or videoconference) to discuss recent problems, decide on solutions and to reinforce standards and policies
Medical Knowledge Curriculum	TIE developed a medical knowledge curriculum in concert with KO TH's Medical Directors who also delivered lectures to CTCs in the first CTC Training program. This aspect of the course has been downplayed recently as CTCs cannot do medical assessments, but do require enough knowledge of anatomy to be able to use the instruments on the workstation, e.g. before they learn to use the ENT scope CTCs need to know what the ear canal looks like, where to put the stethoscope, etc
	Result · Develop curriculum that allows non-health care professionals to feel comfortable with the language, activities and instruments used in consults · Basic anatomy only is being taught to CTCs at present
Timing of Training	In the migration phase of the project sometimes as soon as the equipment is up and tested, referrals are made. In those instances and if the CTC has the ability, TIE does "fast track" training and focuses on the technical skills that they need for a specific session, e.g. facilitating an education session or conducting a consult. Here again, KO realized the importance of dedicating human resources for training so that as much individual training as is required can be given to CTCs.
	Result · Training timing is flexible and service delivery oriented · Staff sessions focus on practical problems encountered by CTCs on the job · Experienced CTCs have taken on specialized portfolios so they can be involved in training new staff and supporting each other in a variety of work situations.

Issue	What KO Learned
Delivery Mode	KO TH preferred to do certain sections of the training program ftf, particularly at the beginning and with particular modules where experiential learning is important. As the number of CTCs has increased (25), 90% of training is done by videoconference. KO does invest significant funds to support CTCs to attend national and regional telehealth forums. These increase the sense by CTCs of ownership of the project and serve as important passive training experiences for community staff.
	Result · More individual learner-centred sessions take place for training and review · CTC weekly education meetings promote group solutions to shared issues and problems · Peer mentoring is a useful model with experienced CTCs taking on specialized portfolios for the purpose of skills transfer often conducted in the language of the CTCs · Training may take place by telephone/fax when network is unavailable
Skills Verification	In the initial model, certification of community staff was essential before they began to deliver the service (certification signed by KO and by NN). CTCs had to pass the first aid, the 3 mock sessions and the check lists in order to be able to deliver services in the initial telehealth model In the migration phase, KO uses checklists to track learning but may not have sufficient time to certify a CTC before service begins. An example of use of checklists: the TIE shows a small group how to use the general exam camera and then asks group to practise. In a week she asks them to demonstrate what they've learned, and, if necessary, review lesson. Checklists then are used to document what has been learned and dated. These are a good tool to track what each CTC has learned especially because so many trainees are at different stages. New CTCs learn concepts but sometimes fail to put them in practice right away, for example, ensuring they and clients arrive at telehealth consults 30 minutes before session begins. This behaviour pattern is difficult to change. KO uses weekly staff meetings to reinforce concepts and involves a team of hub staff to support community staff and patients in the establishment of new protocols.
	Result · Checklists are good tools to use to verify and track learning · Important to elicit feedback from learner to ensure skill has been transferred · Peers can provide excellent resources for distributed skills acquisition and assessment · Certification is an important tool to ensure standard of service throughout region
Distributed Learning	As the number of new sites grew in the migration phase and the number of new and inexperienced CTCs increased, KOTH has called on skilled CTCs to take over key trainer functions.
	Result · CTCs are paired to do a weekly workstation and peripherals checks · A CTC is able to do basic orientation to replace or assist TIE · A CTC chairs technical team and administers computer checklists · A CTC is able to demonstrate workstation and peripherals

Issue	What KO Learned
Engagement Training	KO (trainers and trainees) have found these skills sets to be the most difficult to acquire in a short time and at a distance. Some CTCs have previous experience with promotional activities, but most cite lack of confidence and skills to carry out multi-faceted promotional/engagement campaigns. Trainees indicate it would be easier to learn over a longer period of time and definitely in a ftf modality.
	Result · Open houses and community radio/television are the most used techniques for telehealth promotion · CTCs continue to do effective promotional work in a one-on-one setting · KO works with CTCs who self-identify as interested in public speaking, to help them learn techniques and gain confidence · CTCs are most effective as promoters of the service by acquiring the skills to facilitate a successful consult or session as this is passed on by word of mouth in the community · Once CTCs are familiar with the equipment, they do good promotional work by demonstrating it to new nurses, clients and visitors

Section C: Health Service Partnerships, Dependencies and Risks

First Nations Partnership Development

The matrix below explores the partnership that developed between KO Telehealth and the KO First Nations in the initial stages of the development of the service. The matrix consolidates information gained from the senior management team about their approaches, solutions and lessons learned in the building of a jointly planned and owned health delivery initiative.

Challenges	Response	Lessons Learned
Distance Working Relationship Building		
· Initial difficulty in early stages of the project was transferring sufficient up-to-date information to the community stakeholders so they could participate equally in joint decision-making · Events moved fast in the project leaving little time to build ownership and championship among HDs, C &Cs and other community leaders · Problems at community level evolve quickly and need to be identified and solved before escalation and crisis	· KO allocated sufficient funds for travel in early stages so it was possible to get into communities to meet with key partners and to build trust and joint ownership · It was necessary to be on-site often to deal with problems resulting from community capital improvement projects (renovations to nursing stations)	· There are some issues that need ftf input, particularly in the early stages of partnership development when community championship of the project has not yet developed and project development depends on milestones being met in a timely fashion
· To be successful the TH project needs direction/decisions from communities collectively · It is impossible to survey community leaders individually and this is not a good enough means to ensure joint decision-making	· KO TH used an existing committee- KO Health Advisory Cttee – to exchange rapidly multiplying information with community HDs · As HDs became more familiar with the project, more and more time was spent by this Cttee on telehealth issues · KO Health Director mediated between the HDs and the hub telehealth staff, using the Health Advisory Cttee increasingly as the vehicle to do so	· Make use of existing community/organization Cttees to build ownership and trust between hub and FNs · Take the time to be open and clear with community advisory groups; the more information HDs receive, the better their direction will be
· KO TH Hub had to mediate between NORTH Network and the communities in the service	· KO brought NORTH Network principals together with community HDs and leaders	· Orientation of the key partners (community, provincial service

Challenges	Response	Lessons Learned
Distance Working Relationship Building		
design phase of the Telehealth project · Many differences had to be bridged in the vision for the network, operational protocols and frameworks and technological configurations	before the project was funded · Gave communities and NN a chance to understand each other's perspectives and contexts · Set up the culture of mutual learning and understanding that has characterized the project ever since	provider, hospitals) should be done ftf and as early as possible and as often as possible · Important to bring the provincial service provider to the north so community realities are understood firsthand
· The broadly based engagement and consultation work required to introduce and integrate a radically new service protocol is impossible to do at a distance even given the presence of a video network	· KO coordinated regional conferences (ftf) at critical points in the development of the telehealth project · An initial conference brought district HDs together to learn what the service was and how it could be applied (demonstrations) · A second ftf conference took place to exchange information and do joint decision-making about the migration of the KO model to more communities	· Bring stakeholders together for carefully planned meetings to inform, meet telehealth staff and to generate direction from the community representatives about their priorities and needs · This must be done early in the project phases so that the information gathered can be used in the project design and rollout
· Having decided that full-time community staff were a key HR component for a successful project, KOTH management were faced with a series of problems relating to the recruitment, joint supervision, retention and training of the community staff	· KO's approach to distant HR management is documented in Part 1 Section A4 (*Major Human Resource Lessons Learned)*	· Working with community supervisors to establish HR management norms and protocols is essential to the successful joint supervision of community staff · The presence of a video network has greatly enhanced management quality for the CTC team
· Broadly based community consultation in an isolated many-point context is expensive and time-consuming and many projects skip it or conduct a process that is superficial and directed from the project to the community only instead of being 2-way, and community-project focused	· KO put extensive time and resources into their baseline consultation and engagement which they coordinated in each participating community · KO carried out door-to-door consultation using community staff to guide, inform and interpret	· Plan and implement thorough ftf consultation and data gathering before project begins · Use the information so gained to inform the design of the service model

Challenges	Response	Lessons Learned
Distance Working Relationship Building		
	· This process produced very useful information about community service requirements and concerns and initiated the acceptance of the service by several groups of clients · This baseline information proved very useful in the development of the service model by NN and KO	· Money spent on proper consultation with community stakeholders is money well spent!
· It is time consuming and difficult to brief C & Cs sufficiently to ensure their direction is well founded, yet this must be done as their input, ownership and strategic direction is essential if the project is going to succeed and in order for it to have broadly based support throughout the region	· KO built in the time and resources to meet with and respect the wishes and interests of C & Cs · This was considered an accountability issue by the senior staff; i.e., they considered accountability to the C &C as a primary deliverable · They also took (and were given) every opportunity to meet with the Chiefs as a board and to brief them on project progress and issues · KO also sought permission and support formally in the form of resolutions from individual FNs and regional bodies as a prerequisite to "sending in" the engagement/consultation team · One senior KO staff person said "we (staff) had a vision of telehealth (largely clinical), but the communities saw other ways of using it (education, in-service and administration) and so we were committed to work their vision into the project"	· First level accountability is to C & Cs, as local governing bodies and as the members of the board of directors of the proponent tribal council · Finding the means and opportunities to interact with the C& Cs becomes a baseline principle for the project, to be adhered to early and often

Challenges	Response	Lessons Learned
Coordination and Planning		
· Developing and maintaining a decentralized community-centred project planning and coordination model is made more difficult when the peripheral participants in the project are located as far as 2000 kilomtres from each other and the hub · Problems not solved can escalate to other communities/sites and potentially involve provincial partner and other service-providers	· KO's main vehicle for joint planning and coordination took the form of three regularly scheduled well focused and organized video/telemeetings · Weekly hub and Menoyawin Coordinator meeting to identify operation problems, bottlenecks and needs · CTC group meeting every two weeks for support, identifying of shared problems and critical peer-to-peer problem-solving and ownership-building · Staff Training Session every two weeks for in-service, updates, and discussions about how to deal with common issues, and to review and update skills · It was pointed out that KO as the host for the project was singularly well positioned to carry out joint planning and decision-making with isolated sites as this is how the tribal council has been working in a distributed format for 10 years (explains the KO Chiefs ready adoption of ICT development)	· Use the network to organize and hold regular scheduled meetings among hub, partner and community resources · These meetings must be well organized and documented and, if so, they are a good tool to trouble shoot problems before they escalate and to engender community staff ownership in the project

Challenges	Response	Lessons Learned
Communication		
· Hub telehealth staff in the initial stages of the project were not fluent in the languages of the community	· This was dealt with by translation and interpretive services but was considered less than optimal for certain aspects of project communications and engagement · KO TH now has a full-time Community Engagement Coordinator (contract) who is fluent in Ojibway	· Wherever possible hire hub staff who are fluent in one of the languages of the region
Challenges	**Response**	**Lessons Learned**
Community Network Design		
· Educational orientation is an example of the differing uses made of the telehealth network by the "southern" partner (NN) and the "northern" First Nations partner. NN primarily delivers continuing medical education for health professionals whereas KO communities are focused on the needs of community health workers and have oriented tele-education towards development of basic skills, acquisition of practical knowledge and community-based health education needs.	· KO integrated community priorities into every possible contact with NN to explain and demonstrate (in ftf) settings how KO community-based applications of the network were legitimately different from those of a provincial network · NN is described as a "good partner"; they didn't know the context of the KO network, but they made every effort to learn and to be flexible in the partnership development · The KO Medical Director was an important link between NN and the KO project for 2-way information sharing and to give the unique perspective of credibility with NN	· The telehealth hub staff must see themselves as a bridge between the community with its unique service model priorities and the PTSP which by definition will operate in a different framework · Engaging a Medical Director for the project is a strategically sound action as a means to enhance communications and credibility with provincial services partner (s)

Challenges	Response	Lessons Learned
Staff Training and Development		
· Training for community staff began as equipment-specific, but it was soon realized that there were other significant skills gaps that would affect the standard of care being able to be provided by CTCs · From the numerous checklists, hand-outs and sessions, it became clear that an organized and integrated training process needed to be developed and that valuable resources would have to be spent on staff orientation, training and upgrading	· KO management adapted quickly to the training requirements of community staff and so concentrated and coordinated efforts were executed to provide appropriate and distance-training to community staff · KO included a full-time Telehealth Informatics Educator to develop and implement a certification program and ongoing professional development for community staff · As soon as CTCs were experienced enough, KOTH has expected and supported them to take on a peer training and development role, thus decentralizing the much needed skills acquisition reach of the program	· Telehealth services with a strong community base must be constructed as learning cultures where staff are expected to acquire new skills and knowledge as a part of their performance expectation · A full time trainer is a key requirement of this model of telehealth · Resources must be set aside to orient, train and develop community staff on an ongoing basis

Effects of Nurse/Physician Turnover on Telehealth Service Delivery

Problem Statement

KO Telehealth found that the high physician and nurse turnover in the Sioux Lookout District contributed significantly to reduced clinical utilization of telehealth in the early phases of its development. This has been an ongoing challenge with the project in that the referral system is physician-based and so the clinical success of the service significantly depends on doctor referrals.

Introducing telehealth to health care professionals and working with them to ensure they make referrals with ease takes as long as six months. If there is high physician/nurse turnover in a community it is unlikely that there will be sufficient time to complete the orientation required to allow a physician to make regular telehealth referrals. Most physicians are willing to make a single referral. However, KO TH initially found that it took up to a year of orientation and facilitation for a physician to be comfortable making regular referrals. The main impact of this was on the clinical utilization of telehealth and this in turn was a key issue in Health Canada's initial evaluation of the Keewaytinook Okimakanak service.

Another impact of the high physician turnover in the District may be less innovative uses of telehealth. In the event of certain types of urgent or emergent situations, on-call physicians regularly assess patient situations via telephone. However, only those physicians familiar with telehealth are likely to choose to do a spontaneous telehealth consultation with a patient in a remote community or otherwise use the network in a host of innovative and transformative ways such as tele-primary care (family medicine clinics).

The effect of high nurse turnover is felt to be similar. In some communities, long-standing Nurses-in-Charge have been very supportive both of telehealth and of the CTC, helping to make her/him comfortable in her/his role. Having nurses present for an extended period and supporting the work of the CTC has been found to be critical to helping the CTCs do their job. With high nurse turnover, however, nurses are unfamiliar with telehealth and less likely to support the CTC. In the early days of the telehealth project, when the RTC or TIE called a nursing station in a remote First Nation, s/he would often have to explain telehealth to a new nurse from the ground up each time. Similarly, CTCs spend many hours orienting new and or visiting nurses and doctors.

KO Telehealth Response

The creation of the Community Telehealth Coordinator position was in part a response by KO to the high physician and nurse turnover in the District. It was evident from the outset of the telehealth project that animation and engagement of telehealth services at the community level would have to be carried on by a consistent community-based staff person. This lead to the inclusion of a community position in all iterations of funding proposals. Significantly, the position has evolved from a part time to a full-time one.

In one success story, a physician based in western Canada but serving one of the KO communities mentioned to the Nurse-in-Charge that she didn't have enough time in the community to see chronic cases, only the acute cases. The nurse communicated this to the KO TH staff who worked with her and the physician to set up a clinic out of Vancouver from which she can now see chronic people in her community on a biweekly basis using the telehealth network. This demonstrated a new application as well as increasing clinical utilization. This protocol has been replicated in several other situations since then.

In response to the impact of physician and nurse turnover on the clinical utilization of telehealth, the KO TH staff have worked continuously with their Medical Directors and the North Network Medical Director to develop strategies for increasing physician acceptance of telehealth and urging physicians to make referrals. This included, as an example, anticipating the questions and concerns physicians might have with telehealth and fully integrating telehealth practice into the Northern Ontario School of Medicine's community placement protocol.

After several years, telehealth is more visible and better understood in general in the region, and so utilization and acceptance by physicians and nurses continues to increase and expand despite continued high turnover amongst Zone medical staff. The KO TH model based as it has been on health education and wellness activities has developed a strong service component parallel to its clinical utilization. At this point, CTCs are fully engaged in facilitating a multilateral service, where clinical consults are becoming more and more prevalent but are not the sole rasion d'etre of the system.

Telehealth Service Development Risk Mitigation

The following narrative summarizes the key areas where risk occurs in the initial stages of the telehealth project rollout. Within each area the risk is identified and the response taken by KO TH and the lessons learned are described.

1. Project Sustainability

Risk: the investment in human and financial resources to demonstrate the KO TH model in the pilot project would not be sustainable; i.e., would not result in the continuation of the telehealth service in the original five communities and/or expansion of the service within the Sioux Lookout District.

Response: KO TH elected to create and sustain a positive, committed operational team. KO TH used a distributed staffing model – core staff in Balmertown (clinical/administrative) and Sioux Lookout (technical) and community-based coordinators. KO TH management recruited a multi-sector Sustainability Committee at the outset of the pilot project, embedded as a "permanent" structure in the two-year pilot project. The Sustainability Committee was composed of stakeholders within KO as well as existing and potential funding partners (KO HD, PM, Health Advisory Committee, NN, Health Canada, and FedNor). The KO TH Sustainability group met intermittently during the first year and then regularly during the second year of the initial pilot project.

Sustainability Committee's Role

The Sustainability Committee started by developing the business case for full Telehealth services for the Sioux Lookout District and then targeted potential funding agencies/programs. The committee became a platform for educating and informing Health Canada, FedNor, and other agencies, thus setting the stage for the bridge funding that would be critical to project continuity. The success of the committee lay in its links to key stakeholders like the KO Chiefs, key funding agencies and partners. It was the means whereby the identified needs of all sectors could be met within the project while keeping key players informed about the status and progress of the project. Another element of its success lay in having its members record in writing their support for the project (including tangible in-kind support such as office space). This documentation of the partnership was important in ensuring the bridge funding which ultimately carried the project through to its present funding platform.

2. Service Model Development

Confidentiality

Risk: Telehealth services would be under used because of clients' concerns re: confidentiality and the slow growth of trust in small community settings where service was being delivered.

Response: All CTCs sign an Oath of Confidentiality as part of their orientation (attached as Exhibit 1). The Oath was developed in consultation with community stakeholders and co-signed by the Health Director. Co-signing shows personal, supervisory and community commitment of the community health partner. The issue of confidentiality was given importance in the project both as a training skill area and as a staff/management discussion topic in weekly management meetings. Examples of slight breaches are raised and discussed thoroughly; e.g. mentioning names of patients who have appointments on the community radio station and confidentiality protocols with patient information in e-mail messages.

Community Staff

Risk: Funder(s) would not be willing to support community-level staff (CTCs) to operate the telehealth service in the community thus critically jeopardizing the service which, to be successful, requires the facilitation of staff who understand the language, needs and cultural contexts of patients.

Response: KO insisted on having community staff in the pilot project and in all iterations of KO TH. KO TH provided evidence to funders that successful delivery would not be possible without this key service component. KO has recently made the community positions full-time and continues to underscore the importance for success of a network of well-trained community staff.

Scheduling Appointments

Risk: Funders would not be willing to support an appointment scheduling system and staff unique to KO as this function was already being facilitated by the PTSP (North Network). KO deemed a KO TH scheduling position was essential to the efficient rollout of the project including accurate record keeping.

Response: KO TH has insisted on having its own scheduler. This ensures more effective communication between scheduler(s) and community staff as well as better record keeping. It also decentralizes the network, ensuring a solid footing in the First Nations Council. It is significant to note that as the KO TH network expands, there are now two schedulers on staff.

Model Compatibility with Community Needs

Risk: KO Telehealth's service-delivery model could have met the clinical needs of patients/medical staff without being designed to also respond to the critical training and development needs of community health staff, thus greatly reducing its relevance and efficacy as an agent for health prevention and wellness.

Response: KO has ensured that the network provides time for use of telehealth facilities for family visits, case conferences, and extensive in-service training and professional

development as well as for clinical consultations. This means that diverse health care prevention and primary care workers such as CHRs, mental health workers and addictions workers can use the network to enhance their skills. The telehealth network is therefore seen in the community as a full spectrum health service, greatly enhancing its use in all areas, including in clinical consults.

3. NETWORK

Design

Risk: Network would meet needs of KO communities and users but not function effectively as part of North Network.

Response: KO carried out extensive research and peer consultation in the design of its telehealth network and workstations not only with North Network but also with others working in similar community-based network environments.

Risk: A lack of joint decision-making and problem-solving between KO and PTSP network staff concerning a range of secondary issues (once the network was up and running) – security, quality of service, how satellite services would be provisioned, bandwidth shortage, etc – would jeopardize service and sustainability of the network.

Response: KO TH management pressed for maximum communications possible at the technical level. Both KO and North Network agreed to and participated in regular frequent meetings between their technical departments, involving management, to ensure ongoing communication and agreement of key technical protocols and service standards.

Network Build

Risk: KO's network would not be sustainable because it is based on a community aggregation principle that requires multiple users/applications. The provincial model was to use centralized, distinct network access points that would not support multiple users or applications. .

Response: KO continues to use the aggregator model. Telehealth traffic is carried within a Virtual Private Network to a 'meet-me' point with the provincial network. KO continues to liaise with governments and other partners and stakeholders to encourage them to use K-Net thus sustaining it and providing employment, capacity building and empowerment for remote First Nations

Risk: Decisions may be made by partners that are counter-productive for KO communities, thus rendering the service less accessible and successful. For example, NN proposed discontinuing use of the ENT scope as part of the TH workstations based mainly on high costs and low use. This would have eliminated a piece of technology that KO staff knew gave the best demonstration of telehealth's capabilities for community

users and was valuable in primary care consultations (otitis media) and as such was an essential part of the workstation.

Response: KO continues to advocate for service protocols, procedures and equipment that will maximize use and effectiveness of the telehealth service in their communities. Their community staff provide sufficient on-the-ground information to ensure the model created will work.

Security

Risk: K-Net as an existing network would not be secure enough to be a telehealth service provider as part of North Network.

Response: K-Net Network management worked through the security issues systematically, defining first what was meant by a secure network (e.g. physical, network; application security, etc) and then documenting how each of those defined security needs would be met and, finally, carrying out the work to meet the targets as established.

Reliability

Risk: A network connecting isolated, outpost nursing stations and health centres may not be reliable enough to service the needs of a fully functioning telehealth service.

Response: KO network management consulted with similar networks as part of their planning process and chose appropriate equipment and suppliers using well-defined criteria and an emphasis on equipment maintenance and repair issues (including extra back-up equipment, extended warranties, etc) to minimize problems with the network and ensure that any problems that do occur are dealt with promptly.

Technical Staff

Risk: Technical staff would work too much in isolation from the end products and would therefore fail to respond adequately to needs of service-providers and clients.

Response: K-Net built primary, secondary and tertiary understanding of telehealth services with all staff: technical staff understand that their primary concern with the project is establishing, maintaining and running the network. But they are given secondary and tertiary level understanding of how the network telehealth application fits in with the "big picture" and with the other applications, such as teleradiology, education, personal network use, etc. This has assisted the technical team's understanding of the work performed by their peers in other areas.

4. Community Engagement

Risk: Community concerns and questions about telehealth would not be answered in the development phase thus minimizing use and jeopardizing success and sustainability of service.

Response:

1. KO TH secured a substantial travel budget for the engagement phase so that telehealth staff spent a lot of time in the communities in the early stages – every week in this stage there are staff (PM, RTC or TIE) going to one or several communities to talk to people and answer questions, address concerns, etc.

2. KO TH staff nurtured face-to-face contact and communication with staff in nursing stations to ensure sensitivity to expressed needs and to the unique spatial and other conditions in nursing stations. This required that telehealth engagement staff be on site in each community, speaking face-to-face with nursing staff, physicians, health directors, and CHRs.

3. KO applied a multi-disciplinary approach to the development phase of the telehealth project tapping into other departments in the organization to successfully complete engagement and development work at the community level (public works and education departments were already well known within the communities) to spread the word about telehealth to as many different sectors as possible at the community level.

4. The most important aspect of engagement was done by the Community Telehealth Coordinators and therefore focused attention was given to the orienting, training and development of CTCs in this area.

5. Face-to-face district workshops have been used effectively by KO to build joint ownership of telehealth and to continually brief Health Directors about the project. Despite the extensive use of distance communications, KO staff continued to emphasize the importance of meeting with community partners at the conferences or in the communities.

Communications

Risk: Lack of information or misconceptions about the project and its outcomes could have harmed the credibility of the service.

Response: KO TH has emphasized open and transparent communications with all sectors. A multifaceted approach to information sharing is important. Interested people can visit the website for documents, statistics, policies, updates and news. The staff

emphasize, however, the importance of face-to-face contract at the engagement stage. CTCs have played a role of communications liaison between the Health Directors and other community leaders and the service, ensuring that Health Directors and others in the community have become more and more aware and supportive of the project as it has evolved. KOTH program managers both emphasize the importance of answering questions before they are asked and being seen as a place where one can feel free to ask questions and voice concerns.

5. Human Resources

Community Staffing

Risk: Qualified, appropriate and competent staff would not apply to work for telehealth project because salaries were below market standard.

Response: KO secured sufficient funding to build salary scales to attract competent staff. Issues of salary disparity were mediated between KO and the participating community.

Risk: Staff hired in the communities might not be the best fit for the job, i.e. under qualified, no experience in health, hired because of need for job rather than possession of skills, etc

Response: KO TH management spent significant front-end time in early stages working with communities to define qualifications, design an effective hiring process and learn from mistakes. Program Manager communicated the importance of the CTC position to the KO Health Advisory Committee (community Health Directors). This proved to be a critical response because the project needed the support of the Health Directors to ensure the best possible candidate was chosen in the communities.

Risk: High turnover in CTC staff might jeopardize the service standards of the project.

Response: Telehealth management staff advocated that community staff be hired who had demonstrated genuine interest in the work, as these employees were more likely to stay in the long term. They encouraged community hiring committees to communicate that this was a "different" health job – to promote its pioneering aspect, its flexibility, and its direct benefits at the community level. The part time nature of the job was an initial difficulty because staff were always tempted to take a full-time job when it became available. KO subsequently made the CTC position a full-time one.

KO avoided conflicts of interest in hiring by having a procedure in place for an alternative supervisor, if the supervisor was a relative of the potential hiree and by working closely with each community to establish a fair and equitable hiring process in which KO TH staff were involved.

Risk: It would be difficult at the outset of the project to find staff who have the range of expertise the job requires.

Response: KO TH made every attempt to hire staff who could self-teach and learn on the job. They also recognized at the outset that the project would not be successful unless a full-time dedicated trainer was part of the project design. Further, KO recognized the need for a KO TH-specific training manual and program, which makes extensive use of distributed learning techniques and technologies; e.g., video conferencing, one-on-one training and peer mentoring, online support by peers and trainer, etc.

Risk: Liabilities might arise from clinical protocols not respected by non-health professionals such as CTCs.

Response: KO should work with the College of Nurses on guidelines/protocol for non-health professionals working in a health setting.

Distributed Workplace

Risk: The difficulties inherent in the distributed workplace (i.e., functional supervisor at a distance from all CTCs) would limit the effectiveness of community staff and, therefore, the utilization of telehealth services.

Response: KO TH core staff developed a solid working relationship with the community Health Directors (who are the direct supervisors of the CTCs). This included being on the agenda of their weekly meetings where staff issues were regularly discussed and during which joint supervisory protocols were established. A telehealth policy and procedures manual which outlines standards of performance, workplace expectations and guidelines and benefits is also an important HR tool. Distance supervision also requires increased attention to positive feedback to community staff. Exceptional staff performance was acknowledged in a number of ways to ensure message was received by both the employee and the team.

6. Communications and Relationships

Partnership with North Network (PTSP)

Risk: Misunderstandings between partners could lead to concerns on either part about bad faith, service delivery problems and/or the rupture of partnerships thus compromising project viability. As the established service deliverer, the provincial telehealth service provider might have "taken over" and imposed their service model and delivery mechanisms and protocols.

Response: KO TH management has made extensive efforts to keep communications pathways open and maintain dialogue to ensure all parties understand each other. KO's approach in this matter was to create new and/or make use of existing committee/team structures to ensure misunderstandings were ironed out before they became problems and to keep communication exchange going in both directions as often as possible.

KO TH also ensured that communications, meetings and decisions were documented and shared so that all parties could refer to written records to avoid confusion, redundancy and lack of follow-up.

Risk: Broader health or geographic community might not be aware of the potential of TH.

Response: KO attends all relevant health meetings, gatherings, and conferences to speak about telehealth in formal settings or to raise awarenes of the service in discussions, workshops and in individual contacts.

Relationship with Funder

Risk: KO would not be able to comply adequately with the often complex reporting requirements of cross-sectoral funding arrangements.

Response: KO management team were integrally involved in the development of the telehealth project at all stages. They took ownership of the reporting/accountability issues and worked hard to acquire/obtain capacity and resources to comply with the new reporting protocols. They adopted as an operating principle the requirement to be accountable and transparent in all telehealth transactions with all partners.

Exhibit 1: Oath of Confidentiality

KO Telehealth

Oath of Confidentiality

1. All patient health records are to be treated as confidential material.
2. All information regarding people using Telehealth services is confidential.
3. I will respect the confidentiality of people with whom I am working.
4. I agree not to discuss or release information involving my work – or the work performed by allied health workers – in the Nursing Station.
5. Unauthorized disclosures of any confidential material will result in a recommendation for immediate discharge.
6. I have read and understood this statement. I agree to respect by this policy as a condition of employment as Community Telehealth Coordinator.

_____ _____

Signature of Telehealth Coordinator Date

_____ _____

Signature of Witness Date

_____

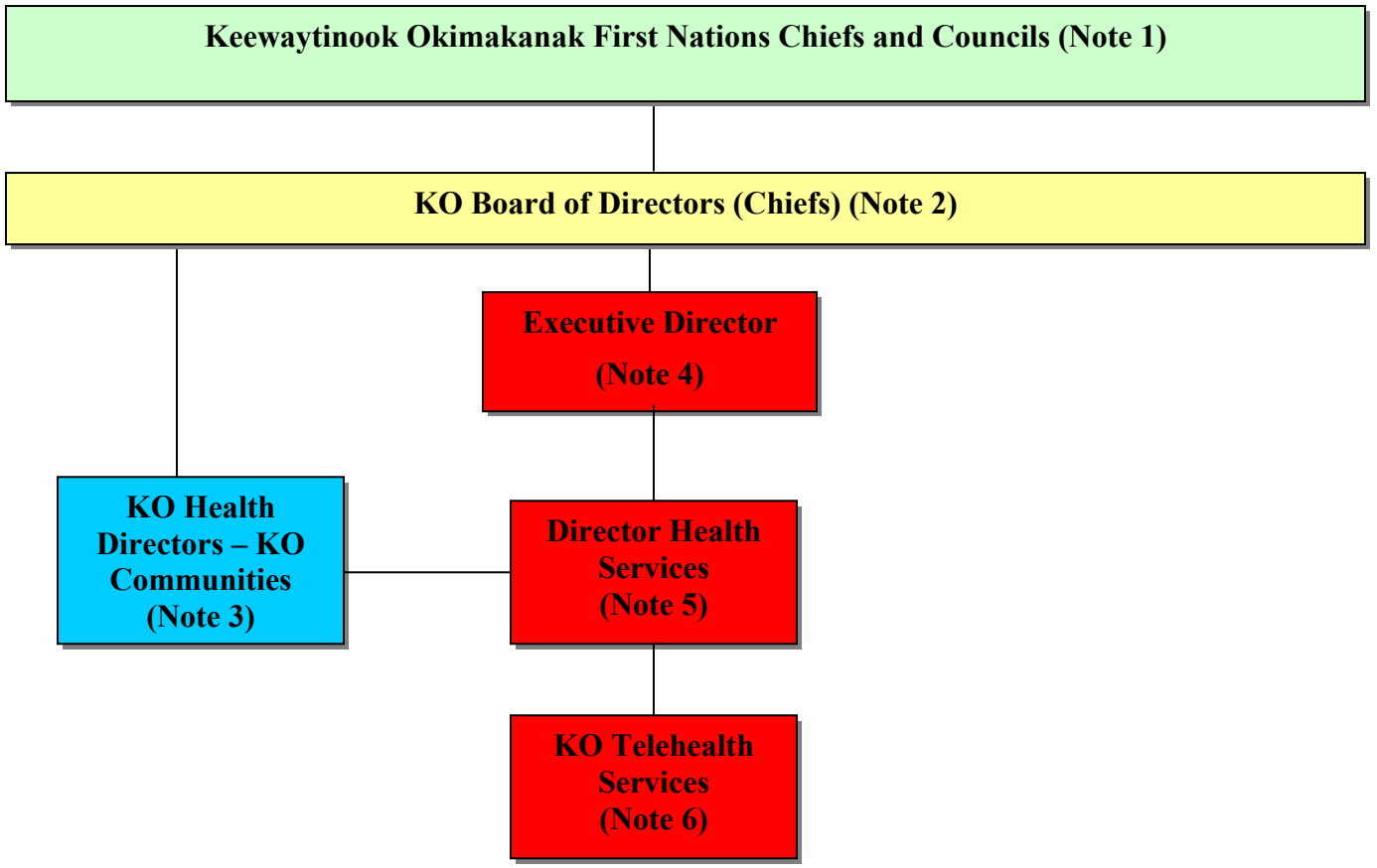
Community

Serving First Nations Communities in the Sioux Lookout Zone

Section D: Management Systems

KO Telehealth Governance Structure

Key Governing Structures and Relationships - Keewaytinook Okimakanak (KO) Telehealth Pilot Phase – 2001 to 2003



Note 1: Keewaytinook Okimakanak First Nations Chiefs and Councils
The chiefs and councils of six First Nations (Deer Lake, Fort Severn, Keewaywin, McDowell Lake, North Spirit Lake, Poplar Hill) represent the membership of their communities to which Keewaytinook Okimakanak provides second level services.

Note 2: KO Board of Directors (Chiefs)
The Chiefs of the Keewaytinook Okimakanak member First Nations form the legal entity that oversees the KO organization.

Note 3: KO Health Directors – KO Communities
The KO Health Directors Committee of the board advises the board on community health matters. They provide direction to the KO Health Director concerning programs, policies, standards and services required to serve their communities. As such they are a key governing structure in the design, implementation and evaluation of the Telehealth program.

Note 4: Executive Director

The Executive Director reports to the Board of Directors and is responsible for all KO programs and services including the Telehelath program.

Note 5: Director of Health Services
Reporting to the KO Executive Director, the KO Health Director is responsible for the KO Telehealth project and other health initiatives carried out by the organization.

Note 6: KO Telehealth Services
KO Telehealth is a program of KO. The KO Telehealth Program Manager reports to the KO Health Director, in the accountability chain that ends with the Board.

KO Telehealth has advisory and partnership relationships with a various stakeholders; for example, NORTH Network, other KO departments, etc.

Service delivery is supported by resolutions from regional organizations and First Nations.

KO Telehealth Business Practices

"No community is ever the same."
Kevin Houghton
Program Manager, KO TH

Business practices are defined as "management processes and principles that work to ensure that the mandate of the project is fulfilled." KO Telehealth's demonstration model offers some useful practices that are unique to its operations and emblematic of its success implementing a sustainable telehealth service model for isolated First Nations. The following guidelines aggregate some of the key business practices employed by Keewaytinook Okimakanak.

1. Serving the Client

- Ensure that both the communicative and medical care needs of clients are met and that their distinct perspectives are understood.
- Invest significant resources in real consultation and engagement with prospective clients, taking advice from community staff about how best to reach various audiences.
- View new technology as a means to improving service; use and defend the use of any new technology if it can be proven to solve a client/user problems.
- Hire community staff who understand health, and who can work well in their own language and in English.
- Decentralize decision-making and performance as soon is it is feasible.
- Maintain community and clinical standards of confidentiality.
- Carry out extensive and ongoing research about the client and medical communities so that the model (technical and operative) meets the needs of both

2. Human Resources Deployment

- Emphasize learning as a job function for all staff so that learning on the job is expected, rewarded and integral to job performance.
- Begin the training of community staff face-to-face when possible. Make use of the network extensively after initial training and relationship-building sessions have taken place.

- Design and implement salary scales that reflect local and regional norms and incorporate program funding formulas.
- Work with the College of Nurses or other regulatory bodies on guidelines / protocols for lay health workers in isolated and outpost health settings.

3. Building Funding Partnerships

- Regularly demonstrate the value of the project to funders by providing oral briefings and written reports and submissions. Incorporate project successes and highlight issues resolved and outstanding.

- Build strategic partnerships through information-sharing, committees and frequent contact and maximize awareness of the project internally and externally.

- Raise enough "seed" funds to leverage remainder of funds required.

- Build and sustain management team capacity to comply with high level reporting protocols and demonstrate accountability for all Telehealth actions.

- Find new partners to offset gaps in funding arrangements; e.g., no provision in project budget to cable nursing stations so FedNor funding is sought to do so.

- Create and foster a Sustainability Committee that will see the transition from pilot project to permanent program. Elements of its work include: education of and communication with funders and other partners; communication with the communities and documentation of all forms of support.

4. Distributed Decision-making

- Use the network to model a management group approach that de-emphasizes community edges and highlights team capacity to strategize and respond.

- Be open and transparent with community partners – they are partners in the project and can take the good news with the bad.

- Health and sickness data from the community should be accessed by the community for use in its own health planning.

- Engage new communities only when it is clear (from Health Director, Nurse-in-Charge and Chief and Council) that they are ready to proceed with Telehealth service development.

- Use face-to-face gatherings of community health decision-makers at key points in the project evolution; during the demonstration phase; at the beginning of service expansion, etc, to develop regional ownership, a better sense of what telehealth is and to build individual relationships with Health Directors, Councillors,

and other health activists in the community

- Develop and sustain close and full communication with staff and decision-makers at regional health care facilities (regional hospitals, community care access centres, regional FNIHB office) who can help solve problems on the ground in nursing stations (space, need for cabling, etc).

- Limit the amount of new committees for consultation and communication with partners; build consensus and awareness that the Telehealth project should be on the agenda of existing committees and structures.

5. Community Networking

- Design and support network services that are flexible, standards-based, interoperable and have the capacity to support multiple applications and service providers.

- Invest in pre-planning to define roles relating to the network build (e.g. equipment purchase, responsibility in the event of break-downs, payment terms, etc.).

- Incorporate planning as a fundamental go-forward tool, to ensure agreement on costs, results, reasons, beneficiaries, etc.

- Implement broadband networking services that support multiple applications, accommodate multiple protocols, and are resourced to deliver at high bandwidth.

- Support community network sustainability by supporting an aggregated model whose services can be sold to many users to reduce costs.

- Schedule regular and frequent meetings between First Nations network and provincial Telehealth service provider network technical departments, involving management, to ensure ongoing communication and agreement of key technical protocols and service standards.

- Define PTSP's network security requirements and document how these security needs will be met.

KO Telehealth Annotated Policies and Procedures

1. Development of Manual

Policy and procedures development in the initial phase of the KO Telehealth project was led by the Regional Telehealth Coordinator (RTC) who chaired the KOTH Policies and Procedures Committee. Policies of a general nature relating to the entire network were extracted the NORTH Network's manual while policies relevant to the Telehealth project only were created for review. The RTC sat on the NORTH Network policy committee thus providing a link between KOTH policy development and the PSTP.

Policy and Procedures Committee Terms of Reference

- Identifies and addresses gaps in policies, procedures and processes to provide consistent, quality management of clinical and administrative aspect so KO Telehealth and its telehealth partnership with the NORTH Network and First Nations.

Membership

- Program Manager
- Regional Telehealth Coordinator
- Special Project Coordinator
- One or more clinical representatives of the participating First Nations organizations

Responsibilities

- Develop and maintain a list of polices and procedures
- Determine consultation process to ensure functionality, application and clarity of policies and procedures developed
- Recommend polices and procedure for approval by KO Telehealth Program Manager and KO Executive Director
- Program Manager reviews new/revised policies and procedures with the First Nations Advisory Committee on a quarterly basis

2. KO Telehealth Policy and Procedures Manual

The following is a summary of the contents of the KO Telehealth Policy and Procedures Manual.[5]

[5] Please see: http://telehealth.knet.ca/index.php?module=ContentExpress&func=display&ceid=144 for an electronic copy of the KO Telehealth Policies and Procedures Manual.

HUMAN RESOURCES POLICIES

Job Descriptions

1. Community Telehealth Coordinator

Community Telehealth Coordinators (CTC) ensure the delivery of quality telehealth services in their communities. S/he plans, promotes and organizes all uses of the telehealth system and participates as a team of regional CTCs who work together to acquire the skills and knowledge required to provide the best service possible to telehealth clients.

2. Telehealth Informatics Educator

The Telehealth Informatics Educator (TIE) coordinates telehealth training and educational services for community Telehealth Coordinators and other KO Telehealth staff. S/he assesses training needs, provides telehealth training, supports the acquisition of specific telehealth skills and knowledge, monitors learner success and performance and develops continuous learning plans and sets skills goals with CTCs. S/he prepares hands-on learning materials, documents standard telehealth procedures and prepares and updates training manuals. The TIE assesses CTC skills, suggests procedures or approaches to improve the delivery of telehealth, identifies training issues related to the introduction of new telehealth services and takes the lead role in certification of CTCs.

3. KO Scheduler

The Scheduler books clinical consults, educational sessions and project and business meetings within the KO Telehealth Region. S/he works closely with the Regional Telehealth Coordinator and North Network scheduling office to ensure that all clinical consults and educational sessions are arranged and documented. The Scheduler maintains the master record of scheduled telehealth events for the KO Region and is the primary liaison between service providers and the NORTH Network Central Scheduling Office.

4. Special Projects Coordinator

The Special Projects Coordinator coordinates specific initiatives to assist in the development, promotion and integration of Telehealth into the routine delivery of Health Care in the region. S/he identifies key clinical areas for innovative applications for Telehealth and takes the application from idea through development and testing to integration into the KO model.

5. Regional Telehealth Coordinator

The Regional Telehealth Coordinator leads the team of CTCs to operate telehealth services in the region. Acting as a resource for CTCs, s/he facilitates communication between referring and specialist sites to achieve seamless integration of telemedicine into everyday health care delivery. S/he provides clinical supervision to CTCs at First Nations sites. The Regional Telehealth Coordinator works with senior project staff to design and diffuse functional service models across the region and to ensure standard quality of telehealth delivery in communities. S/he coordinates the review and assessment of telehealth activities at each site and animates solutions in concert with clinical and operative staff and partners.

6. Program Manager

The Telehealth Project Manager oversees the operations of the KO/NORTH Network Telehealth partnership. S/he establishes and manages the operational infrastructure for delivering and migrating First Nations telehealth services. S/he coordinates clinical, technical and organizational teams to plan, implement and document a working telehealth services model in the Sioux Lookout Zone. S/he works with KO Managers to support the advancement and sustainability of the regional network infrastructure.

7. Service Migration Coordinator

The Service Migration Coordinator engages with service providers and community health leaders to facilitate service introduction and integration within the Sioux Lookout Health Zone. As the project link between KO and the Sioux Lookout First Nation Health Authority (SLFNHA), s/he coordinates all aspects of the establishment of activities and tasks that will help ensure the success of Telehealth into the Sioux Lookout Health Zone. The Service Migration Coordinator animates the creation and operations of KO Telehealth in each community and co-directs the community engagement and evaluation activities and processes as set down by the Telehealth Program Manager. S/he assists Community Telehealth Coordinators to promote the programs and products developed throughout the project.

8. Education Program Coordinator

The Education Program Coordinator works with education programs, First Nations health organizations, Health Canada and community health providers to identify priorities for providing education and support to community health workers in First Nations communities. Education, support and training is tested and designed to be integrated into the framework of organizations using telehealth as a sustainable delivery system

9. Telehealth Secretary

The Telehealth Secretary supports the KO Telehealth project team by providing reception, clerical, and administrative services.

10. Help Desk Support Analyst

The KO Telehealth HelpDesk Support Analyst provides technical/network support, problem resolution/management/escalation, customer service and call trend analysis to KO Telehealth staff in the central office and at community sites. S/he is responsible for the operation and maintenance of the Balmertown office LAN and supports community technicians to deal with hardware and software and network problems. The HelpDesk Analyst develops standards and procedures for handling trouble tickets to ensure minimum critical breakdowns and crises.

Time off Guidelines
Describes the procedures for taking time off for medical travel, attending non-telehealth meetings or training, bereavement (3 days for immediate family), and illness.

- Outlines when employees are considered to have abandoned their positions (3 consecutive days)

CTC Back up Policy
Details importance of replacement CTCs (ensures the uninterrupted delivery of high quality telehealth services). Back-up CC is hired and supervised by the Community Health Director and the KO Regional Telehealth Coordinator. The position is filled by any qualified candidate, but the duties should be incorporated into an existing community health worker's responsibilities wherever possible.

- Replacement staff expected to be trained and certified within 8 months of date hired
- Hiring is done according to standard KO Telehealth/community procedures
- Orientation by videoconference reviews job expectations and the Oath of Confidentiality
- CTC Backup workers must work a minimum of 4 hours a month, including training sessions

Confidentiality
The patient's personal health information is protected by this policy which ensures individuals feel secure when seeking health care via telehealth. Personal health information is defined as all information about a person's health or health care history or other personal information including financial position, domestic situation or other matters relating to the individual.

All staff review and sign the Oath of Confidentiality. Violation of the Oath leads to a recommendation of immediate removal from position.

Supervision of Community Telehealth Coordinators
CTCs are supervised jointly by the Community Health Director and the RTC. The RTC provides functional supervision for services provided. Performance evaluation is done jointly. Notification of the need for time-off is given to both the Health Director and the RTC.

Conflict of Interest
CTCs cannot be supervised by an immediate family member. The RTC asks new CTCs about any existing or potential conflict of interest in their community supervisor. When the community Health Director is a family member, an alternate supervisor is identified.

Technical Support
The conditions under which technical support is contracted by CTCs and the guidelines for engaging the support. Technical support is defined as help with computer and workstation set-up.

- Approval for engagement and fees for work is obtained from RTC, and for more than 4 hours, the Program Manager

TELEHEALTH SERVICES

Scheduling
General statement about process for scheduling all telehealth sessions. Reference is made to the *KO Scheduling Manual* where procedures are set out. All KO Telehealth sessions, clinical and non-clinical are done by the KO Telehealth Scheduling Office.

Scheduling Protocol
Outlines the priorities for scheduling sessions which becomes more important as the demand for Telehealth services increases. The order of priority is: clinical consults in order in which they are confirmed, education and training sessions with attendance determined by order of registration, administration sessions and family visitation session. Family visits and administration sessions may be rescheduled for clinical sessions. The K-Net network is also available for these.

Scheduling Protocol for Satellite Communities
Follows the normal guidelines for scheduling sessions but adds the step of contacting K-Net Help Desk so that bandwidth is reserved for the session to ensure quality of service.

Documentation
Defines locations as *far* (consultant) and *near* (patient). For education sessions sites are *presenting* (presenter), *registration* (accepting registrations) and *participant site* (KO Telehealth site participating in the education session).

Documentation for Telehealth Sessions
Outlines the documentation required at near sites for clinical, telepsychiatry and educational sessions.

- In patient file is kept nonmedical information including *Telehealth Session Checklist*, *Client Consent* and *Patient Evaluation Form*
- Clinical and education sessions are recorded in an *Activity Log* a copy of which is faxed to the hub scheduling office
- An additional *Oath of Confidentiality* is signed by the CTC in front of the client and is witnessed by the client for telepsychiatry sessions

Translation Policy
Describes the process whereby documentation for clinical and education sessions is translated into Cree, Ojibway and Oji-Cree and the suitability of the language for the community in question confirmed by the local Health Director

Physician Orders in KO Communities
Prescriptions and physician's orders are sent from the consultant to the referring doctor, the nursing station, or the pharmacy, not to the telehealth site.

Guidelines for Patient's Physical Privacy
Strategies for setting up telehealth studios that allow for the physical privacy of patients:

- New suites should be away from high traffic areas, soundproofed and with adequate covering for windows
- Before and during clinical consultations: put up "Session in Progress" sign, may lock door, television or radio playing in waiting room, ensure no loitering outside room, place microphone directly in front of patient, pan camera around both sites to assure participants only those they can see are participating, patients and consultants must consent to having anyone else attend the session, and "auto answer" turned off.

Telepsychiatry Protocol for CTCs
Describes unique actions which take place for telepsychiatry session including ensuring that a community mental health worker is available outside the telehealth room during and after each session for support of patient. Telepsychiatry sessions are not to proceed without this support. Oaths of Confidentiality are signed by the CTC in front of the client and witnessed by him/her. A "Form 14" should be ready for the session. Soundproofing guidelines may be found in the CTC Training Manual.

EQUIPMENT INFORMATION

Security and Appropriate Use of Telehealth Equipment
Outlines the procedures for the security of the telehealth equipment. The room and/or workstation are kept locked when the CTC is not present. One key is kept by the CTC or Back-up worker and another is kept behind the nursing station desk.

- Computers are turned off when CTCs are not at work and used for telehealth work

only
- Printer and fax machines - CTCs order new ink and paper ahead
- Telehealth workstation – CTCs ensure the AMD instruction binder is present in the suite
- When using the workstation and peripherals - plug into a surge-protected power bar, fold the cable that leads to the otoscope carefully so that it isn't compressed, turn off the workstation on Fridays and on again on Monday mornings unless it is in a multi-use room in which case it is turned off after every use

TRAINING

Training for Community Telehealth Coordinators and Back-ups

Describes the process, expectations and expected outcomes of the CTC Training Program. Expected outcomes of the training program are that CTCs are certified within 3 months of being hired and CTC Back-up workers within 8 months. Certified CTCs are familiar with their job description, demonstrate the technical skills required, maintain confidentiality, document appropriately and are aware of scheduling and referral processes.

- Training is delivered by the Telehealth Informatics Educator, KO Medical Director or others as designated
- Delivery is on-site, point-to-point, and using group videoconferencing
- Training follows the *Training Manual for Community Telehealth Coordinators*
- Certification is received by CTCs and Back-ups on completion of the training checklists in the manual
- Checklists include: computer skills, technical training for the telehealth workstation, health care skills and medical terminality, mock telehealth sessions, Aboriginal language proficiency and a review of the NORTH Network manual
- After certification, training includes review and enhancement of all necessary skills and occurs on regular basis

Expected outcomes – required skills demonstration documented in the Mock Session Checklist; CTCs are certified within 3 months of being hired; CTCs within 8 months

LIST OF APPENDICES TO THE MANUAL

Site Contact Information
List of Definitions
Oath of Confidentiality
Foreign Resident Policy, NORTH Network
Telehealth Forms
- Telehealth Information and Consent Form – English
- Consent to Telehealth – Ojibway
- Telehealth Consent – Oji-Cree
- Telehealth Consent – Cree (syllabics)
- KO Telehealth Referral Form
- KO Telehealth Activity Log
- Consent for Photographs, Videotaping, Sound Recordings, and Still Images
- Form 14.

Part 2: First Nations Telehealth Engagement

Section A: First Nations Engagement Structures, Strategies and Competencies

- Annotated Engagement Diagram
- KO Telehealth Communication Tools and Approaches

Section B: Evaluating Effectiveness and Community Satisfaction

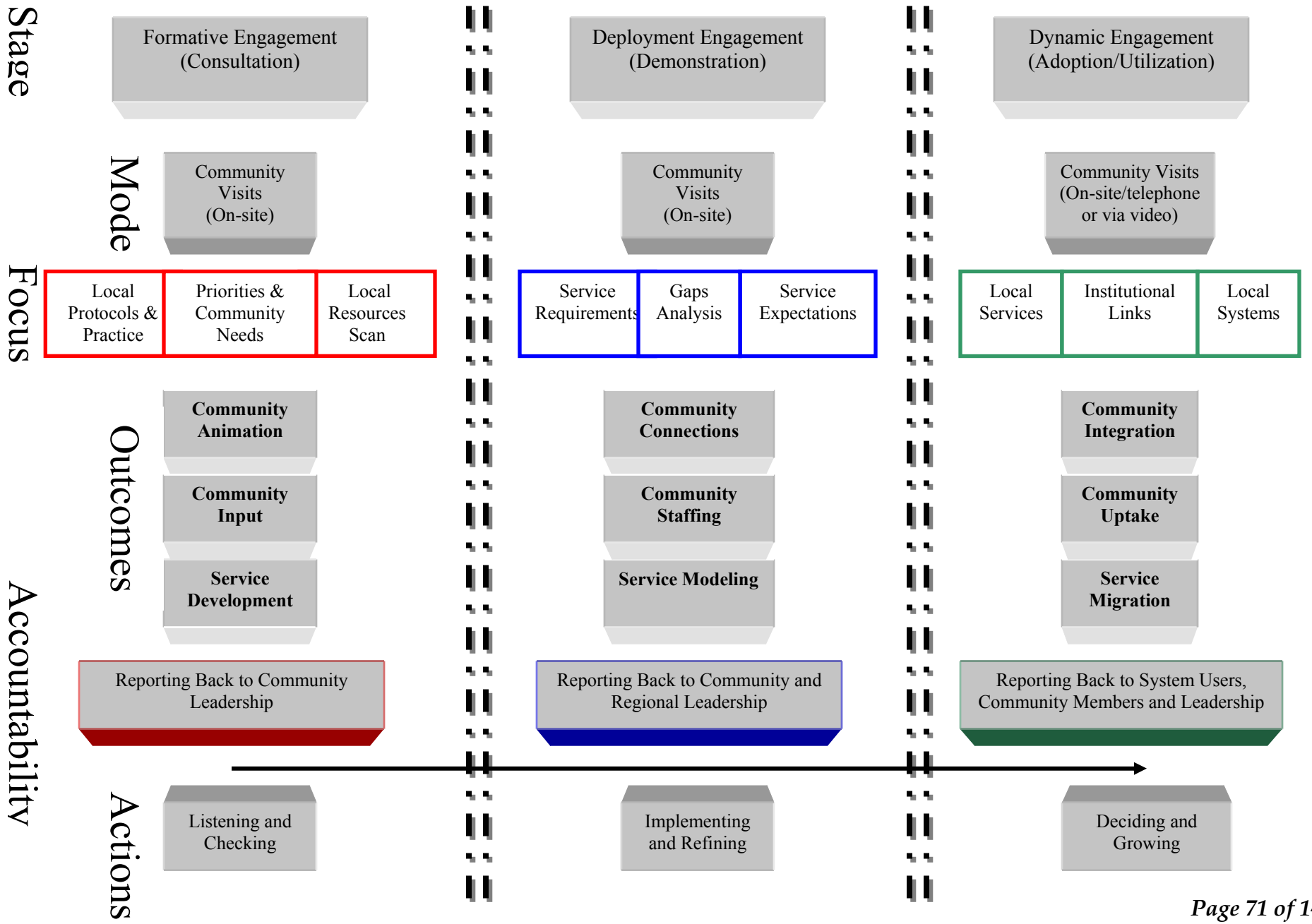
- Timeline and Diagrammatic Summary of Evaluation Framework Design
- Keewaytinook Okimakanak Indicators, Milestones and Benchmarks for Success
- Matrix of Evaluation Requirements
- Process Diagrams and Summary of Community Feedback

Section C: Migrating Telehealth Solutions

- Migration Requirements with Lessons Learned and Considerations
- Overcoming Health Service Provider Barriers
- Observed Benefits of a Wellness Service Model
- Matrix of Community Health Needs and How Telehealth Addresses Needs
- KO Telehealth Development Summary
- First Nations Telehealth Development Glossary

Section D: Community Telehealth Coordinator Vignettes

- Video clips demonstrating the role of the Community Telehealth Coordinator in isolated First Nations communities: Parts 1 through 6


Stage
Formative Engagement (Consultation)
Deployment Engagement (Demonstration)
Dynamic Engagement (Adoption/Utilization)
Mode
Community Visits (On-site)
Community Visits (On-site)
Community Visits (On-site/telephone or via video)
Focus
Local Protocols & Practice
Priorities & Community Needs
Local Resources Scan
Service Requirements
Gaps Analysis
Service Expectations
Local Services
Institutional Links
Local Systems
Outcomes
Community Animation
Community Input
Service Development
Community Connections
Community Staffing
Service Modeling
Community Integration
Community Uptake
Service Migration
Accountability
Reporting Back to Community Leadership
Reporting Back to Community and Regional Leadership
Reporting Back to System Users, Community Members and Leadership
Actions
Listening and Checking
Implementing and Refining
Deciding and Growing

Annotations for Community Engagement Process Diagram			
	Formative Engagement Stream	**Deployment Engagement Stream**	**Dynamic Engagement Stream**
Stage	***Formative (***Consultation***)*** **–** is defined by fact finding and fact checking at the broadest possible level. The consultation team (ideally a project manager or clinical lead and a community person) spend one to four days in each community. They meet everyone possible – telling them about the telehealth opportunity and asking Chiefs, Health Directors, teaching aids, people in their homes…what they think of it and how it might best help the community. Telehealth is presented as a possibility that will or will not happen in a given time frame if community people do or do not want the service in their community.	***Deployment*** (Demonstration) engagement is initiated after telemedicine equipment has been shipped to the community and installed. Whereas formative engagement focuses on animating interest in telehealth, identifying service needs and priorities and developing a broad sense of how different groups in the community view telehealth as a community service, the Deployment stage introduces the service and the service model to the community so that members can express concrete questions and concerns. Demonstrations engage community and health service leadership and highlight the role of the local telehealth coordinator as community telehealth resource.	***Dynamic*** **(**Adoption and Utilization) engagement – most communities are interested in maintaining communication with the telehealth network after services have been installed. The dynamic engagement stage establishes a framework for network governance and joint decision making as part of the telehealth business process. It also provides a way to frame important system-wide changes (such as expansion of the service to other communities) or identifying new services that telehealth should be providing to First Nations network members. Similarly, the dynamic stage is an important element in supporting community-wide adoption of telehealth and increasing utilization at a local and regional level.
Mode	***Community visits*** should be coordinated with a local person. The local person sometimes is paid to promote the upcoming visit, to arrange meetings in the community, to provide translation as required and to work with the telehealth team to prepare a draft report of the visit that can be printed and posted in the Health Centre, Band Administration office and the Recreation Centre and shared on the project website.	***Community Visits-*** These visits are coordinated in advance with the Health Director and/or the person identified for the Community Telehealth Coordinator's position. A full itinerary should be developed over several days to ensure that everyone who needs to or wants to participate in the demonstrations and ask questions has an opportunity to do so. Typically, these visits include a community feast and visits with Elders.	***Tele/Videoconferences, Regional Workshops, Conferences, Community Visit***s: Most interaction at this stage is via telephone or via videoconference. It is also worthwhile to plan regular face-to-face workshops with regional First Nations health leaders to discuss major network change and/or service enhancements. Community visits are less formal by this stage, though should still include discussion with Chief and Council and Elders.
Focus	***Local Protocols and Practice****:* Gathering and documenting local ways of doing things, community cultural holidays, family links, seasonal festivals, identifying	***Service Requirements***: Communicating local requirements of the community such as a room within the clinical footprint of the Health Centre (checklist of steps to achieve telehealth	***Local Services****:* Telehealth as a regional service will be successful by ensuring that local services are high quality and responsive to local needs and meet community

Annotations for Community Engagement Process Diagram			
	Formative Engagement Stream	**Deployment Engagement Stream**	**Dynamic Engagement Stream**
	Elders to speak with. ***Priorities & Community Needs*** – Interviews with health service administrators and health service providers to gather, analyze and collate local health status data, referral patterns (who goes where for what). Triangulate this data with regional FNIHB offices, health regions/authorities or the provincial Ministry of Health. ***Local Resources Scan****:* Highlight individuals or organizations in the community that may be able to assist with telehealth adoption in the short- and long-term. For example, there may be a computer 'geek' at the school who can support local troubleshooting – or the Director of the HeadStart program may be able to help recruit parents into using telehealth for kids who have chronic health problems.	readiness). ***Service Gaps***: Speak with health staff, professionals and Elders about gaps in current services and how telehealth might be able to close those gaps. For instance, physiotherapy training for caregiver in remote communities or oncology follow-ups. ***Service Expectations****:* Document expectations of telehealth specific to each community – e.g. improving health for Elders or supporting staff and use this information to orient uptake and adoption of services.	expectations. Regular teleconferences with Telehealth Coordinators and quarterly check ins with Health Directors will track service performance and provide a way of reporting back that service levels or programming is improving. ***Institutional Links****:* Broaden the circle of linkages by engaging regional provincial and federal health service providers and educational institutions to understand how their programming can be telehealth-enabled. ***Local Systems****:* The Community Telehealth Coordinator provides an entry point to formal and non-formal community systems. Have the CTC connect with local leaders to draw out connections to telehealth.
Outcomes	***Community Animation*** Consultation generates excitement at the community level and provides an opening for a wide range of people to get involved. ***Community Input –*** Participants should know and feel that their information is fundamental to building a quality and longlasting service. The newness of telehealth should underline the importance of community direction. ***Service Development:*** Data provided at this stage is formative to the development of a responsive and culturally relevant service model.	***Community Connections:*** The telehealth program has practical links to the community – the regional telehealth coordinator has established a relationship with health principals in the community. ***Community Staffing:*** A local person has been identified and hired as the Community Telehealth Coordinator and one or more people have been identified as backups – to cover for the CTC if s/he is out of the community. ***Service Modeling:*** The service model has been described and local people understand how the service will respond to their needs and priorities.	***Community Integration***: Telehealth is viewed as a single channel into a wide range of health programming. Telehealth Coordinators, Health Directors, nursing staff and health centre employees feel like they are part of a bigger system to bring separate programs together in one place. ***Community Uptake:*** People start regularly using clinical and non-clinical programs and establish new relationships with service providers/educators who visit their community by videoconference. ***Service Migration***: Community requests for new service links (e.g. Speech Language

Annotations for Community Engagement Process Diagram			
	Formative Engagement Stream	**Deployment Engagement Stream**	**Dynamic Engagement Stream**
			Pathology) are answered and they see how their needs drive access to services in their community and the region.
Accountability	***Reporting Back to Community Leadership:*** Respect local elected officials and honour Elders during each community visit. Use the internet to post a consultation diary/blog and encourage people to read it by posting amusing stories each day. Develop a readable summary of each local consultation and send this document to the local contact to distribute. Develop short videos that can be shown at the community level (webcasting/DVD).	***Reporting Back to Community and Regional Leadership:*** Be prepared to present a summary of what happened during the consultation and how it relates to the current engagement. Identify who you want to speak with and indicate how long you'll be in the community. Also, attending regional Chief's meetings will provide a way to include all First Nations in activities that they've participated in their communities. Be prepared to address concerns about potential for erosion of service and to talk about where you'd like to go next with the project, who your partners are and how the project is benefiting individual communities.	***Reporting Back to System Users, Community Members and Leadership:*** The circle broadens in this stage. Telehealth has accountability with First Nations and First Nations representative organizations and also engages federal and provincial health system partners. Bi-annual face-to-face workshops provide a way to renew relationships and the telehealth agenda and to demonstrate community-based support for the service. Similarly, monthly reports documenting utilization at the community level and across clinical, training and other applications provide baseline information to new and longstanding partners. National fora, papers delivered at trade conferences and stakeholder roundtables provide opportunities to engage a broadly-based coalition of service providers and communities and to identify new service opportunities.
Action	***Listening and Checking***: The primary actions in the formative stage are listening to the community and validating information from diverse sources. These actions are key to service development and design and provide a backdrop to establishing long-term and meaningful relationships with community members and system stakeholders.	***Implementing and Refining:*** The deployment action stage highlights the concrete and practical improvements that telehealth can deliver with community partners. Community members will compare your process with the introduction of other new services and judge the service by its ability to meet local expectations (e.g. someone will notice if you promise equipment installation one month and it doesn't arrive until the next). Also, this stage is important for documenting how implementation can be improved in future rollouts.	***Deciding and Growing***: Action focus within the Dynamic stage reflects a full state of on-going engagement in which communities, partners and stakeholders make decisions about the way that the telehealth service anticipates and responds to local, regional and provincial priorities. A distributed governance model provides flexibility to engage diverse interests and to stimulate community-based innovation that will stimulate growth of service scope.

Communication Tools and Approaches

Communication Environment	Description
➲ ***Cultural***	○ ***Community visits*** must show respect for community leadership. The Chief and Council should be aware of the telehealth project and that telehealth principals are coming to the community. A meeting with the Chief and Council should include why the telehealth consultant is in town, indicate who the team/consultant would like to talk to and seek advice from community leadership about other persons that should be included in discussions. Similarly, local Elders should be approached so that their views and experiences are reflected in the discussions. A small gift should be presented to Elders when meeting with them to acknowledge their leadership role in the community. ○ ***Group discussions*** need to be guided by cultural protocols to ensure that dialogue respects First Nations practices and is inclusive. Tips for facilitating meaningful small group discussion and exchange include: a) involving the whole group; b) allowing emotions to surface and c) ensuring everyone has a chance to speak. ○ ***Sharing Circles*** are an effective means for drawing out concerns and local issues as well as stimulating and sharing community innovation. Sharing Circles highlight individual thoughts with stories and are an important method of understanding broad issues of healing and wellness for community members. The guiding principles of Circle discussions are: ▪ We are all equal: ▪ No judgments upon another or upon ourselves. ▪ Use the seven gifts; love, sharing, honesty, trust, humbleness, bravery and wisdom

Communication Environment	Description
	in the circle. ▪ What is said within the circle stays within the circle unless it is agreed ahead of time to put it on paper for documental purposes. ▪ Respect each other's right to speak without interruption. The person holding the stone has the right to speak as long as he/she wishes. You don't have the right to speak if you are not holding the stone. ▪ A person can pass the stone if they don't have anything to say. ▪ Seek healing by sharing and understanding yourself, not trying to get others to change for you. ▪ Nothing is coincidental; there are reasons for every experience. ▪ Offer your support, not your pity when healing comes to others within the circle.
➲ ***Community***	○ ***Electronic Community Media*** – many First Nations communities operate a community radio or television channel. The telehealth team/consultant should make a point of dropping by the radio/television station to talk about the project and to make public announcements about upcoming get-togethers. The team/consultant should always make sure to bring a fluent translator along for these events as most of these media outlets operate in the local dialect. Sometimes, radio/TV operators will ask people to call in and ask questions. Because these stations are mostly volunteer efforts, the team/consultant should bring a music CD along with them as a donation to the station. Some First Nations also maintain community web pages or operate local portals. Ask community contacts about this service and be prepared to provide a summary of the visit (with pictures) to the local web developer. ○ ***Community Newsletter*** – local news is also conveyed by community newsletters. These publications are usually very well read and are good means for letting people know when and why a community visit is being planned. Use accessible – jargon-

Communication Environment	Description
	free – language in your news item so that it can reach the largest possible audience. Note, that you should confirm your arrival and meeting with the Chief and Council before an item appears in the Newsletter. o ***Home Visits*** – there are a large number of people who are either confined to their homes because of chronic disease or by parental responsibilities. Work with the local Health Director or Community Telehealth Coordinator to visit these people in their homes. These are highly informal discussions that are typically focused on telling stories both about how telehealth works in similar settings and by personal experiences of how improved access to health services and training, better continuity of care, or timely follow-up relate to family members. o ***Community Gatherings/Feasts*** – feasting and sharing information are longstanding traditions in First Nations. The team/consultant should arrange to have a community meeting about telehealth combined with an evening feast. A formal presentation with questions from community members is a very effective way of communicating the scope of the work, an inclusive approach for answering the how/who/what/why/where/when of a telehealth project and for understanding individual and group expectations of the telehealth service. Ideally, the telehealth project will pay for the food and its preparation and the meal will be prepared by community members.
➲ ***Distributed***	o ***Program Web Page*** – the telehealth program web page http://telehealth.knet.ca is the primary point of entry for internal and external project stakeholders as well as those groups and organizations looking to emulate the services that you provide. Accordingly, it is a key communication device. The program web page provides public information (reports, news items, scheduled events, pictures) that documents

Communication Environment	Description
	the progress and success of the initiative and provides program point-of-contact information. It also provides password protected access for staff and administrators so that they have easy on-line access to policies/protocols, training materials, technology manuals, and discussion fora. o ***Webcasting*** – worldwide live public access to educational or informational events demonstrate the telehealth program's focus on improving accessibility to health and wellness information and its capacity to address a full spectrum of First Nations needs. KO Telehealth education delivers these live events twice weekly – please see: http://telehealth.knet.ca/index.php?module=ContentExpress&func=display&ceid=231 for information about how to participate or to view the archive. o ***Videostreaming*** – videos that have been produced for the project or that have been previously webcast are often of interest to project stakeholders and the general public. Streaming these videos from the project website provides valued information that users can access on demand. See for example, the CTC Vignette series produced by Cal Kenny: http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=1602
➲ ***Process***	o ***Workshops*** – face-to-face workshops within each telehealth region support focused learning by community health decision-makers (Health Directors, Chiefs, Community Health Representatives, nurses and physicians) and provide a common point of reference for making decisions about how the service will grow, expand or focus its resources. They are an interactive approach to engage regional interests and project stakeholders and to document messages/expectations and concerns about the development of First Nations telehealth. o ***Participatory Action Research (PAR)*** – is a dynamic tool and process for engaging

Communication Environment	Description
	the community in determining how the telehealth service will benefit First Nations and for feeding back local information for the purposes of quality improvement. o ***Governance*** – regional Advisory bodies or Steering Committees leverage integrated engagement by combining community-level health leadership with network partners and internal/external stakeholders. Similarly, the governance structure facilitates new engagements as they relate to expansion and/or integration of services and support effective change management as it relates to migration of new services to a common telehealth platform.
➲ ***Team***	o ***Manuals/Policies and Procedures*** – are invaluable reference documents that summarize service and technical information. This resource anticipates questions from staff, community and other stakeholders and also provides a best practices backbone for program delivery. o ***Phone and Video Conferences*** – coordinated regional phone- and videoconferences share information within and between service and administrative domains. Community Telehealth Coordinates convey unique telehealth service needs of communities to hub staff to pass up the clinical services chain. Similarly, administrative staff share information about changes in the regulatory or jurisdictional environments. How, when and why these changes might affect community practices is then shared within regions. o ***Continuous Quality Improvement*** – training and capacity building are very public demonstrations of program commitment to community services and are an effective means for the telehealth service to reach out to local service providers and their staff.

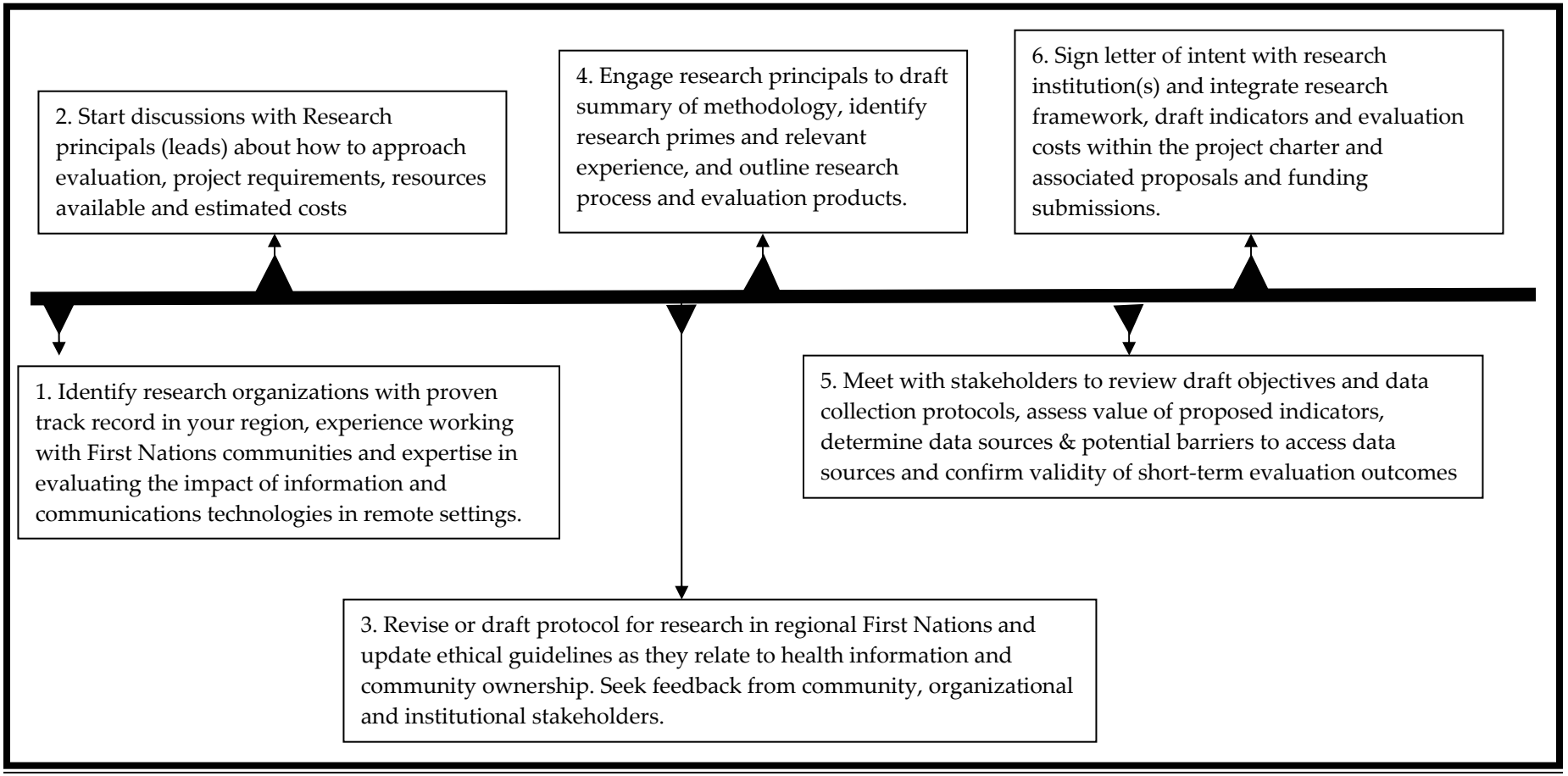
Communication Environment	Description
	In addition, continuous training and service upgrading with Community Telehealth Coordinators ensures that each community supports community knowledge translation and the diffusion of telehealth as a needed community service. o ***E-Mail*** – e-mail tools such as attachments provide quick access to information for community members and a means for quickly returning documents – such as approvals for sharing community-level health data with the program – that directly impact the telehealth program. o ***Fax*** – although K-Net is currently investigating alternatives to facsimile, their use is embedded in the telehealth service model. The scheduling process relies heavily on the interchange of faxes between physician's offices, KO Hub services in Balmertown and community health centres. Because, KO e-mail travels on the public internet, patient or session information must be communicated by fax.
➲ ***External***	o ***Demonstrations*** – provide a concrete and practical way of understanding how the service would look in the community and also stimulate interest in the investments that must be made and the systems that need to be in place to fully implement a successful telehealth program. o ***Logos and Promotional Items*** – Partnership with provincial networks and with regional First Nations can be demonstrated by incorporating their symbols into the service logo and by embedding the logo in promotional products for distribution. o ***Conference Presentations/Papers*** – Telehealth programs generate practical information, apply unique health system strategies and propose innovative frameworks for achieving successful results. Capturing this data and presenting it to

Communication Environment	Description
	peers and colleagues provides an important step toward engaging regional projects with new interests and proposes new collaborations. Importantly, conference poster presentations and papers provide a way for community-based practitioners to present and validate their experience within the telehealth community. o ***Position Papers/Policy Development*** – As health lighthouse initiatives, telehealth programs are leading the development of policy and programs at national, provincial and regional levels. Position papers summarize the rationale and mechanics of telehealth programs with the aim of influencing policy makers and system opinion leaders.

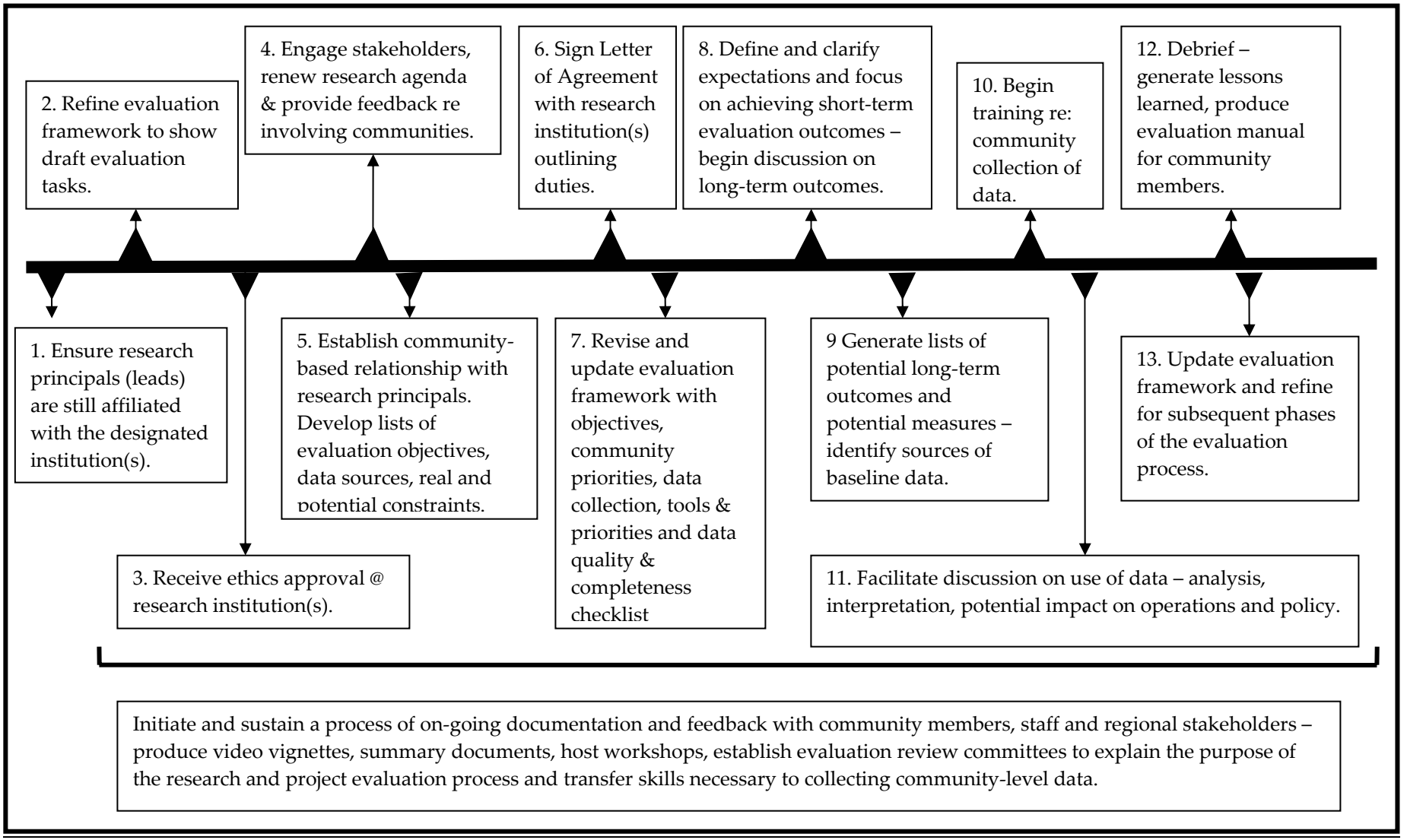
Section B: Evaluating Effectiveness and Community Satisfaction

Timeline and Diagrammatic Summary of Evaluation Framework Design

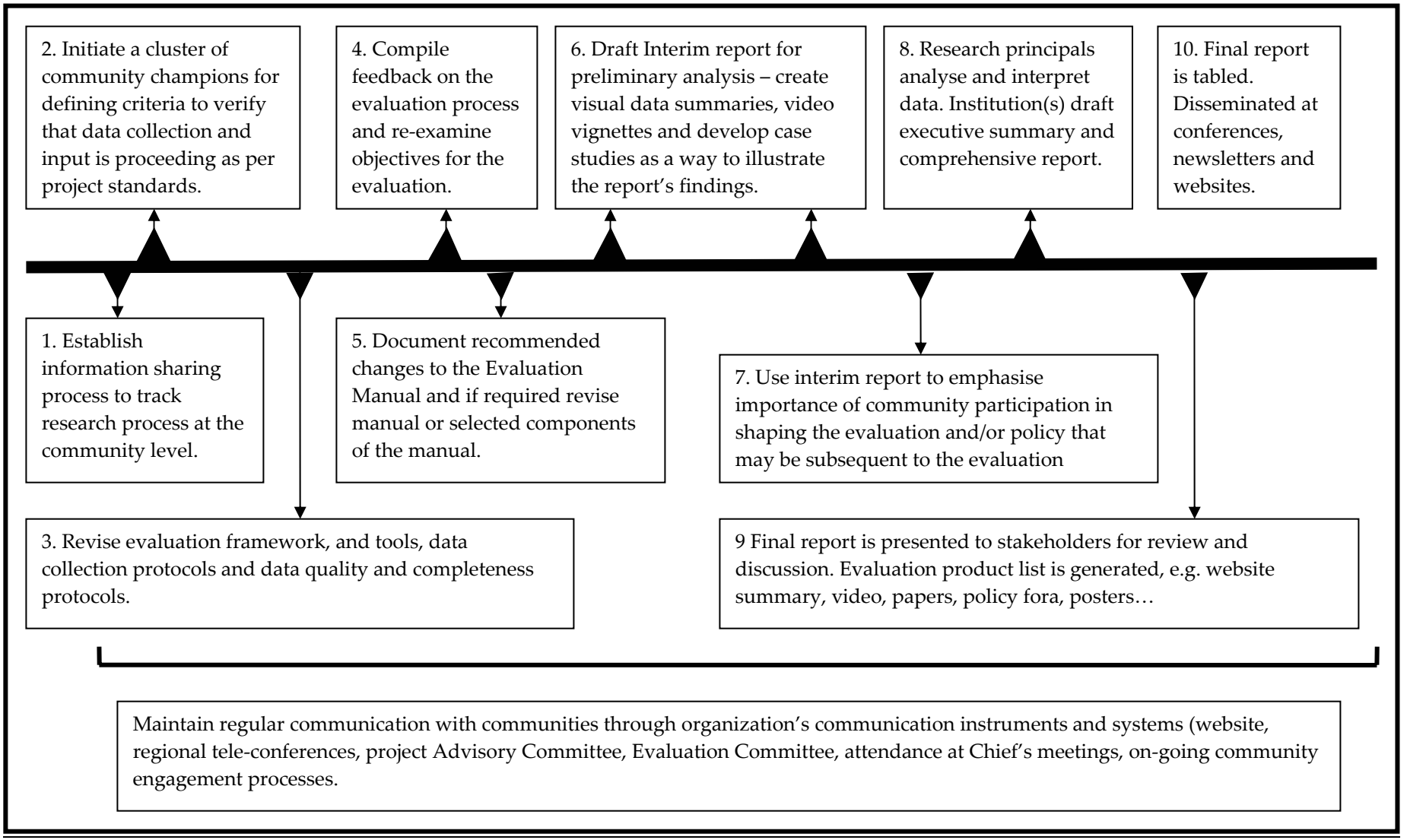
Phase 0: Project Development – Duration approximately 6 months



Phase 1: Project Start-up – Duration approximately 6 months



Phase 2 & 3: Data Collection & Information Dissemination – Duration approximately 6 months



Keewaytinook Okimakanak Indicators, Milestones and Benchmarks for Success

Timeframe	*Milestone*	*Notes*
Nov 2003 to Jan 2004	Develop research partnership	The original partnership was not viable by the time project funding had been received. Key people at the research institution who had developed the original proposal had moved on. This required identification of organizations with experience in the field of remote/northern and First Nations health and Telehealth systems. In addition, the search for a new partner animated interest in a broader scope of evaluation criteria and the need for qualitative (participatory research) expertise was included in the search. This process results in identification of two institutions with distinct qualitative/development-oriented and quantitative-telehealth process/program-oriented research strengths. Principals meet with KO Telehealth staff to identify the cornerstones of a research agenda.
Jan 2004 to Oct 2005	Request for FNIHB Data	Researchers requested baseline comparative data collected by the Non-Insured Health Benefits (NIHB) unit of the First Nations and Inuit Health Branch (FNIHB) at the beginning of the project. The first formal request for data is made in Fall 2004. Subsequently, NIHB indicates that a band-council resolution (BCR) will be required from each community for which data is sought. The BCR is crafted and an issue-specific engagement process is initiated to inform communities about the reasons that the data is being requested, to highlight community-level data ownership issues and to explain how the data will be used. Signed BCRs are submitted and NIHB subsequently releases data. However, this data lacks important explanatory information and researchers submit requests to NIHB for further information that will clarify data organization. NIHB is not able to extract data from their database and outsources this task. NIHB has not been able to provide community-level patient transportation data. Accordingly, KO Telehealth is not able to prepare comparative financial impact information within the project interim evaluation.
	Develop Phase 1 Research and Evaluation	Researchers at both institutions collaborate to develop a comprehensive Phase 1 work plan and an outline of key actions and deliverables to be

Timeframe	*Milestone*	*Notes*
Feb 2004 to March 2004	Proposal	achieved by each research entity. This proposal was embedded as part of the terms of reference in evaluation contract.
March 2004 to Aug 2005	Seek and secure ethics approval	Researchers at each institution prepare to submit requests for ethics approval. Qualitative team receives overall approval from institutional Ethics Review Board June 2004. Specific approval for graduate student research tools and consent forms is received in December 2004. Approval for consent forms, invitation letters, interview guides for health professionals and focus group guides for general practitioners and family physicians was received in July 2005. The quantitative team worked with communities to ensure that tools met their approval. Community level approval was communicated in July/August 2005. Formal approval for research instruments by the Ethics Review Board is expected Fall 2005.
July 2004	Inception Visit	The research team travels to Sioux Lookout (K-Net/Sioux Lookout First Nations health leadership); Balmertown (KO Telehealth Hub Services); Keewaywin First Nation (a community that has delivered telehealth for more than 2 years); Sioux Lookout (regional hospital leadership/regional Health Canada staff); Mishkeegogomang First Nation (a community that is installing Telehealth in 2004). Meetings with the Evaluation Advisory Committee include five areas: a) premise of the research and reporting relationships; b) communication of a proposed evaluation framework; c) quantitative data collection; d) qualitative data collection – particularly the central role of the community Telehealth coordinator; e) capacity development (discussion of ways that the evaluation team could facilitate transfer of skills and community ownership of the research process.
Aug 2004 to Feb 2005	Framework Design, Review and Revision	A research framework is drafted and circulated to members of the Evaluation Advisory Committee in August. The EAC hosts a special one day face-to-face meeting in Balmertown in September where the evaluation framework is presented and explored. The research team and the EAC explore the criteria, discuss options for communicating evaluation objectives to communities and other KO Telehealth stakeholders. Review and feedback results in the

Timeframe	*Milestone*	*Notes*
		revision and refinement of the evaluation framework. Research team members develop a feedback document that identifies how the community members' input fits with the Evaluation framework. This document defines the evaluation process for the Evaluation Team in this way: "*Evaluation means documenting and tracking change. It is a combination of stories and numbers that tell the story of how a project helps communities achieve their goals. Our commitment in this Evaluation is to make the process a learning opportunity for all involved."* Response to the feedback document informs the final draft of the research framework in February 2005.
Nov 2004	Hold Regional Telehealth Migration Workshop	Research agenda is integrated with a regional Telehealth workshop that brings together Health Directors, health workers, nurses, telehealth staff and regional First Nations leadership. Research principals from both institutions have an opportunity to meet with community-based staff and regional leadership. Community Telehealth coordinators work directly with the qualitative researchers to identify key functions, training and support requirements and relate stories about how their work is having an impact at the community level.
April 2005	Evaluation Video	The Evaluation Advisory Committee identifies a critical need for an instrument that is broadly accessible and that can relay the purpose, structure and importance of the evaluation process. An introduction the evaluation process is produced as a video. The video uses community, Evaluation Advisory Committee and Evaluation Team members to explain the five themes that the evaluation uses to frame its objectives: Access, Acceptability, Integration, Financial Impact and Quality (of care, technical services and outcomes).
Oct 2005	Evaluation Manual and Interim Report	The evaluation manual is a modular document designed for community-based people who will participate in the evaluation process. The document provides examples and tools for community-based use. The Interim report provides preliminary data analysis and potential implications.
	Final Report and Presentations	The quantitative and qualitative teams will jointly prepare an Executive summary and independently

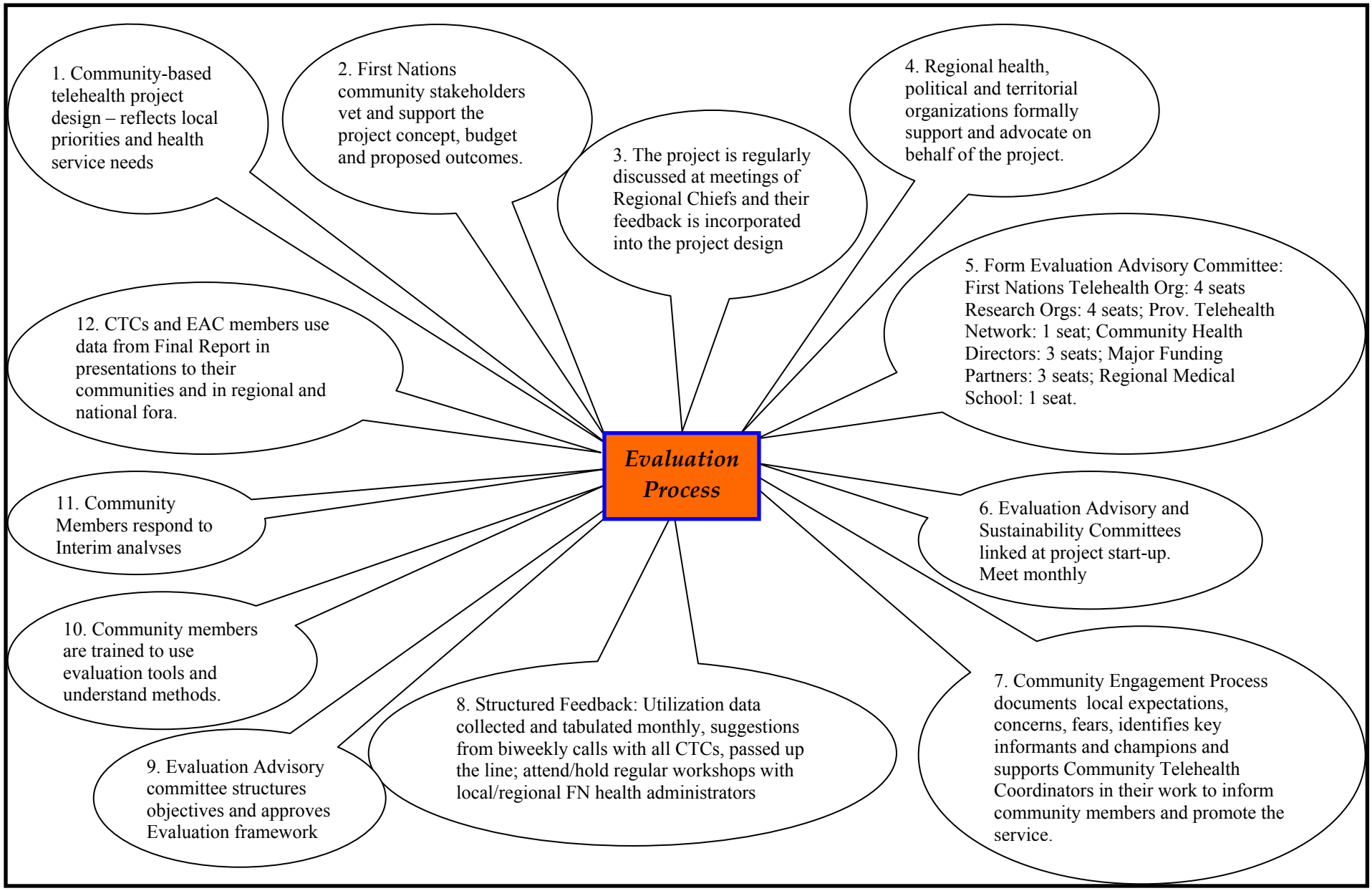
Timeframe	*Milestone*	*Notes*
March 2006		prepare detailed analyses of the data collected. The Final report will provide the base of evidence for dissemination of results in the form of papers and presentations at academic and policy fora.

Matrix of Evaluation Requirements

Partner	Expectation	Requirement
Regional First Nations and Mandated First Nations Health Organizations	• Improved Health Status • Community Capacity Building increased access to community-based training and education for professionals, health workers, clients and the community-at-large. • Increased influence over the design and development of local and regional health services for First Nations • Telehealth will not replace community-based physician and nursing staff • All telehealth savings will be reinvested in regional health programming • Telehealth will stimulate creation of new direct and indirect job opportunities	• Telehealth implemented in all First Nations with a Health Centre in the Sioux Lookout Zone • Telehealth supports and enhances comprehensive access to existing medical, health and health education services • Improved regional access to integrated health services • The majority of First Nations telehealth are satisfied with their telehealth experience and indicate that they would use telehealth again • Telehealth reduces the patient travel burden for First Nations living in remote northern communities
FN Telehealth Service Integrator [KO Telehealth/K-Net Services/Keewaytinook Okimakanak]	• Improved Health Status • Telehealth is a community-driven and regionally supported First Nations service • Telehealth demonstrates value of broadband services for community development • Telehealth supports the business case for improved telecommunications infrastructure in remote First Nations Communities • Telehealth validates the central role that Community Telehealth Coordinators play in delivering and sustaining service delivery and increasing community participation • Value proposition for telehealth in remote First Nations is validated	• Telehealth coverage is available in all First Nations with a Health Centre in the Sioux Lookout Zone • A training and certification procedure is implemented for Community Telehealth Coordinators • Telehealth Coordinators are hired and trained at each network site and local backup staff are identified • Telehealth network problems are resolved in a timely manner within service level parameters • Regional First Nations network is integrated with main referral centres (Menoyawin Health Centre [Sioux Lookout], Margaret Cochenour Hospital [Red Lake], Thunder Bay Regional Hospital, Winnipeg Health Sciences Centre • Health service providers increase adoption of telehealth as part of the regional standard of care • Telehealth is used as a training tool for all community-based federal staff

Partners	**Expectation**	**Requirement**
Health Canada	• Integration of federal and provincial services delivered and supported in First Nations communities • Improved access to communications applications (VOIP; WANetworking, Videoconferencing) for federal nursing staff. • Improved retention and recruitment of federal nursing staff • More effective use of existing Non-Insured Health Benefits (NIHB) medical transportation resources	• Telehealth facilitates regional integration within the provincial system • First Nation telehealth utilization increases on a quarterly basis • Telehealth is as responsive or more responsive to local and individual health needs as standard face-to-face referrals • Telehealth provides access to the same scope of elective services as face-to-face health care • Regional nursing staff regularly participate in continuing health education events
Provincial Telehealth Service	• Successful implementation of a scalable First Nations service model that can be applied throughout Ontario • Increased telehealth coverage for Ontario's most northern and remote Aboriginal communities • Increased utilization of provincial telehealth network infrastructure	• Telehealth facilitates regional integration within the provincial system • Telehealth improves First Nations access to health and wellness services
Allied provincial and federal infrastructure agencies serving northern Ontario	• Telehealth information and communications technologies are fully interoperable with the provincial telehealth infrastructure • Telehealth demonstrates the value of broadband services and information and communications of remote First Nations communities and stimulates adoption of allied applications and technologies • Telehealth improves the viability of living in remote northern Ontario communities • Telehealth creates new job opportunities in remote FNS.	• Telehealth technology and broadband services are available and supported in all Sioux Lookout First Nations with Health Centres before the end of the project

Process Diagrams and Summary of Community Feedback



Defining Telehealth Service Migration

Telehealth Service Migration describes two linked processes. One generally follows the other.

The first process is usually associated with the transfer of applied skills, technologies and knowledge and the sharing of development and decision-making capacities. *Formative* or *start-up* service migration gradually introduces a telehealth service model – and the applications that it supports – that has been developed and field-tested in a similar setting. For example, the KO Telehealth service model was developed and refined over a three year period in five isolated (fly-in) First Nations communities. Engagement with regional First Nations in the Sioux Lookout Health Zone initiated the migration of this service to an additional 19 First Nations between 2003 and 2005.

Successful migration of telehealth in other First Nations communities opens up new regional relationships with health service providers and identifies unique community-based needs that a comprehensive telehealth service must respond to. *Applications Migration* links community health and wellness needs to the introduction of new region-wide services. KO Telehealth – Regional Coordination, Education and Training and Technical hub services staff – community health leaders and federal and provincial health service providers develop new applications that bridge shared gaps in community-based services. For example, a survey of regional Health Directors identified wide-ranging training needs. KO Telehealth worked with this group and Community Telehealth Coordinators to design, implement and program a regional videoconferencing training network.

Table One: Formative Migration		
Requirement	**Considerations**	**Lessons Learned**
Organizational Readiness	1. Keewaytinook Okimakanak Chiefs identified the use of information and communications technologies as a strategy for achieving community well-being almost five years prior to the creation of KO Telehealth. This signal from community-based leadership enabled a series of project-based initiatives for building organizational capacity for managing network services, deploying and servicing ICTs in remote contexts, delivering mediated training programs, demonstrating the use of new technologies for community members, escalating initiatives to communities with no political or economic affiliation with Keewaytinook Okimakanak, developing networks with non-First Nations service providers and engaging First Nations and non-First Nations partners to achieve program specific goals. Telehealth emerged from this context as part of a partnership with Industry Canada (SMART communities), Health Canada (CHIPP) and NORTH Network – at the time, Ontario's only integrated telemedicine service provider.	Formal support and direction by community-based leadership is central to initiating, escalating and sustaining information and communication technology services. Local Chiefs and/or Board members must determine where ICTs fit in the organization's strategic picture and direct resources for the development of specific ICT applications. Document decisions of Chiefs to support local and regional ICT developments. Regional awareness that ICTs can contribute to community well-being occurs over a long cycle that is punctuated by concrete and incremental successes (baby-steps). Community-based staff (technicians, coordinators, managers) are a central element of achieving this success. Successful ICT projects are an amalgam of federal and provincial partnerships. The medical partner plays a key role providing access to

Table One: Formative Migration		
Requirement	**Considerations**	**Lessons Learned**
	2. Keewaytinook Okimakanak made a strategic decision to locate its ICT hub in Sioux Lookout rather than in Balmertown where its administrative and program staff are based. This provided the organization with the capacity to take advantage of a superior telecommunications access environment, engage many more potential First Nations and senior government stakeholders in the development of services and to build ICT service capacity in a location where most regional First Nations governments and service organizations are based.	proprietary systems/knowledge and a concrete opportunity for integrating federal/provincial services. Network and hub network services should be located in a highly visible and highly resourced telecom environment. Considerable effort should be made to distribute the benefits of network services as broadly as possible.
Regional Readiness	1. Access to and affordability and quality of telecommunications services is a longstanding issue in the Nishnawbe-Aski Nation. Since 1972, regional advocacy organizations – notably Wawatay Native Communications – have highlighted the importance of First Nations in determining the communications environment and demonstrating how determination is linked to cultural survival (particularly language retention and quality) and community sustainability. Regional sensitivity to the communications issue	Canadian communications access policy complements ICT initiatives that aim to support self-determination, sustain cultural practices and protocols and improve and enhance access to services and the tenets of the Canada Health Act.

Table One: Formative Migration		
Requirement	**Considerations**	**Lessons Learned**
	supported Keewaytinook Okimakanak's early efforts to extend computer and on-line skills and knowledge within regional First Nations.	
	2. Nishnawbe-Aski Chiefs were regularly briefed at regional meetings, consulted about possible next steps and asked to support specific network and telehealth service initiatives.	Embed regional decision-makers in your communications loop and document decisions and resolutions.
Community Readiness	1. Traditionally, community-based health service access has been poor in Sioux Lookout Zone First Nations. Difficulty in recruiting and retaining nurses and physicians and poorly resourced Health stations requires that most services be delivered from the secondary regional hospital facility in Sioux Lookout.	Situate the community needs assessment within the context of improved and enhanced access to community-based service and identify local health service priorities.
	2. Keewaytinook Okimakanak communities all had broadband services installed prior to the beginning of the Telehealth project.	Broadband (1.5 Mbps) connectivity is required at the beginning to initiate cost-effective migration of Telehealth services in remote communities.
	3. Keewaytinook Okimakanak received $10 million in federal funding to be the SMART demonstration project for Canada. This funding supported a robust ICT development environment and facilitated acquisition of additional bandwidth, technology and training/learning resources with the five Keewaytinook Okimakanak communities (Deer Lake, Fort Severn, Keewaywin, North Spirit Lake and Poplar Hill).	Telehealth projects must be sufficiently resourced to ensure that gold standard community Telehealth services are designed and deployed.

Table One: Formative Migration		
Requirement	**Considerations**	**Lessons Learned**
Service Model	1. KO Telehealth benefited from a close collaboration with its medical partner – NORTH Network. KO Telehealth adapted a field-tested service model to remote First Nations contexts and was able to clearly explain what KO Telehealth would provide, what functions the provincial network would perform and what community contributions were required.	Community requirements and First Nations and provincial network roles and responsibilities should be clearly defined prior to implementing the Telehealth service.
	2. At the outset, some stakeholders proposed that community staff were unnecessary (too costly, low utility). This thinking contrasted with anecdotal hospital-based evidence in other jurisdictions and the grey and published literature. Community Telehealth Coordinators became a central piece of the KO Telehealth service model and anchored the service by providing direct feedback about community approval, promoting its use to diverse groups and among formal and informal decision-makers and securing confidence in the quality and safety of the service.	Community Telehealth Coordinators are essential to telehealth program success in remote communities.
	3. KO Telehealth identified practical shortcomings with the medical/treatment focus of the pre-existing telehealth model and initiated distinct wellness service capacities within its organization and communities.	A wellness focus introduces innovation and supports a broader base of community needs.
Engagement	1. Community engagement concerning telehealth had begun two years previously with an analysis of broadband needs in the Keewaytinook Okimakanak communities. In that first assessment, telehealth was singled out as a high value service and concerns about	Community members and service providers see telehealth as one of many potential strategies to improve community life. Early assessments of local needs will situate the

Table One: Formative Migration		
Requirement	**Considerations**	**Lessons Learned**
	telehealth services were identified.	importance of telehealth and an early understanding of ways that it could disrupt community life or work flow.
	2. The distributed approach to information sharing and decision-making developed by NORTH Network to support local hospital autonomy and input integrated well with Keewaytinook Okimakanak's community-based organizational structure.	Dynamic (on-going/multi-level) engagement is a successful strategy for encouraging grassroots/operational and high level (administrative) input and decision-making.
Track Record	1. KO Telehealth's capacity to migrate Telehealth services throughout the Sioux Lookout Health Zone was enabled by its First Nations owned and controlled structure and by the Kuh-ke-nah Network's (K-Net's) track record for working with communities to implement network service and educational innovations during the previous five years. K-Net was the lead regional agency in advocating for improved telecommunications infrastructure for First Nations, a pioneer in the use of educational bulletin boards (regional on-line technical and Band Manager training programs) and web/e-mail services. Similarly, K-Net was successful in developing and deploying a regional internet high school model and province-wide First Nations school Help Desk.	Acceptance and adoption of telehealth services in First Nations is linked to the proponent organization's ties to community-based interests and leadership and meeting community-based needs. Successful telehealth service implementation is only one aspect of a wide-ranging communications for development strategy – access to and affordability of broadband services is a long-term and broadly-based tool for supporting sustainable First Nations communities in remote areas of Canada.
	2. KO Telehealth met or exceeded all of the targets identified in the original CHIPP work plan. The	Treat small Telehealth demonstration projects like regional initiatives. Be

Table One: Formative Migration		
Requirement	**Considerations**	**Lessons Learned**
	results of the demonstration project were presented back to regional Health Directors six months prior to the end of demonstration project funding.	accountable and maintain good communication with other communities and engage regional health leads in decision-making about future migration opportunities and service sustainability.

Table Two: Applications Migration		
Requirement	**Considerations**	**Lessons Learned**
Organizational Readiness	1. The KO Telehealth Medical Director identified an acute psychiatric service provider problem in an unaffiliated group of communities and facilitated a meeting between the Tribal Council and KO Telehealth to discuss how telehealth could fill this gap. KO Telehealth worked with the community tribal council to model regional service migration. A separate implementation team was set up and a clinical service model designed that would integrate with their mental work flow and unique staffing structure. This sub-project provided two unexpected outcomes. First, additional First Nations were added to the demonstration project. Second, KO Telehealth gained valuable experience in establishing criteria for adding new sites and including them in the provincial telemedicine service structure. Additional communities using a regularly scheduled service also increased clinical utilization of the network.	Establish strong communication links throughout your health service area. Medical leadership provides practical opportunities for crossing First Nations boundaries. Be prepared to deviate from the project work plan and respond to emergent needs. Document new processes carefully so that they are useful to the organization and affiliated communities when the situation comes up again.
	2. KO Telehealth Hub services anticipated growth. The hub and spoke structure developed during the demonstration face delivers equivalent levels of service to all sites as they join the network at a fixed cost.	Make time at the beginning of the project to design and test scalable models that can be used in many different situations. Community leadership and local telehealth practitioners need face-to-face opportunities for working together, sharing concerns and providing insights into new services
	3. Approximately one year into the second expansion phase, KO Telehealth hosted a regional Service Migration Workshop. This forum provided	

Table Two: Applications Migration		
Requirement	**Considerations**	**Lessons Learned**
	community Health Directors and regional health leadership to participate directly in visioning the full regional service and to learn in more detail how the network supports and delivers services. The workshop also provided important team building, training and support functions for Community Telehealth Coordinators and an opportunity for federal and provincial stakeholders to see and hear how the First Nations telehealth system is addressing community and regional health and integration priorities.	and adjusting and providing feedback on the direction and focus of the regional telehealth service.
Service Provider Readiness	1. KO Telehealth identified two new positions during the expansion phase. The Telehealth Service Migration Coordinator was tasked with identifying existing health service providers in Sioux Lookout and working with them to introduce new and innovative programs. The Education Coordinator consulted with community Health Directors and designed a videoconference training program that would meet the needs of local health workers and families. 2. KO Telehealth's expansion phase coincided with the review of provincial health services in the region (Closson), the province-wide regionalization of services, a federal First Nations planning and health integration initiative (SLFNHA) and the integration of the province's three telemedicine networks (NORTH, Care Connect, VideoCare) into a single entity.	Engage staff whose job it is to identify service provider and community champions for telehealth and to identify and address barriers and develop protocols and models for regularly introducing new services and programming. Wide ranging change and system renewal provide innumerable opportunities to introduce the role, function and value of telehealth to health service providers and planners.
Community Readiness	1. Community Telehealth Coordinators regularly meet via videoconference to share information about	Establish regular and comprehensive processes for communicating with

Table Two: Applications Migration		
Requirement	**Considerations**	**Lessons Learned**
	emerging and/or unmet community health needs and provide local feedback about service acceptability and quality concerns. 2. As the telehealth service adapts to community-based demand and/or new services are introduced, Hub Services staff assign Community Telehealth Coordinators to coordinate elements of this service. For example, increase in clinical utilization has meant that the CTC from Kasibonika will be trained to schedule all Diabetes programming on the network. Similarly, the Education program assigns CTCs as Moderators.	Community Telehealth Coordinators. Use Community Telehealth Coordinators as a distributed resource. The same technology and capacities that link their local work with external service providers also links them with network functions and tasks. As the network grows, Hub services can take greater advantage of its community-based resources to perform coordinating and service management functions.
Engagement	1. KO Telehealth sustains an engagement and liaison function through the use of in-house Keewaytinook Okimakanak staff and participation of Community Telehealth Coordinators. Designed originally as a way to introduce telehealth in First Nations and to support service development and success, community feedback indicates that engagement visits are a valued part of the network service. Community members indicate that in addition to interaction by telephone, videoconference and e-mail, site visits provide a human way of understanding the telehealth service and how it is being managed within the region. 2. KO Telehealth regularly holds region-wide face-to-	Meaningful telehealth engagement should include many points of contact within the community. Local visits provide information and support relationships for introducing new services and sustaining the network over time. Community leadership and local

Table Two: Applications Migration		
Requirement	**Considerations**	**Lessons Learned**
	face gatherings to describe what is happening within the network and to engage stakeholders in discussions about new directions and common challenges and opportunities.	Telehealth practitioners need face-to-face opportunities for working together, sharing concerns and providing insights into new service development. Their participation is a practical strategy for adjusting programs and providing feedback on service direction and focus.
Evaluation	1. KO Telehealth publishes monthly utilization information on its website. 2. KO Telehealth established a comprehensive evaluation framework that captures qualitative and quantitative data across five themes: accessibility, acceptability, integration, quality (of care, technical services, outcomes), financial impact. A parallel evaluation process is in place to evaluate community-based training and education services.	Telehealth service uptake must be regularly tracked A common evaluation framework provides a way to understand what is working and what is not working from many points-of-view.

Overcoming Health Service Provider Barriers

Theme	*Barrier*	*Strategy*
Communication	Culture	*Community Telehealth Coordinators* – trained First Nation telehealth coordinators are fluent in the local language dialect and work in proximity to community health staff in the Health Station. They provide a direct link between clients and external service providers, animate interest in the Telehealth service with itinerant physicians, nurses and allied health professionals, act as a cultural competency coach for Med students during community placements and feedback concerns expressed by health professionals and workers to regional staff.
	Vision	*Strategic Development Workshops* – Regular workshops to report back on service developments and to highlight new opportunities to connect community-based staff and health leadership with health service providers and agencies to directly influence and contribute to the overall design and growth of the network service.
	System Complexity	*Intra-Regional & Inter-Regional Telephone and Videoconferencing* – Linking clinical, technical and operational leads through biweekly phone and videoconferencing meetings supports good communication, facilitates just-in-time and long-term problem solving and enables an escalating community-based feedback forum for tracking service trends, successes and challenges.
	Public Information and Knowledge Management	*Website Development* – an easily accessible and easy-to-use interface that provides a one-stop view of the Telehealth service within the First Nation region and the province. The website tracks events and makes Telehealth service data available to the general public and to service stakeholders and provides a private meeting space and resource centre for community-based and hub staff. *Regional Media* – a vehicle for promoting the service within

Theme	*Barrier*	*Strategy*
		the region – in the language(s) and cultural context that the service is delivered in. Provides a public form of accountability and is a useful tool for health service providers and agencies to share success stories, identify possibilities for new services and communicate the value of the service up chains-of-command.
Quality	Technical Reliability	*Service Level Agreements-* Addresses common fears/concerns by physicians that the service is unsupported or that it may not respond to innumerable 'what-if' scenarios. SLAs provide escalation paths and identify specific staff to address problems/concerns that may arise when health professionals are using the system. *Multi-tier Help Desk* – Toll-free calling to resolve service problems in advance or on-the-spot. Help Desk services facilitate confidence among service providers by demonstrating how SLA commitments are addressed and problems resolved.
	Clinical Reliability	*Community Telehealth Coordinators* – build up extensive experience in the use of Telehealth technologies and are adept at resolving many problems for health professionals without use of Help Desk services. *Protocol Development* – as new services are introduced to the network, clinical staff develop protocols with practitioners, regional Telehealth coordinators and community-based staff to ensure that Telehealth will enable work flow and result in high satisfaction by clients, nursing and physician staff participating in these sessions. *Policies and Procedures* – Comprehensive policies and procedures are developed and regularly revisited to guide service delivery, integrate emerging best practices and capture lessons learned. *On-going Evaluation* – Clinical utilization and service

Theme	*Barrier*	*Strategy*
	Turnover	provider and client satisfaction with the service are tracked and regularly reviewed to ensure that the Telehealth service maintains a high standard of quality. These results are fed back to biweekly phone conferences, presented at meetings with regional medical staff and posted on web pages. *Regional Medical Directors and Regional Telehealth Coordinators* – remote First Nations health stations are staffed by itinerant nursing staff and serviced by itinerant physicians. Both groups have a high rate of turnover – usually not staying in any one community for longer than a year. Regional Medical Directors interface directly with new medical staff and can directly promote and orient community physicians prior to their first community visit. Similarly, Regional Telehealth Coordinators maintain relationships with Nurses-in-charge at Health Stations and provide a link between new nursing staff, community-based Telehealth coordinators and introduction of how to use the Telehealth service.
Innovation	Inertia	*Regional Medical Directors* – regularly demonstrate the value of telemedicine to colleagues during medical advisory committee meetings and staff orientation sessions. They also work directly with medical staff in areas where uptake is slow to develop new telehealth solutions – such as tele-primary care clinics – that will improve practitioner and community outcomes.
Policy	Change Management	*Provincial Network Clinical Leads, Regional Medical Directors and Regional Telehealth Coordinators* – potential professional barriers to service delivery are highlighted in regular telephone conferences and resolved using the distributed expertise of the provincial network and its regional and community-based staff. Responses and strategies to address issues ranging from remuneration, CMPA coverage, licensure and accreditation to access to hospital

Theme	*Barrier*	*Strategy*
		dictation services, professional college regulations governing mentoring requirements and community physician linkages to regional tele-ophthamological screening procedures.
Training	Distributed Access	*Community Telehealth Coordinators* – CTCs provide a consistent and reliable source of practical information and hands-on training for new nursing and medical staff and medical students during their community placements. They also provide a link back to the First Nations network Educator and Regional Telehealth Coordinator who can provide a higher level of training and capacity building for health professionals. *Hospital Site Coordinators* – Site Coordinators at base (FNIHB Zone) hospitals are a source of direct telehealth training and orientation for community nurses and physicians prior to their community placement. *Website* – training manuals and clinical protocols are posted on the First Nations Telehealth website and are accessible to Community Telehealth Coordinators *Targeted Education Programming* – Regional Telehealth Coordinators and/or First Nations Network Educators program Telehealth orientation sessions as part of the on-going community-based education and training service. These sessions are targeted at improving understanding of the Telehealth service by community-based nursing staff.
Acceptability	Ease of Use	*Demonstrations* – all First Nations network staff are capable of demonstrating how the technology works. Spontaneous links between First Nations and Hub services staff and vice versa regularly take place. *Technology Selection* – determination of telemedicine technologies takes place in a live environment and is assessed by technical, clinical, administrative and community-based representatives of the First Nations

Theme	*Barrier*	*Strategy*
		Telehealth network. Similarly, new diagnostic tools (e.g. digital stethoscopy) are assessed and certified by regional medical consultants (e.g. Cardiologists). *Central Scheduling* – First Nations Hub services staff who are familiar with the First Nations communities, manage all scheduling activities and are the primary interface between Community Telehealth Coordinators, Medical Consultants and the provincial clinical scheduling service. Scheduling also manages all regional educational programming.
Accessibility	Utility	*Integration* – First Nations Telehealth is part of the public health system. Community-based telehealth services mirror regional medical and nursing coverage. Telehealth provides comprehensive access to specialties and sub-specialties as required, and the First Nations network performs an integrator function that responds to requests for a full-range of services and similarly channels access to federal and provincial programming and service providers.

Observed Benefits of a Wellness Service Model

Community Wellness Benefits of Telehealth Services in Remote First Nations Settings[6]
Income and Social Status[7]
• 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 enabled by shared broadband access agreements
Social Support Networks[8]
• Family visits – Scheduled visits with family members in long term hospital care. Reduces isolation for both hospitalized patients and decreases worry for community members who cannot afford travel to visit hospitalized family members • Elders' Luncheon Series– Connecting Elders via the Telehealth Network   o 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 school
Education[9]

• Continuing education for community health workers – CHRs, Mental Health Workers, HBHC Workers, Personal Support Workers, Home Care Coordinators, etc.
• Next steps
  o create certification programs over network for health programs
  o integrate Health Canada FNIHB programming to utilize training, professional development and peer support opportunities available over the network
• Keewaytinook Internet High School – successful model of educating youth who are not ready to leave small communities to attend urban high schools

[6] KO Telehealth is built on a holistic approach that considers well-being of the community from the broadest possible point of view. Wellness links personal health with community-wide access to ICTs and a multi-disciplinary approach of how health status is situated, maintained and improved over time. The KO Telehealth service model addresses wellness from determinants of health point-of-view that is culturally-defined and community-based in its outlook.

[7] 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.

[8] Support from families, friends, communities and colleagues is associated with better health. Telehealth is utilized to link families over distance and maintain relationships between local clients and distant health service providers.

[9] Health status improves with level of education. Education increases job security and options for employment are known factors that influence health. Significantly more Aboriginal students do not complete high school as compared to all Canadians; often this gap is due to geographical and financial barriers to accessing further education.

Community Wellness Benefits of Telehealth Services in Remote First Nations Settings[6]

- 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 2005

Employment/Working Conditions[10]

- 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[11]

- Recognition of diversity for First Nations Telehealth Network
- KO Telehealth First Nations 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[12]

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

[10] Employment and Working Conditions are 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.

[11] 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.

[12] 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.

Community Wellness Benefits of Telehealth Services in Remote First Nations Settings[6]
Personal Health Practices and Coping Skills[13]
• 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 meet with Mental Health Worker to case conference and build community support Upstream benefits approach to chronic disease – early intervention and education sessions promoting healthy lifestyles – Diabetes, healthy eating, exercise
Healthy Child Development[14]
• Healthy Babies education series promotes healthy pregnancy, safety issues and early development • Education sessions promoting healthy child development • Speech and Language Therapy supports early intervention/skills transfer • Fetal Alcohol Syndrome assessments done over Telehealth • Pediatricians and Pediatric sub-specialists now doing consults • Future Applications: o Education series for parents on topics such as – nutrition, healthy development, behaviour management • Future applications o Early literacy programs o Spelling and writing skills development
Health Services[15]
• 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 • Improved continuity of care and service integration between local, regional, provincial and federal health service agencies and providers • Access to medical care no longer weather dependent
Culture[16]

[13] Telehealth can facilitate environments that enable and support healthy lifestyles. Affecting change through knowledge exchange to promote positive coping mechanisms and to reinforcing positive behaviour which is key to influencing health outcomes.

[14] First Nations children are at risk for low birth weight, poor nutrition and developmental delays. The infant mortality rate for First Nations is much higher than the Canadian rate. Prenatal care, early intervention and comprehensive services are essential to reversing these risk factors and the resulting poor outcomes in adulthood.

[15] Access to health care services is an issue for all Aboriginal communities. Access to health services, in remote First nations – particularly those designed to promote health – contribute to population health. KO Telehealth was initially modeled upon the clinical model developed by their provincial partner. Currently, KO Telehealth is expanding its service options to address broader health service needs and priorities.

[16] 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

Community Wellness Benefits of Telehealth Services in Remote First Nations Settings[6]

• Community consultation process integrated into network migration
• Utilization of specially trained Community Telehealth Coordinators (CTCs) to promote Telehealth and coordinate all sessions.
• CTCs provide interpretation for community members
• Education sessions targeting First Nations community members and Community Health Workers.
• Promotion of First Nations cultural values to funders and KO Telehealth partners
  o Importance of CTCs
  o Community, family and Elders needs set priority for services
• KIHS allows youth to remain in community – enhancing culture and community/family bonds

Gender[17]
• 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 include Women's health series, reproductive health, and Men's health series.
Biology and Genetic Endowment[18]
• Genetic counselling done for families • Determine risk for further pregnancies and support parent and family decision-making.

outcomes. The migration of First Nations youth to cities to obtain education results in loss of community and cultural ties.

[17] 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.

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

Matrix of Community Health Needs and How Telehealth Addresses Needs

First Nation Health Need	*How Telehealth is Meeting the Need*
Sudden Illness or Injury	Aboriginal people have substantially higher injury rates – three times the injury death rate of Canadians as a whole.[19] In geographically remote communities like Keewaywin that have no resident Nursing or Medical staff, local health workers frequently call medical staff at regional hospitals to seek medical opinions over the telephone. Often the people making the call from the community are unfamiliar with the doctor-on-call and/or the nomenclature being used. Similarly, the physician may never have been to the community and likely will have no access to their phone patient's medical record. KO Telehealth developed a spontaneous consult protocol to facilitate evidence-based decision making in these situations. Spontaneous consults are conducted via videoconference and involve the patient, their family and the local health team. When the Community Telehealth Coordinator in Keewaywin was woken up at 0200 one morning, she was ready for a long night. 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. The Doctor spoke to the boy's mother about her concerns and 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.
Chronic Disease Prevention	Chronic diseases such as diabetes, depression and ischemic heart disease claim large portions of the adult First Nations population, resulting in higher rates of complications and hospitalizations.[20] 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 is why she invited her nine year old son to a scheduled telehealth diabetes clinic in Big Trout Lake.

[19] Colin O. D'Cunha. Chief Medical Officer of Health Report, Injury: Predictable and Preventable. November 2002. Queen's Printer for Ontario.

[20] Booth G, Hux J, Fang J, Chan B. Time trends and geographic disparities in acute complications of diabetes in Ontario, Canada. *Diabetes Care*. 2005; 28 (5): 1045-1050.

First Nation Health Need	*How Telehealth is Meeting the Need*
	"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."
Improved Primary Health Care Coverage	Recent **r**esearch into accessibility to and quality of primary care for Aboriginal people in Ontario concludes that "…northern Ontario's aboriginal residents have insufficient or ineffective primary care."[21] As the plane carrying the Doctor for Ontario's most northerly community lands in Fort Severn, she thinks about how far she is from her home community of Vancouver and about the full waiting room waiting for her in the Nursing Station. During the next two days the line-up of people waiting to see her never shortens. During her 48 hours in Severn she has primarily seen acutely ill people and reflects on the large number of people she won't see until next month – those who get ill in between visits and those who are chronically ill and require more frequent attention. That's why she is now walking into a Telehealth studio at Children and Women's Hospital in Vancouver. For the next two hours she will hold a virtual clinic. Working with the Community health Nurse and the Community Telehealth Coordinator, Fort Severn's doctor sees more than a dozen patients by Telehealth. This model is now catching on throughout the Sioux Lookout Zone – tele-primary care clinics are being offered in Poplar Hill, Muskrat Dam and Cat Lake.
Improved Quality of Life	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

[21] Shah B, Gunraj N, Hux J. Markers of access to and quality of primary care for aboriginal people in Ontario, Canada. *Amer J Public Health*. 2003; 93 (5): 798-802.

First Nation Health Need	*How Telehealth is Meeting the Need*
	children who visit after school and to his children who drop by to bring him freshly 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."
Access to Specialized Services	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 KO 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. Assessments via Telehealth allow the Art Therapist to speak to family and members of the local health team. This facilitates a better understanding of individual cases and improves decisions to escalate therapy and/or intervention.
Overcoming Isolation	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.[22]
Engagement	

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

First Nation Health Need	*How Telehealth is Meeting the Need*
	The introduction of Telehealth has been punctuated by a continuous series of engagements. Decisions on how to structure the service, how to meet emerging community health and wellness needs and whether to proceed along a specific path, have been grounded in community experience and direction. The success of on-going engagement is summarized below in the following statements: "I enjoy 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."[23] "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 counselling) and was more convenient with respect 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."*[24] **"**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."[25]

[23] Joseph Leo Anishinabe, age 69 (Keewaywin) 2004.
[24] KO Telehealth/NORTH Network (CHIPP) Evaluation, Health Canada, 2003
[25] Queen's Centre for Health Services and Policy Research: KO Tele-psychiatry Evaluation, 2002.

KO Telehealth Development Summary

Access to Quality Healthcare

Like many remote and isolated First Nations communities in Canada, members of Keewaytinook Okimakanak (KO) lack access to quality health care. Five of the six member communities that form KO are not road accessible and can only be reached year round by plane. Rates of heart disease, diabetes and mental illness are far above the national averages.

Although many communities have nursing stations, community members must be flown south for treatment by physicians located in large urban centres. Similarly, chronic diseases are a staple of community life. Often those suffering from chronic disease are not diagnosed until their condition has become acute and requires immediate attention. KO Telehealth was developed and implemented to meet these clinical access needs and to provide a closer to home alternative for First Nations people living in remote communities.

Access to Health Education and Training

KO Telehealth also provides nurses and other health care professionals in these communities with improved access to health education. It reduces professional isolation and improves opportunities for physician and nurse recruitment and retention. It also offers the opportunity for capacity building at the community level. As new knowledge is transferred and skills acquired, the community is empowered to play a greater role in the delivery of Telehealth and building local technical, organizational and clinical capacities.

Engaging Communities in Health Planning and Development

Community engagement has been critical to the success of KO Telehealth. When KO introduced telehealth into new communities, some community members expressed concern that they would lose their access, such as it is, to doctors and nurses who travel to practice in their communities. Accordingly, no community is forced to accept telehealth. Most early fears about losing face-to-face contact were dispelled, largely as a result of the critical role played by Community Telehealth Coordinators (CTCs), local workers who understand the specific challenges of their First Nations, operate the Telehealth workstation and facilitate the clinical delivery of local services. People quickly realized the advantages of Telehealth as a tool to improve local health care. Reducing the need to travel to see specialists is seen as a positive aspect of Telehealth. By working closely with each community, KO Telehealth staff have created a service that is requested by many other First Nations in Northwestern Ontario beyond the Sioux Lookout zone.

Just as community members had concerns about the introduction of telehealth, so did physicians and other health care professionals at the beginning of the new service. These concerns were tempered by an incremental/success-driven approach that emphasized both the value of the technology and the new relationships and services that telehealth supports. Acceptance was accelerated by the incorporation of telehealth in the learning model for the

newly accredited Northern Ontario School of Medicine. Dr. Roger Strasser, NOSM's Founding Dean , toured the northern First Nations and expressed great satisfaction with the broadly-based capacities of the KO Telehealth service model:

"The achievements of Keewaytinook Okimakanak's K-Net, Telehealth and Keewaytinook Internet High School (KiHS) initiatives are remarkable. NOMS can learn much from the experiences of KO with regard to the operational platform and educational framework of the Keewaytinook Internet High School, as well, KO's expanding tele-medicine capacity within telehealth."

KOTH has many lessons learned and best practices to share beyond the Sioux Lookout District of Northwestern Ontario. First Nations telehealth programs must provide comprehensive community-based access to existing medical, health, and health education services and facilitate regional integration with the provincial health care system. Patients from across the region will enjoy improved accessibility to integrated primary health care services in Ontario's most isolated health region. The need to travel may be reduced. As a result, patients may no longer need to travel to access health care services at a time when they are in need of support from family and friends.

Another advantage to reducing the need for patient travel is practical - weather conditions in the far north often prevent aircraft from flying. Telehealth ensures that patients have some access to health care professionals whether the planes are flying or not. Telehealth also reduces the associated health transportation costs (e.g., meal allowances, accommodation, taxi fares and airfares) and the non-visible costs such as lost work time, productivity and sick time pay. Patients are also save the burden of leaving their jobs and families for days-at-a-time, losing wages and incurring additional childcare costs.

The expansion aims to build a sustainable and accountable service model that will enhance existing nursing, physician, and community health worker health delivery and improve First Nations access to integrated health services. The expansion project proposes that this system will improve community well-being by building local capacity, supporting regional accountability and by facilitating a coordinated approach to achieving improved health outcomes in Ontario's most remote communities.

Key Developments for KO Telehealth

1994 - 1998 - Keewaytinook Okimakanak introduces the Kuhkenah Bulletin Board System in First Nations across the Sioux Lookout Zone. Early adopters are Band Managers, students attending residential high schools and Tribal Council staff who communicate regularly with the northern First Nations.

1998 - January - Keewaytinook Okimakanak Health and Wellness Strategy is presented to Health Canada. The document includes a telehealth plan for introducing community-based services. In May of that year, KO Chiefs travel to Ottawa with Chiefs to meet with telehealth pioneers at the Ottawa Heart Institute and participate in a satellite demonstration of digital stethoscopy. The following month, Keewaytinook Okimakanak submits a proposal to the

Health Transition Fund and Ontario's Ministry of Health. In the Fall, KO is funded by FedNor and NOHFC to develop a broadband study/strategy

1999 - February - funding is received from Health Canada to support the design and implementation of a telepsychiatry project for First Nations people in Red Lake, Poplar Hill and North Spirit Lake. That Spring, K-Net begins its broadband consultation and telehealth is identified by community members as a high priority application.

2000 - January - KO SMART business plan includes Telehealth development strategy (3 year project approved in May with operational plan developed. April of that year, North Spirit Lake's new telephone and broadband services are completed. In December of 2000, KO partners with the Thunder Bay Regional Hospital to develop a regional telehealth initiative.

2001 - August – a $17 million Northern Ontario Telehealth proposal is submitted to Health Infrastructure by NORTH Network. The proposal includes 5 KO First Nations. The project is approved in December and preparations begin to implement telehealth in the Keewaytinook Okimakanak communities.
http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=71

2002 - January - telehealth consults begin in KO First Nations using the new telemedicine suites, see the following links:
http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=183
.
http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=199

http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=244

http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=315

http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=353

October Regional First Nations Workshop - http://telehealth.knet.ca/October_Workshop

December, the KO Telepsychiatry evaluation is completed: http://knet.ca/documents/KO-Telepsychiatry-Report-2002-12-21.pdf

2003 - January – KO participates in a FedNor sponsored NOSM curriculum workshop:
http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=432

In March, Ontario Region of First Nations and Inuit Health Branch provides bridge funding to support the ongoing operation of telehealth in five KO First Nations
http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=527

September - PHCTF announces that KO Telehealth has received funding for a three year expansion and transition phase. The project starts in November of that year and will grow from five sites to 25 sites in the next 20 months.

2004 - February -
http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=831
The Ontario Minister of Northern Development and Mines visits KO Balmertown for major telehealth announcement.

In August KO Telehealth opens its new Hub Services facility in Balmertown:
http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=1036

In November – KO Telehealth hosts a visioning workshop on migrating services to all First Nations in the Sioux Lookout Zone:
http://knews.knet.ca/modules.php?op=modload&name=News&file=article&sid=1160

First Nations Telehealth Development Glossary

Accountability – Involves the nomination of a person or group and a reporting relationship between parties. It refers to the obligation to demonstrate and take responsibility for performance in light of agreed to expectations. There is a difference between responsibility and accountability – responsibility is the obligation to act, whereas accountability is the obligation to answer for a particular action.

Adaptation – Adaptation of health services means ensuring both the availability and the appropriateness of health services and programs to respond to health needs of all Aboriginal peoples, and the unique needs and perspectives of diverse populations and regions. This can be accomplished through the re-design, re-orientation and/or modification of programs and services.

Determinants of Health – These are a range of personal, social, economic and environmental factors that determine the health status of individuals or populations. These factors are: income and social status; social support networks; education; employment and working conditions; social environments; healthy child development; physical environment; personal health practices and coping skills; biology and genetic endowment; health services; gender; and culture.

Collaborative – To work jointly on an activity or project.

Consultation – The techniques used to obtain input and feedback for consideration and decision-making.

Elder – a man or woman whose wisdom about spirituality, culture and life is recognized and affirmed by the community. The Aboriginal community and individuals will normally seek the advice and assistance of Elders in various areas of traditional as well as contemporary issues and for their ability to communicate as educators.

Engagement – The process used to facilitate an informed discussion among individuals or organizations and encourage participants to share ideas or options and undertake collaborative decision-making.

First Nations – It is acknowledged that First Nation people have a special relationship with the federal government by virtue of the Treaties. The Constitution Act of 1982 defines Aboriginal people as including Indian, Inuit and Metis people. First Nations peoples refers to North American Indian people in Canada, both Status and Non-Status. Many Indian people have also adopted the term “First Nation” to replace the word “band” in the name of their community.

Holistic – refers to the sum of all health and social indicators (physical, mental, emotional and spiritual) that contribute to the overall health of an individual and her community.

Indian – the term collectively describes all Indigenous people in Canada who are not Inuit or Metis. The Constitution Act of 1982 specifies that Aboriginal people in Canada include Indian, Inuit and Metis people. There are three categories of Indians in Canada:

- *Status Indians* are people who are entitled to have their names included on the Indian Register, an official list maintained by the federal government. Certain criteria determine who can be registered as a Status Indian. Only Status Indians are recognized as Indians under the Indian Act, which defines an Indian as "a person who, pursuant to this Act, is registered as an Indian or is entitled to be registered as an Indian." Status Indians are entitled to certain rights and benefits under the law.
- *Non-Status Indians* are Aboriginal people who are not listed on the Indian Register System for a number of reasons: A) the family has never been registered; B) they are unable to document their status; or, C) they have lost their status as a result of a marriage or enfranchisement. Consequently, they are not eligible for administrative and other benefits as defined under the Indian Act.
- *Treaty Indians* are Indians who belong to an Aboriginal group that has signed a Treaty with the Crown.

Integration – is a general concept of collaboration and harmonization that looks at ways and means of improving coordination and collaboration between health systems funded by Provincial/Territorial (P/T) governments, and the First Nations and Inuit health system (funded by the federal government). Integration is mostly used to describe interrelations between health systems funded by P/T and the First Nations and Inuit health system (funded by the federal government). Integration can also be used to describe and address interrelations between:

- Sectors in order to encourage the development of a more holistic approach that encompasses the determinants of health (housing, education, employment, etc);
- Departments in order to attenuate duplication, improve efficiency and coordination, and to streamline administrative processes (e.g. early childhood development (ECD), single window, consolidated transfer agreements, etc.); and,
- Jurisdictions, especially to improve capacity and economies of scale.

Jurisdiction – refers to the extent of legal authority and power. A term of large and comprehensive importance, it generally denotes the lawful right of a body to exercise power. Jurisdiction may be exclusive or concurrent. Within a particular sector such as health, they are limits which may circumscribe government programming or regulatory activity. Much of the work involved in designing, implementing or administering government programs often has to do with defining and then defending these jurisdictions.

Longstanding Basis – having existed for a period of time longer than five years.

Partnership – an association of two or more individuals or organizations with common goals and objectives, who participates in, or is responsible for, sharing responsibility for developing various aspects of an initiative.

Respect – to demonstrate due regard for the feelings and rights of other individuals and organizations. To recognize and take into consideration their views, perspectives, experience and knowledge.

Traditional – in keeping with long established customs or beliefs that have been passed on from generation to generation.

Transformative change – to undergo significant change that is progressive and visionary and that will lead to major advancements in a particular field or area.

Transparency – A term used to describe openness and a willingness to share information with others. Within the context of telehealth development it refers to the application of these principles and practices to the work and interactions among and between partners.

Upstream – stemming from a population health approach where there is a belief that the earlier in the "causal stream" that one can act, the greater the benefits for health status. For any health issue of a population, an upstream approach to intervention can be applied to the entire spectrum of a population, an upstream approach to intervention can be applied to the entire spectrum of health action – from promotion, prevention, protection, through to treatment and rehabilitation – and identify those strategies for investment to have the most upstream impact.

Youth – an Aboriginal person usually defined by age less than 30 years. Ages vary according to local customs and definitions of the First Nation, Inuit or Metis community.

Section D: Community Telehealth Coordinator Vignettes

Video clips demonstrating the role of the Community Telehealth Coordinator in isolated First Nations communities: Parts 1 through 6

The vignettes are available for viewing in six chapters:

- Overview of the community-based Keewaytinook Okimakanak Telehealth initiative
- Introducing and Supporting Telehealth in First Nations
- Sample Consult Session
- The Roles and Responsibilities of the First Nation CTCs
- Public Health Education
- Conclusion

Vignettes are available for viewing at:

http://telehealth.knet.ca/index.php?module=ContentExpress&func=display&ceid=507

Part 3: First Nations Telehealth Network Services Model

Section A: Telehealth Networking Tools and Services Work in Remote First Nations Health Centres

- Interactive Multi-Media Flash Presentation

Section B: Implementing and Sustaining Network Services

- Sustainability Challenges and Lessons Learned
- Inventory of Network Services Delivered
- Partnerships between KO Telehealth and First Nations Communities
- Network Security Measures
- K-Net/KO Telehealth Historical Development Timeline

Section A: Telehealth Networking Tools and Services in Remote First Nations Health Centres

Interactive Multi-Media Flash Presentation

This Flash presentation can be downloaded from:

http://research.knet.ca/index.php?module=ContentExpress&file=index&func=display&ceid=97&meid=76

Section B: Implementing and Sustaining Network Services

Sustainability Challenges and Lessons Learned

The sustainability of the Kuh-ke-nah Network (the on-going costs to deliver broadband services to member First Nations) is built on an aggregated business model. K-Net manages network services within two distinct wide area networking environments – the terrestrial and satellite infrastructures. At the community level the local loop interconnects with a variety of last mile solutions. First Nations have employed Ethernet, DOCSIS, DSL, Fiber Optic, and WLAN, among others, to link local institutions and residents.

The basic sustainability formula is built on a fair pricing model. This model is described in Table One, below. Otherwise, the sustainability of K-Net services is grounded in five challenges: affordability, interoperability, scalability, usability and acceptability

Terrestrial Network Pricing

Table One: K-Net Connectivity Cost Breakdown ($CAD)[26]	
Item	Monthly Cost
Dedicated Community Bandwidth (T-1)	$ 2,075.00
Internet Bandwidth (1.5Mbps)	300.00
Community Contribution to Toronto Hub interconnect	200.00
Service Desk Support	100.00

[26] Pricing for terrestrial (microwave/wireline) and satellite-based services are comparable. Total monthly cost for broadband services is $2,675.00 (terrestrial) and $2,700 (C-Band satellite).

Challenge	Lessons Learned
Affordability	- K-Net has adopted a fair pricing model that provides affordable quality network access regardless of how the service is delivered (i.e. terrestrial or C-Band satellite). - K-Net has developed connectivity purchasing partnerships and agreements with bandwidth resellers and telcos. K-Net leverages its downtown location to negotiate the best bulk price for internet and connectivity services and its preferred partnership with Bell Canada and Telus in Ontario and Quebec to reduce the monthly bandwidth and internet costs. - K-Net has developed Master Standing Offers and preferred pricing agreements with major network and applications technology vendors. - K-Net optimizes utilization of network resources by establishing inter- and intra-provincial partnerships to deliver and/or manage network services. This approach leverages multiple funding streams and distributes benefits of broadband connectivity outside of the standard regional or provincial boundaries. Further it supports an organizational information sharing and implementation strategy to animate use and uptake of information and communication technologies by First Nations. - K-Net is a not-for-profit entity that distributes the cost of its services among member First Nations. Surpluses are re-invested in the network as part of an enterprise-wide evergreening process. Similarly, excess network capacities are sold to third parties to ensure that the network is operating at optimum levels. - K-Net has created hub services for all members and partners – these include video bridging services, help desk, network operations and control, planning and implementation and procurement. Network affiliation provides one dial access to the service desk. These service desk functions are distributed across the network (for example, video bridging is managed in Ontario, Saskatchewan and Atlantic Canada).

Interoperability	- K-Net network architecture is based on open standards and all network gear is standards-based. Proprietary technology such as videoconferencing and bridging is pre-tested before purchase to ensure full interoperability with existing network devices and systems. Similarly, human services are designed to meet cultural interoperability criteria.
Scalability	- K-Net has developed an integrated Service Desk Function that links network management, user support and applications support functions. The Service Desk leverages expertise across applications (e.g. telehealth, video bridging, VOIP, e-mail, web page development and so forth), provides distributed and culturally appropriate support and incorporates escalation paths to senior network architects and partners. - In most communities that use K-Net services, the First Nation operates the municipal area network (MAN). This may be a cable plant, wireless distribution system or fiber optic transport system. The community maintains responsibility for the MAN and assigns local technical resources for repair and troubleshooting. Local technicians regularly are supported by K-Net hub services staff in Sioux Lookout and Balmertown. - K-Net's First Nations model has been presented to federal and provincial agencies as a reliable and effective way to introduce and manage broadband connectivity for province-wide and national initiatives. Negotiations with these bodies are designed to provide a stable program funded platform for community-based services.
Usability	- K-Net is designed for ease-of-use and scalability. Technology choices, training and support systems are developed with community-based users and technicians in mind. All systems are linked back to toll-free Service Desk support. - K-Net has implemented redundant paths and channels wherever possible. This redundancy supports mission critical applications such as telemedicine and widens the network routing and management options

Acceptability	- K-Net is designed to deliver multiple applications and to interconnect numerous service providers. Health, Justice, Policing, Education, local governance, economic and community development initiatives are carried within the Kuh-ke-nah network. Primary customers include the band office, school, constabulary (Nishnawbe Aski Police Services), nursing station, local businesses, and special online services such as the Northern Chiefs' Keewaytinook Internet High School. (subsidized by Indian and Northern Affairs). - Application-specific security or quality of service requirements are designed within the network to the service providers and jurisdictions specifications. - K-Net works directly with community-based leadership to develop and introduce e-services that have been identified as community priorities. This approach focuses the network on meeting local service demand and supports earlier adoption, more rapid uptake and greater community-based satisfaction with the service.

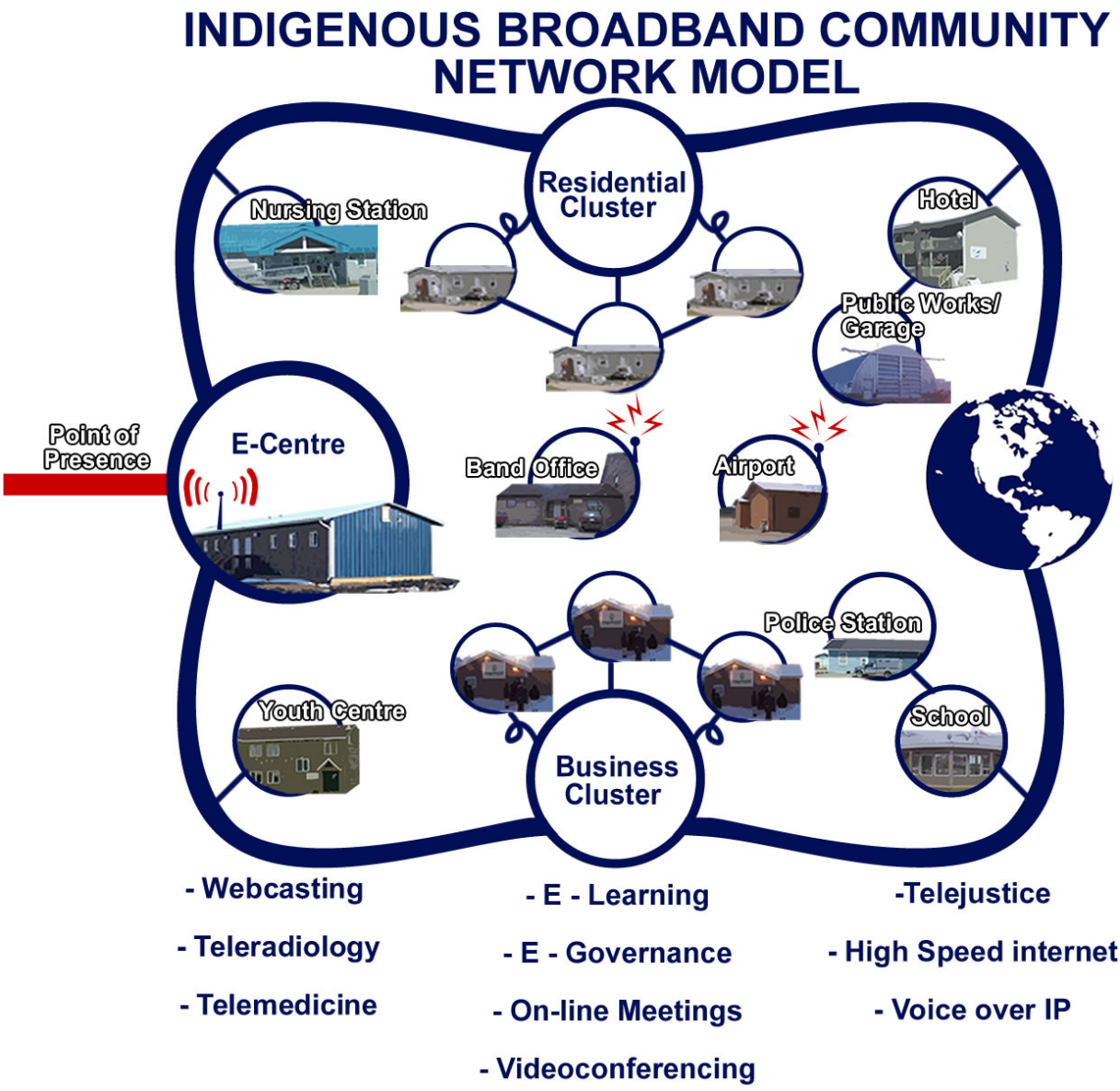
Inventory of Network Services Delivered

K-Net Service	Network Service Priority	Service Level Agreement	Synergies/Dependencies
Community Networking	Mission Critical	Letter of agreement	K-Net links member communities to a wide area network that provisions custom bandwidth and service solutions based on local demand and service affiliation. Community networking is treated as a community development process and local champions are sought out and supported as part of a broader diffusion of innovations strategy. This system wholly exists within the public IP network environment. Private network service providers use the K-Net bridge to link with community-based sites.
Clinical Telemedicine	High Priority	Provincial telehealth network	K-Net provides level 1 Service Desk response to community-based problems with the telemedicine service within normal business hours. Community-based connections within the health centre are routed through a VPN tunnel and transported within the K-Net public IP cloud to the SSHA Toronto 'meet-me' point in Toronto. If K-Net cannot close trouble tickets immediately, they are escalated to the provincial telehealth service desk at NORTH Network.
Health Education/Training	Medium Priority	Internal	Health education and training videoconferencing programming is delivered via the K-Net public IP network. Bandwidth is managed through a central scheduling desk. Troubleshooting is provided through the video bridge staff and is escalated to K-Net network operations if

K-Net Service	Network Service Priority	Service Level Agreement	Synergies/Dependencies
			required.
Voice-over-Internet Protocol	High Priority	None – still in demonstration phase	VOIP is a regional community-based service that provides local dialing from each community to Sioux Lookout. This service will expand its local calling area to Thunder Bay and Toronto within the next fiscal year. Trouble reports are forwarded via e-mail to K-Net technicians and via the toll-free service number.
Teleradiology	Medium Priority	No SLA	Teleradiology currently operates in the Deer Lake First Nation and the Fort Severn First Nation. Although these two First Nations sites are part of regional consortia that includes the Menoyawin Health Centre, there is no system owner at Health Canada. Images are transported within a separate VPN tunnel to the Thunder Bay Regional Hospital. The regional PACS server provides secure web-based access for physicians within the Sioux Lookout Health Zone. Emergency digital imaging is not formally supported on a 24x7 basis.
Video Bridging	High Priority	Client-based	K-Net operates a national video bridging service that is remotely managed in Ontario, Atlantic Canada and Saskatchewan. The video bridge is a 24 port gold standard Polycom MGC (Accord) that supports H.320 and H.323 services. K-Net supports multiple PRIs. Central scheduling software is used to optimize bridging resources and reserve adequate bandwidth resources. Bridge operators initiate sessions, monitor calls and provide troubleshooting services during calls. The Bridge also facilitates audio conferencing for all K-Net

K-Net Service	Network Service Priority	Service Level Agreement	Synergies/Dependencies
			and KO Telehealth phone-based meetings. Generally, the KO Telehealth Scheduling Desk fields first line help calls for all video bridging services.
Multi-media Development	Low Priority	Not required	K-Net is regularly contracted to develop multi-media content products (on-line video, portals, animation) to support service providers and community-based practitioners. As part of a broader community and youth development initiative, K-Net has implemented a web page development service (http://www.myknet.org/). Youth are encouraged to develop their own personal and community web pages and to use internet tools as a way to facilitate skills transfer and communication.
Service Desk	High Priority	Provincial Telehealth Network, First Nations SchoolNet	K-Net provides technical service desk functions for multiple partners. The Service Desk is in operation five days per week between 0830 to 1700.
Satellite Network Operations	Mission Critical	National Satellite Initiative	K-Net collaboratively manages satellite bandwidth within Ontario, Nunavik (Arctic Quebec) and northern Manitoba. Each partner has full capacity to direct and share bandwidth resources within their territory through the use of a distributed network operations centre (NOC)

Partnerships Between KO Telehelath and First Nations Communities



Keewaytinook Okimakanak (Northern Chiefs) Council has worked with First Nations in Ontario, Quebec, Nova Scotia, New Brunswick, Labrador, Manitoba, Saskatchewan and British Columbia to develop network partnerships for delivering high quality and affordable broadband services and support First Nations determination and control of network implementation and development. These partnerships have grown out of the Kuh-ke-nah Network

(K-Net) model – Kuh-ke-nah means "Everyone" in Oji-Cree – a community-based wide area network that has been in existence since 1994.

Aggregation

K-Net sustains its network by addressing the broadband requirements of the whole community. This is commonly known as bandwidth or service aggregation. The diagram above, describes the multiple end points and service providers that a community-wide service encompasses. It also lists a wide range of applications that address specific service model requirements of remote communities.

KO Telehealth is one of the more important broadband applications. Its importance lies in its 'anchor tenant' status. An anchor tenant on the network has several characteristics.

1. It is viewed by community members as a very useful and immediately accessible service. Specifically, telemedicine demonstrates in a practical way, how improved access to broadband communications has a direct impact on community well-being.

2. It uses a large proportion of community bandwidth resources and – as a result – contributes a large share of the resources required to sustain community-based services. Even so, the monthly contribution to sustain telehealth in the Sioux Lookout Health Zone communities is only a small percentage of the monthly community cost of flying members out to see health service providers.

3. It makes extraordinary demands on the community-based and regional network. Local bandwidth must be allocated in advance to ensure that there are adequate network resources to support scheduled telemedicine sessions. This is called quality of service (QOS) – a value added feature within the network that creates an "ambulance lane" for prioritizing all telehealth videoconferencing sessions. KO Telehealth uses 1 Mbps as its minimum certified information rate (CIR) for community sites. Larger hospital sites require a higher CIR.

4. Telehealth services must also be supported by rigorous security standards. All clinical activities that occur within the KO Telehealth Network are encrypted using virtual private network/vpn tunnelling technology. The

VPN provides an extra layer of secure networking over and above fire walling or private networking structures.

Human Resources

The K-Net model further reinforces community determination by respecting local working and reporting relationships. As a result, community-based staff who perform network functions are directly accountable to their local supervisor and receive direction and support from network services staff.

Community technicians report to the Band Administrator or sometimes to the Education Director. Similarly, Community Telehealth Coordinators – though they are paid by Keewaytinook Okimakanak – report to the Health Director. The Regional Telehealth Coordinator also plays a quality assurance role and provides clinical supervisory responsibility. Other elements of the Kuh-ke-nah Network that reinforce community-autonomy include:

1. Community-based staff perform specialized functions such as technical support, multi-media production and telehealth coordination. However, staff also are actively encouraged to broadly support users. For example, community technicians will provide network interface support for a wide variety of users: administrative staff, teachers, nurses. They respond to call-outs across government and residential sectors and facilitate uptake and adoption of ICTs through community demonstrations.

2. In addition to their job-specific responsibilities, community-based staff also perform distributed functions across the network. For example, an e-Centre Manager will take on coordination of a regional conference or gathering. Similarly, Community Telehealth Coordinators may support the Scheduling Desk by taking on the responsibility of coordinating all diabetes education sessions within the region. Some CTCs assume Moderator responsibilities for Education sessions and share Community Engagement tasks with KO Telehealth Hub services staff.

3. Keewaytinook Okimakanak also respects the human resource policies that individual First Nations have established. Accordingly, network staff living in the community participate in local holidays. KO Telehealth has developed specific policies and procedures for community-based staff regarding holidays, time-off, absenteeism, etc.

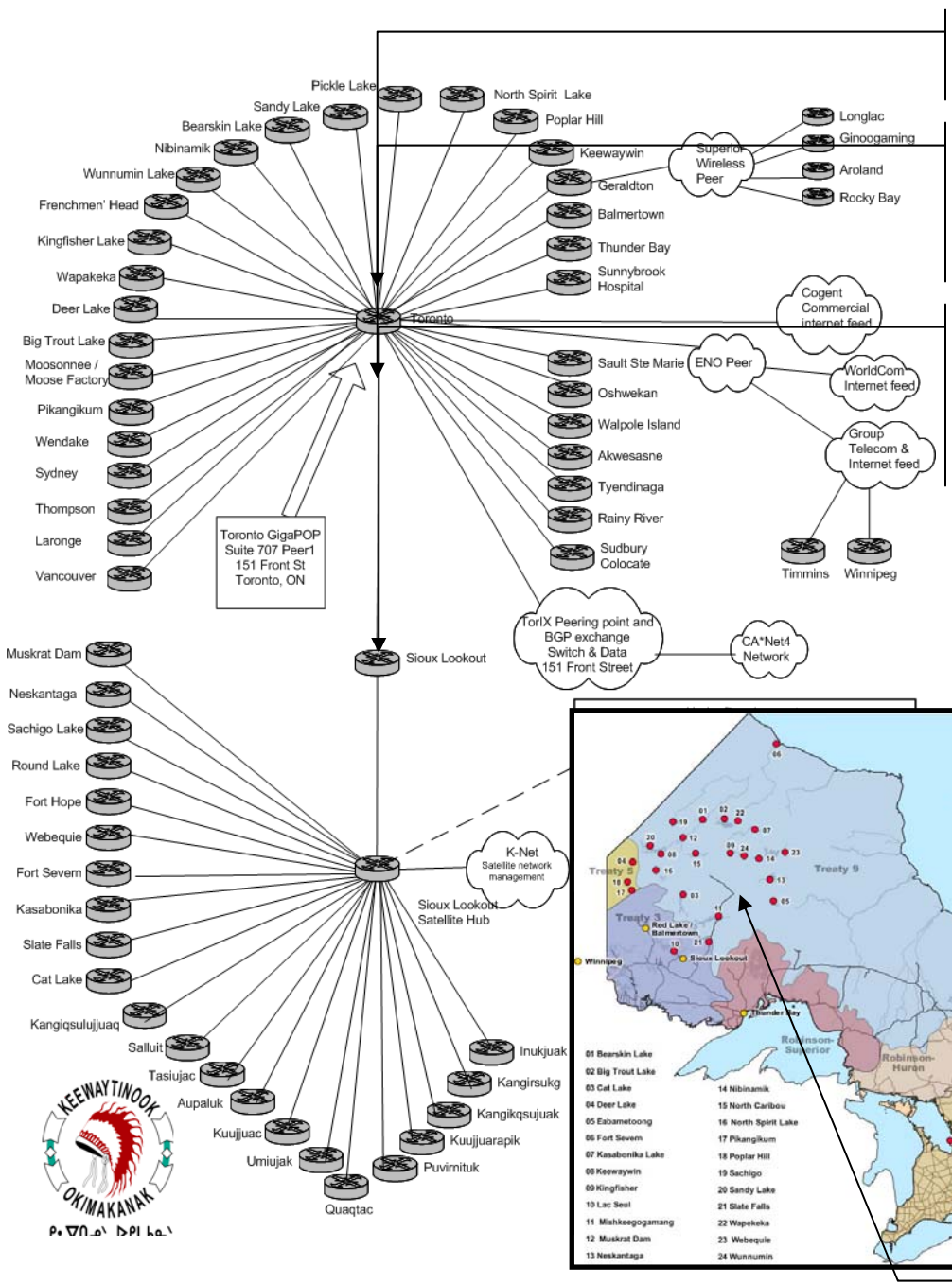
Technology Ownership and Use

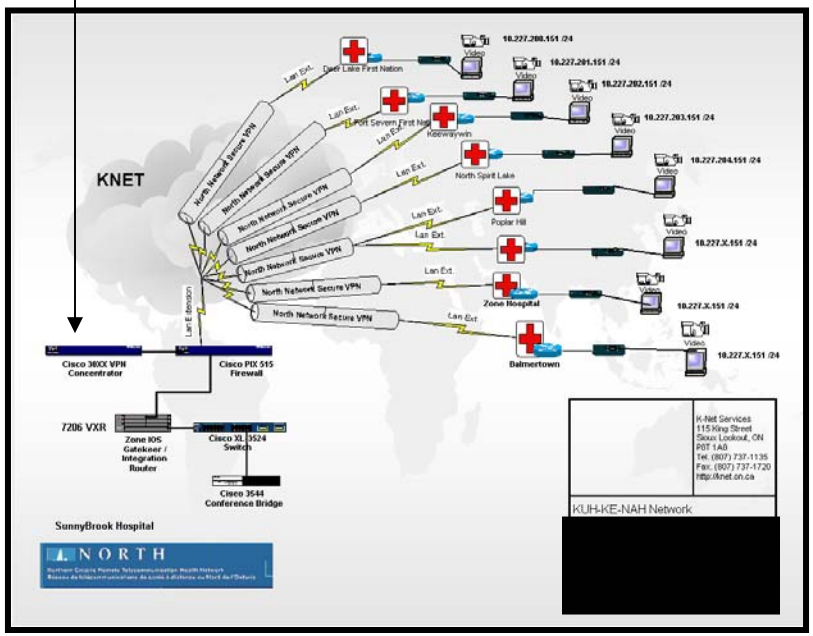
K-Net and the educational and health network applications that run on the network follow a principal of community technology ownership. Although routers, switches, telemedicine workstations and computers may be procured by the network, the ownership of the equipment is transferred to individual First Nations. This transfer function reinforces the community's responsibility for maintaining the equipment and underscores the community capacity to use it freely. This latter consideration provides network members with an opportunity to innovate – by using the technology to address local needs and priorities. For example, when videoconferencing was first introduced to North Spirit Lake and Keewaywin, they used it to bring Elders together who had been separated by the cost and hardship of plane or boat travel. This innovation has been transformed into a regular regional Elder's telehealth program where as many as 100 Elders join by videoconference to have lunch together and share memories and experiences in their own language.

Building Partner Capacity

K-Net works with many regional partners to deliver and support ICT services. A key ingredient for sustaining these partnerships has been to distribute tasks, functions and capacities to regional First Nations and Inuit partners. For example, the National Satellite Initiative partnership for Ontario, Nunavik and Manitoba is coordinated through a distributed Network Operations Centre. Each region manages and schedules bandwidth resources based on community needs. Similarly, K-Net has developed a distributed video bridging service that optimizes utilization of video bridging resources and places the control over the coordination of bridging services at a regional level. A complementary Voice over IP (VOIP) structure is being rolled out in the 2006-2007 fiscal year.

Capacity is also supported directly by K-Net's leveraged pricing. With 100s of network endpoints, points-of-presence in all of Canada's major fibre malls and preferred pricing status with Canada's top IT/IS vendors, K-Net is able to provide highly discounted pricing for remote – and not so remote – First Nations who are entering the broadband marketplace. This service addresses one of the key barriers identified by First Nations and Inuit communities – not having the capacity to determine what is a fair and reasonable price for telecommunications and IT/IS services.





K-Net Public IP network. Administrators run an open network, applying as few limitations as possible to the type of traffic that is passed across the core.

Server Security: The server cluster sits behind the load balancing machines that also form a firewall. K-Net also monitors the network for signs of abuse – individual devices or group of devices that generate malicious traffic in such volumes that it impacts network performance – e.g. the source or destination of a DDoS (Distributed Denial of Service), filesharing traffic or defective devices.

Devices: Security is applied to devices (routers, switches, servers, etc) connected to the network on an individual basis. K-Net maintains a template that implements Cisco best practices to routers and switches prior to installation. As a result, management of network routers and switches is possible only from specific network management machines. There are also measures implemented to mitigate the effects of DoS attacks, and other malicious traffic that targets routers/switches.

Telehealth End Points: Interconnect with the provincial IP (telehealth) network and SSHA infrastructure. All end points are secured with virtual private networking (VPN) devices.

Telehealth Service delivery area: 23 fly-in First Nations. Network provides 1Mbps QOS for telehealth for terrestrial sites and up to 512 kbps for C-Band satellite sites.

Network Security Measures

K-Net/KO Telehealth Historical Development Timeline

Regional Initiative	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
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…)	i	ii											
K-Net invents MSAT modem/caching-router solution for use in Sioux Lookout communities with unreliable or no telephone services		iii											
K-Net Telecommunications Infrastructure Upgrade Partnership (Bell Canada)					iv	v		vi					
KO Communities identify telehealth as a priority application for broadband development							vii						
Keewaytinook Okimakanak designated as the SMART Aboriginal Community for Canada (Telehealth targeted for development)								viii					
Broadband Available in all five KO communities													
Community Telehealth Needs Assessment identifies priority applications for KO First Nations								ix					
KO Telehealth partnership with NORTH Network – 2 year CHIPP (Health Canada) demonstration funding								x		xi	xii		
KO Delivers Clinical Telehealth Services									xiii	xiv			
KO Telehealth begins 3 year project funding to expand services to 20 additional sites (Primary Health Care Transition Fund)										xv	xvi	xvii	

KO Telehealth adds new community-based sites											xviii	xix	
Original five KO Communities host their 500th clinical telehealth consult											xx		
KO Telehealth launches Education/Training program for community health service providers.												xxi	
K-Net manages National Satellite Initiative public benefit bandwidth for Ontario, Manitoba and Quebec												xxii	

Endnotes

[i] The Internet is not available in any First Nation in northwestern Ontario. K-Net works with teachers and local Education authorities to train local people in the use of text-only electronic bulletin board service. K-Net technicians present the system at numerous Sioux Lookout conferences and make it freely available to everyone. Teachers are early adopters.

[ii] The first of several community technician training programs is delivered. K-Net staff work with individual First Nations to hire and train computer technicians using the Bulletin Board system. E-mail is added as a feature to enable communication. K-Net staff work with distant community staff to work through problems and create a virtual technician community.

[iii] K-Net eliminates the cost of long-distance on-line access for regional First Nations by customizing satellite telephony equipment to deliver low bandwidth (9,600 kbps) data services. Educational service providers and community technicians continue to adopt on-line tools.

[iv] K-Net works with regional First Nations and political and territorial organizations (NAN) to develop a regional Telecommunications Steering Committee (TSC). The TSC commissions assessments of potential broadband applications, documents demand from data services, identifies infrastructural gaps and costs to upgrade the service to digital

broadband standards. The TSC also proposes that the definition of broadband be linked to support for videoconference applications.

[v] The North of Red Lake study is completed. It documents how First Nations envision using broadband services, proposes that the regional carrier undertake to upgrade regional telecommunications services and identifies potential funding partnerships to complete these upgrades.

[vi] Bell Canada completes the most extensive regional network upgrade in the history of the Sioux Lookout Zone. The entire terrestrial communications plant is capable of supplying affordable dedicated broadband services. First Nations throughout the region are linked with the Kuh-ke-nah (an Ojibway-Cree word meaning everyone) network. As communities join the network local Band Administration, Health Centre and School facilities are connected to a metropolitan area network and videoconferencing technology is introduced.

[vii] An assessment of priority broadband applications is undertaken in the Keewaytinook Okimakanak communities. Community members identify telehealth as a service that would substantially improve community well-being and support other uses and users of broadband services in the community.

[viii] K-Net successfully applies to be the SMART First Nation for Canada and is one of 13 national projects to receive funding. K-Net raises in excess of $9.0 million in cash funding to develop and refine 12 advanced applications, of which telehealth is one.

[ix] Keewaytinook Okimakanak is selected by Health Canada to be included in a regional (northwestern Ontario) telehealth assessment. The lead consultant on the project is Dr. Edward Brown, Executive Director of NORTH Network – at that time, Ontario's only telehealth network. The assessment identifies community-based support for telehealth development and provides the basis for a partnership between Keewaytinook Okimakanak Health and NORTH Network in their application to Health Canada for a CHIPP demonstration project.

[x] KO Health creates KO Telehealth – a distinct, yet interdependent operating unit of Keewaytinook Okimakanak to plan, implement and manage a telehealth demonstration project in the five KO communities (Deer Lake, Fort Sever, Keewaywin, North Spirit Lake and Poplar Hill).

[xi] KO Telehealth hosts a Telehealth Workshop for all First Nations in the Sioux Lookout Health Zone. The workshop demonstrates the technologies and partnerships that have enabled the original demonstration project and proposes that KO Telehealth take the lead in developing a regional service as a Primary Health Care Transition Fund project.
[xii] KO Telehealth secures six months of bridge funding from FNIHB Ontario region to support the project until the end of September 2003. In July 2003, KO Telehealth is informed that it will receive almost $6 million in new funding through a PHCTF Aboriginal envelope partnership to expand the project to all First Nations in the Sioux Lookout First Nations Health Zone.
[xiii] KO Telehealth delivers its first clinical consult eight months after project start-up. K-Net and KO Telehealth websites begin to post project reports, utilization data and training materials on-line.
[xiv] KO Telehealth initiates discussions with Shibogama Tribal Council in response to a crisis in psychiatric coverage for their communities (one community having not had a psychiatrist visit the community in three years). An early transition agreement is developed for fast-tracking telehealth services into Shibogama communities. This initiative is beyond the scope of the original demonstration project and NORTH Network agrees to support additional sites.
[xv] K-Net is selected to be First Nations SchoolNet's Regional Management Organization (RMO) for Ontario and provides first level HelpDesk services to more than 100 First Nations schools. K-Net leverages the national RMO structure to introduce distributed videobridging services in Nova Scotia and Saskatchewan.
[xvi] Following a year of engagement and system readiness work, KO Telehealth hosts a Telehealth Migration Workshop with community-based Health Directors, regional First Nations health leadership, federal and provincial partners and funding bodies. Workshop focuses on developing a common vision that will inform and direct the regional telehealth service migration.
[xvii] A comprehensive evaluation framework developed by academic staff at Laurentian University and the University of Guelph is adopted by a regional Evaluation Advisory Committee. The EAC agrees on five focus areas (accessibility, acceptability, quality, integration and financial impact) and plays a substantive role in shaping the research design and approach.

[xviii] KO Telehealth surveys Aboriginal Health Access Centres and Aboriginal Community Health Centres and Birthing Centre in Ontario and finds overwhelming support for telehealth-enabling the provincial Aboriginal Health and Wellness infrastructure.

[xix] KO Telehealth expands from 5 sites to 24 sites by the end of the 2005 calendar year. In addition to adding sites in the Sioux Lookout Health Zone, KO Telehealth also responds to telehealth needs of the Weeneebayko Health Authority and Beausoleil First Nation. In Moose Factory, K-Net deploys a secure broadband connection that connects hospital and clinic sites in Moose Factory and Moosonee via a local fiber optic cable plant. KO Telehealth implements telehealth services on Christian Island – building a secure broadband wireless connection to the island and deploying a telemedicine workstation.

[xx] Keewaytinook Okimakanak community members demonstrate their enthusiasm for telehealth – equivalent to one in four people living in one of the five KO communities of Deer Lake, Fort Severn, Keewaywin, North Spirit Lake and Poplar Hill participating in a telehealth session within two years of the service being introduced.

[xxi] A pilot program initiated near the end of the 2004-2005 fiscal year grows to a fully programmed videoconferencing network for First Nations health workers, nursing staff and family members. By August 2005, KO Telehealth hosts 19 unique educational sessions for community-based care givers and family members and delivers 34 training sessions via videoconferencing.

[xxii] K-Net develops a satellite-sharing protocol for implementing the regional management of public-benefits transponder space in Manitoba and Nunavik (Arctic Quebec). The Consortium works together to successfully apply for access to an additional transponder to facilitate the growth of 42 site community satellite network.