VIRTUAL TEAMING IN BRITISH COLUMBIA'S NORTH WEST HEALTH AUTHORITIES

by

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ABSTRACT

Duplication of processes and systems in health services cannot continue. Scare human and financial resources result in the need for us to move forward with a collaborative method of utilizing the resources that we have to their greatest potential. The time is right to build a team of champions, with an inspired shared vision, who can work together in a collaborative method so that information sharing between cross-jurisdictional boundaries becomes a natural everyday protected occurrence instead of a long drawn out work intensive project. The journey begins in this project to investigate the implementation of a sustainable multi-stakeholder virtual team between the North West Health Authorities of British Columbia.

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To the virtual team, you are excited about learning and willing to work together. The possibilities are endless for the North West Health Authorities with the dedication that you have shown to collaborative team work. Never lose your thirst for new and exciting ventures. You have substantiated my belief that technology can bring our health authorities closer, to work in a collaborative environment and face the challenges of health care today. Thank you for being risk takers.

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CHAPTER ONE – STUDY BACKGROUND

Introduction

Duplication of processes and systems in health services cannot continue. Scarce human and financial resources result in the need for us to move forward with a collaborative method of utilizing current resources to their greatest potential. The time is right to move forward in a new direction. Legislators in both the provincial and federal governments have realized that information technology and the electronic health record (EHR) are important issues and they have set up new funding incentives for the health care system. There is now the management and technical expertise in the North West region to implement and sustain this endeavor. So, what is required to build a sustainable multi-stakeholder virtual team to do this? This opportunity is addressed in the following proposal.

Opportunity

Members of the health care professions are discussing the viability of an Electronic Health Record Telehealth Project for the North West Health Authorities. The British Columbia Ministry of Health (1999, p.7) document, "Telehealth in British Columbia: A Vision for the 21st Century," describes telehealth as "The use of communications and information technology to deliver health services and transmit health information over both long and short distances." At present the North West Health Authorities have many different clinical software systems. The systems may be interfaced within each health authority, however there is no transfer of information between health authorities. This

causes difficulties when patients and clients are transferred from one health authority to another. The EHR project would take our individual programs and then use the technology available to interface these applications and to produce a customized EHR that meets the needs of North West British Columbia. The plan is possible with the technology available and the concept has precedence in other urban areas. In the past it has never been financially viable for our health authorities in North Western British Columbia to undertake a project of this nature.

The EHR project needs to be led by a team with an inspired, shared vision (Kouzes and Posner, 1997). Questions asked include; Is there a common desire of the members that can be used as a starting point for team building? What will it take to develop the inspired shared vision? Will a virtual team work in the North West? Will this team reach synergy? Y2K and new technology have put the health authorities in North West British Columbia in a position to be able to consider the implementation of a multi-stakeholder virtual team to lead the EHR project.

Building a Team

The internal document, North West Health Authorities Health Services Plan, "Bridge the Gap...Close the Gap" (2000) lists as one of its goals, "To develop a coordinated and integrated management and patient/client information system." (p.97) We read it in the papers and hear it on the news, health care needs more money and more staff, but there is not any more money. Health care professionals are constantly looking for the most economical and productive way to do their jobs using less human and financial resources. Information technology was promoted as one of the ways to help achieve this and was used by some health authorities to do just that. However the attainability of the technology was not always possible for smaller health authorities because of the resources necessary, both financial and human, to implement and sustain the technology. In North Western British Columbia these challenges have been expanded to include terrain. The ocean, mountains and expansive distance contribute to the challenges of

implementing cost effective information technology initiatives. The North West Population Profile (Appendix A) and the General Characteristics of the North West (Appendix B) taken from the internal document, North West Health Authorities Health Service Plan (2000), gives details of the challenges of the North West.

Health care workers in Alberta recognized their challenges and worked towards conquering them (Alberta We//net's CD, The Incredible Journey: Implementation of a Province-Wide TeleHealth System in Alberta, 1999). In North West British Columbia, building a collaborative virtual team will be a challenge, not only because of the distance and the lack of technology at present, but also because of the different cultures that are embraced by each stakeholder. In starting to build this team, we see the effect that lack of technical infrastructure poses for all involved. Previously, meetings of any regional team were either held by teleconference or face-to-face, meeting in a central area of the region. In the technological environment that we have today, videoconferencing and net meetings are becoming more and more popular. Web accessed email in a secure environment provides a means to reduce the distribution of the printed documentation. Electronic discussion groups are used to carry on ongoing dialogue for projects. All of these are exciting new ways to collaborate across distances. But can this virtual environment foster a "sustainable team"?

There are numerous books on team building. Authors refer to safe environments, roles, shared visions and personal journeys. Clearly, in order for the EHR project to succeed there needs to be a team of champions sharing a common inspired vision leading the challenge. The opportunity exists now for us to look at how to accomplish this. To interview the participants when they first become part of the team, to experiment in a virtual environment, to monitor the progress and group interaction and to document these findings for the use of this team and others in our region.

The Organizations

The North West British Columbia's Electronic Health Record Initiative Participants include the following:

1. North Coast Community Health Council
2. Terrace and Area Health Council
3. Bulkley Valley Health Council
4. Kitimat and Area Health Council
5. Upper Skeena Community Health Council
6. Queen Charlotte Islands /Haida Gwaii Community Health Council
7. Snow Country Community Health Council
8. Stikine Community Health Council
9. North West Community Health Services Society (NWCHSS)
10. Lax Kw'alaams Health Center
11. New Aiyansh Health Centre
12. Park Avenue Medical Clinic
13. North West Council of Chairs (CEO representative)
14. University of Victoria Co-operative Education Program (student)

For this research project, the following organizations have participants.

1. North Coast Community Health Council
2. Terrace and Area Health Council

3. Bulkley Valley Health Council
4. Kitimat and Area Health Council
5. Queen Charlotte Islands /Haida Gwaii Community Health Council
6. North West Community Health Services Society

The six health agencies listed above are members of the North West Health Authorities. The North Coast Community Health Council is acting as the main applicant for the North West Health Authorities Electronic Health Record Initiative. Each of these health authorities has their own governing board and it is only by collaborative agreement that regional decisions are being made. The new regional health plan speaks to this collaboration and has set out some goals and objectives for the health authorities over the next three years. They are embarking on the Electronic Health Record Initiative with this in mind.

History and Overview of each Organization

North Coast Community Health Council

The North Coast Community Health Council area is located in the extreme North West portion of British Columbia. The area borders onto the Pacific Ocean to the west and Alaska to the north. The boundaries for the North Coast CHC region were based upon referral patterns for health services. The communities included in the CHC region are Prince Rupert, Port Edward, Port Simpson/Lax Kw'alaams, Hartley Bay, Kitkatla, Metlakatla, Dodge Cove and Oona River.

The North Coast Community Health Council is an amalgamation consisting of the following entities:

1. Prince Rupert Regional Hospital (37 bed acute care hospital)

2. Acropolis Manor – (51 bed intermediate care facility)
3. Prince Rupert Home Support
4. Prince Rupert Addiction Services
5. AIDS Prince Rupert
6. Lax Kw'alaams – Contract Management of the health professionals

Generally speaking the CHC area represents a high-risk area with regard to health status. Study of the socioeconomic issues such as poverty, unemployment, education, housing and environmental issues such as air and water quality, known as the determinants of health, suggests that the area will experience lower than average health status and this is born out when health status indicators are examined. Mortality (death) and morbidity (sickness) indicators are all significantly higher than the provincial averages. Upon further study many causes of death and disease appear to relate to lifestyle. This suggests a need for preventative and educational programming to improve health status in the long term. There is a very real need to meet treatment needs in the present and this puts a high demand on local health services.

The North Community Health Council provides acute care services in the community and the North West portion of British Columbia. There are 13 general practitioners and 6 specialists. In house specialty physicians include, Obstetrics/Gynecologist (regional), General Surgeon (regional), Pediatrician (regional), G. P. Anesthetists, Internists (regional). Orthopedic Surgeon (regional)

Terrace and Area Health Council (Kuntz, 2000)

Terrace is located in North Western British Columbia and has approximately 26,000 people. For certain specialized services, Mills Memorial Hospital is considered a referral center for such communities as Stewart, Hazelton, Kitimat,

Prince Rupert, and the Skeena Health Unit. The Terrace and Area Health Council manages two facilities:

1. Mills Memorial Hospital (52-bed acute community hospital)
2. Terraceview Lodge (75-bed long term care facility)

The Terrace and Area Health Council provides the following medical specialties Obstetrics/Gynecology (regional), Psychiatry (regional), General Surgery (regional), Urology (regional), Ophthalmology (regional), Otolaryngology (regional), Pediatrics (regional), Anesthetics, Radiology (regional), Pathology (regional), Podiatry (regional), Dermatology (regional), and Internal Medicine (regional). This Health Council has 17 family physicians and 22 specialists that provide acute care services to the community and the North West portion of British Columbia.

Bulkley Valley Health Council (Butchart, 2000)

The Bulkley Valley Health Council was established January 31, 1997 to manage the delivery of health care services within the Smithers and Houston regions of the Province of British Columbia. Bulkley Valley is an amalgamation consisting of the following three facilities.

1. Bulkley Valley District Hospital (32 bed acute care hospital)
2. Bulkley Lodge Society (75 bed multi-level care facility)
3. Houston Health Center Services Society (outpatient facility)

The Bulkley Valley Health Council has over 20 different physician and specialists that dedicate themselves and their expertise to providing health services to the facility.

Kitimat and Area Health Council (Pitzel, 2000)

Kitimat is a community of 12,000 located at the head of the Douglas Channel on B.C.'s North Coast. Kitimat General Hospital & Health Center is a full service 70 bed acute and multi level care facility. The hospital provides services to the residents of the District of Kitimat, Kitamaat Village and the town of Kemano. Services delivered at the hospital in emergency, Medical, Surgical, Orthopedic and Maternity as well as Multi-Level Long Term Care. The Medical Staff consists of general practitioners, an anesthetist, an orthopedic surgeon, and a general surgeon. A number of other specialists are shared with a neighboring town. They are well into the construction of a new facility that is to open early 2002.

Queen Charlotte Islands/Haida Gwaii Community Health Council (Biagi, 2000)

The QCI/Haida Gwaii CHC area covers the whole of the Queen Charlotte Islands/Haida Gwaii located approximately 90 nautical miles off the North West coast of British Columbia. The communities that comprise this include Masset, Old Masset, Juskatla, Port Clements, Skidegate, Skidegate Landing, Sandspit and Queen Charlotte City.

This CHC finds itself in a unique position in that it governs a wide variety of health services. In 1996 the Hospital Society took over the federally funded Department of National Defense Hospital and in 1997 the Health Care Society (health clinics) amalgamated with the Hospital Society which in turn became the Community Health Council. This CHC consists of 5 clinics – one in each major community. The Queen Charlotte Islands Hospital operates two sites, one in Masset (consisting of 4 acute beds and 4 extended and intermediate beds) and the other in Queen Charlotte City (consisting of 13 acute beds and 8 extended and

intermediate beds). The CHC is able to offer low risk obstetrical services for woman planning to deliver on the island.

This CHC currently provides three General Practitioners in Queen Charlotte City that work out of Clinics in Sandspit, Skidegate and Queen Charlotte City itself. There are also three General Practitioners that work out of the Masset Clinic as well as serve the communities of Port Clements and Old Masset. They have a number of visiting specialists that visit the island on a regular basis to provide services to the communities.

This CHC decision making is guided by their vision of providing optimum health care for our communities. They recognize the diversity of their island.

North West Health Services Society (NWCHSS, 1999)

Mission Statement:

To work effectively with all appropriate partners to provide services which improve the health and well being of communities, families and individuals in North Western BC.

The geographical boundaries of the NWCHSS are the same as the boundaries for the entire North West Health Authorities that are shown in Appendix C.

The NWCHSS provides a number of services to the residents of the North West. They encompass the following:
Community Health Programs

- Public Health Nursing
  - Child/Youth/Family/Programs
  - Tobacco Reduction

    - Injury Prevention
    - Nursing Support Services
    - Regional Health Promotion Program
    - Communicable Disease Program
    - Public Health Information System
    - Reproductive Health Program
- Speech-Language Services
- Audiology
- Nutrition Program
- Dental Health
    - Healthy Kids Program
    - Dental Health Services for Community Living Clients

Continuing Care

- Home Nursing Care
- Long Term Care Case Management
- Health Services for Community Living
- Community Rehabilitation

Community Care Facilities Licensing Program

The purpose of the Community Care Facilities Licensing Program is to promote the health, safety and well-being of persons being cared for in licensed community care facilities by monitoring basic health and safety standards outlined in legislation.

Adult Mental Health Services

The past year has witnessed the program make concentrated and significant headway towards the realization of a Mental Health system that is regionally integrated, accountable and in pursuit of management, administrative and clinical

service delivery systems that are state of the art, effective, efficient and of significant benefit in the cost effectiveness domain.

Environmental Health Protection

Most of us take for granted that we can live out our day-to-day lives without fear of serious illness or injury. We assume that our food is healthy to eat, the air is safe to breathe and water is safe to drink. In fact, the opportunities for illness or injury are inherent and widespread in our environment.

As part of the Health Unit's multi-disciplinary team of health professionals, Environmental Health Officers utilize a variety of professional and technical skills as well as legislated authority under the Health Act to protect both individuals and communities from communicable disease, chemical toxins and injury.

- Communicable Disease Program
- Disaster Preparedness Planning
- Tobacco Program
- Food Program
- Land Development
- Water Program
- Playgrounds and Public Safety
- Indoor Air Quality

Research Officer

Provides data that can develop and portray the data that will drive Regional Planning as well as in-house program development.

CHAPTER TWO – LITERATURE REVIEW

Review of Organizational Documents

In order to build a sustainable multi-stakeholder virtual team within the North West Health Authorities of British Columbia, the EHR project must have an inspired shared vision (Kouzes and Posner, 1997) that is aligned philosophically with the vision of the region, province and nation. The following documentation supports this alignment.

Regional Vision

North West Health Authorities Council of Chairs Vision/Mission as stated in the internal document, North West Health Authorities Health Service Plan (2000)

Vision:
To work unselfishly, as a cohesive and collaborative partnership in promoting, maintaining and sustaining the physical, spiritual, social and emotional well being of the citizens and community (ies) of the North West and to accept that the needs of the whole of the North West are greater than the sum of its parts.

Mission:
To provide strong, committed leadership that will produce an environment where the physical, spiritual, social and mental well being of the individual and community (ies) can be fostered and promoted.

That in order to support this environment, there is:

- a commitment to support and work towards the achievement of the Provincial Health Goals;

- a commitment to providing a positive, supportive and healthy work environment for the employees of the North West Health Authorities;
- an unqualified commitment to provide sound, evidence based regional services/programs; and
- a respect for the individual, culture and community. (p.5-6)

The regional stage is set for the collaborative sharing of information.

Provincial Vision

The British Columbia Ministry of Health documents its vision on information management in the Information Management Group, B.C.M.O.H., British Columbia Health Information Management Policy Manual (1997)

> The vision for health information management in BC is to effectively and efficiently manage health information to support the health system. To help realize this vision, the Ministry of Health has adopted the following information management goals.
>
> - Clearly identify and ensure collection of uniformly defined information necessary to plan, manage, operate and evaluate the health system
> - Ensure information accuracy, consistency and integrity across the health system.
> - Ensure appropriate access to consistent information
> - Integrate information across service delivery, functional, geographic and jurisdictional boundaries as required
> - Minimize capital and operational systems costs and continually evaluate information systems in relation to benefits produced and

- Ensure compliance with freedom of information, protection of privacy and document and records management legislation (p.1)

This statement when combined with "information.... increases in value when it is shared with other health care providers and managers. The very principle of integrating health functions and activities for improved health effectiveness and efficiencies relies to a great extent on the sharing of information." (Information Management Group, B.C.M.O.H., British Columbia Health Information Policy Manual, Health Information Management Plan, p. A-1) sets the provincial course for the EHR project.

National Vision

Michel Leger, acting Director General of the Office of Health and the Information Highway (OHIH), Health Canada states in an article in Healthcare Information Management and Communications Canada: (Leger, 2000)

> Picture a borderless, seamless, fully integrated health care system, accessible anywhere in Canada to health care providers, decision makers and individuals alike – and you'll have an idea of the vision Canadians are putting forward for health care. Sounds like a pipe dream? Not if the stakeholders Health Canada's OHIH, are consulting have anything to do with it. (p.12)

The mandate is there from the Federal government. The Honorable Allan Rock, Minister of Health sanctioned an Advisory Council on Health Info-Structure in 1997. The Advisory Council worked for 18 months with a number of collaborators. They came from the provinces, territories, federal departments, health stakeholders, policy makers, researchers and the general public. The Highlights of the interim report "Connecting for Better Health: Strategic Issues" (Advisory Council on Health Info-structure, 1998) speaks about strengthening and integrating health care services.

The national health info-structure should improve the quality, accessibility and efficiency of health care services within provincial and territorial boundaries. For example, information and communications systems in the info-structure should link the geographically separated sites of merged hospitals or the new institute, community-based facilities and home care providers and ensure that their varied programs and services work together in the interests of the patient. New communication systems should allow the health system to deliver better-quality services electronically to under serviced rural and remote areas and help local providers to deliver better care. Special applications such as tele-homecare should extend care into the home, responding to a growing demand of community-based care as the population ages. (p.3)

Alan Nymark, who is Rock's associate deputy minister at Health Canada and also the co-chair of the Advisory Council, was interviewed in the Canadian Healthcare Technology magazine (Shaw, April 1999).

> To lead us out of such backwardness, the Council's report envisioned turning the country's non-system of hard-to-read, awkward-to-share, easy-to-lose paper records into a readily accessed but secure electronic system...As a result, for the electronic-based, countrywide health information system it envisioned, the Council recommended four easy-to-appreciate goals:
>
> 1. To help Canadian make better informed decisions about their health care and treatments, based on widely available and reliable information.
> 2. To strengthen and integrate health care services in every region in the country.
> 3. To enable health care providers to access the latest health information electronically.
> 4. To protect individual privacy. (p.6)

Regionally, provincially and nationally our EHR initiative is aligned with the mandates for the future of information sharing in health care. To champion this

initiative we are embarking on the development of the virtual regional co-ordinating team.

Review of Supporting Literature

In order to understand the process of developing a virtual team in the North West Health Authorities to champion the EHR, these other areas require literature review; virtual team building, information sharing, security of information and managing change.

Virtual Team Building

The vastness of the area in the North West Health Authorities makes it difficult to travel on a regular basis for face-to-face meetings. We want to embark on a journey to see if the virtual team will be sustainable for our area.

Definition

Jude-York, Davis, Wise. (2000), define a virtual team as:

> A group of people within the same organization, or from different organizations, who work together on a common goal. They are located at different work sites, or travel frequently and must rely upon communication technologies (such as telephone, fax and computer) to share information, collaborate and co-ordinate their work efforts. Virtual teams are driven by an urgent need to work together, shared accountability, commitment to teamwork and active communication. (p.3)

Benefits and Barriers in the Virtual Environment

There are many benefits and barriers to using a virtual environment, (Jude-York, et.al., 2000) lists the following:

Benefits	Barriers
Flexibility in balancing personal and professional life.	Work may occur outside of normal business hours.
Cost savings on central office space.	Limited opportunity for daily interactions.
Work goes where the employee goes.	Less focus and more distractions.
Quick information gathering technology using technology.	Greater investment in training, equipment and support.
"Just in time" feedback.	Increased difficulty for leaders/managers to motivate employees.
Shared accountability with team members.	More difficult to establish team spirit.
Increased knowledge base. (access to information and experiences of others)	Technological challenges and associated learning curve.
Potential decrease in travel costs. (due to the use of technology)	Cultural barriers may be difficult to overcome.
High autonomy and self-direction.	Social isolation.
Dynamic membership. (team membership can shift in response to changing project needs)	Individuals feel less connection to the overall organization and its vision.
Communication is often in writing making documentation and retrieval easy	Few non-verbal cues could result in miscommunication and misinterpretation. (p.8-9)

The researcher is interested to see if this virtual team will experience these benefits and encounter these barriers.

Leadership

Stamps & Lipnack (2000, p.177) state in their book, "virtual teams: People Working Across Boundaries with Technology", the following on leaders. "Although virtual teams may have single leaders, multiple leaders are the norm rather than the exception. Virtual teams that deal with complex issues and problems invariably have shared leadership."

Kouzes and Posner (1997, p.9) described in their book, "The Leadership Challenge" how the following practices of leadership "enable leaders to get extraordinary things done"

Five Practices of Exemplary of Leadership

Challenging the Process
Inspiring a Shared Vision
Enabling Others to Act
Modelling the Way
Encouraging the Heart

It was previously stated this team needs to be a team of champions sharing a common inspired vision. Will this team show these practices?

Communication

The one area that the researcher has found repeatedly mentioned in the literature that demands special attention is communication. "Effective communication is key to successful virtual teams." (Lau, Sarker, Sahay, 2000, p.46). The first type of communication is the social aspect. Jude-York, et.al. (2000) state:

> Eye contact, tone of voice and body language all contribute to our initial sense of trusting another person. Generally, we can tell during a meeting who is honest and forthcoming and who might be sitting back and withholding opinions. We also observe individuals who do not appear to listen to, or value, comments made by others, and we notice people who seem to be motivated for personal gain or political influences. Thus, communication initiates the process of building trust, building a foundation for collaborative work. (p.12)

For the virtual team the face-to-face body language is missing. Even the inflection in speakers' voice is void in this environment. To make up for this "emoticons" or written communication symbols that convey writing tone and emotions, can be used to interject inflection into the conversation. However, the team must be careful not to overdue this. Netiquette is a means of net etiquette, or the way that you conduct yourself on line, that is used by the members of a virtual team. It gives them guidelines on how to handle themselves in virtual discussions and in a virtual environment.

The second part of communication deals with the work that has to be done. Setting task deadlines, goals, objectives, meetings, deliverables and the exchange of information. We think of communication as being the "technology", but as mentioned above there is more to it than hardware and software. It is very important that the virtual team is given the training that it needs to use the hardware and software available for them in order to complete their task. However, Stamps and Lipnack (2000, p.2) remind us that virtual teams are 90% people and 10% technology.

Synergy

Stamps and Lipnack (2000, p.250) describe synergy as that state at which, "the whole is more than the sum of its parts." They go on to describe the virtual as a

system that has to have synergy or purpose. Expanding on this Stamp and Lipnack (2000) state:

> Purpose relates very practically to how people become legitimized in networks through contribution to the shared purpose. Develop purpose as a resource, for your team, just as people develop procedures and policies using law as a resource. Encourage your members to participate in planning and decision making to internalize the purpose for themselves. Externalize the purpose through explicit plans, information access, and by creating symbols – logos, nicknames, acronyms. Instead of controlling one another through one-way orders or endlessly detailed policies, boundary-crossing virtual team members exercise control through their shared process – what we represent in the four-wall virtual team room." (p.251)

Reaching synergy in the virtual team will enable them to truly collaboratively share the task. The processes that will enable them to reach synergy will be incorporated into the virtual environment. Will working together to build their Vision, Mission and Ground Rules set them on their way to accomplishing this?

Information Sharing

Information sharing is the process of utilizing unique and similar information amongst different areas. It is possible to do this with confidential patient information and still protect the privacy of the patient? This is not a new concept, sharing of paper information has always been common practice in the health care industry. The concept of sharing it electronically, however, is being regarded as "more efficient – in terms of both time and resources – and more dependable in the busy healthcare organizations of today." (Unknown, Challenges & Choices in Health Care Information - A Matter of Record, Canadian Health Care Manager, Vol. 2: October 2000, p.2)

Dr. David Zitner (2000, p.12) states in his December Health Care Magazine Article, "Using Informatics to Improve Care: Missed Opportunities?", "that the problem with our Canadian health care system was that it was missing vital information. Our information systems are unable to gather, store, aggregate and mine vital information that are needed to provide a continuum of care for Canadian residents." Physicians offices in our region manage their own client information, stove pipes in our health care structure such as continuing care, mental health and the Ministry of Children and Families, perpetuate the segregation of patient information. What can we learn from others about this?

In the mid 1990's the government of Alberta set out on its Telehealth initiative. The documentation of this journey is captured on a CD ROM, titled: "The Incredible Journey: Implementation of a Province-Wide Telehealth System in Alberta." (1999) This initiative offered, "timely, appropriate access to essential health care regardless of locations."

The Alberta team meetings in their early stages address such issues as system management, funding, legal and ethical issues, physician reimbursement, professional and clinical guidelines and standards and training. As their initiative progressed other issues were handled as they arose. They felt the biggest hurdle to overcome would be the technical issue, however the legislative issues on information sharing imposed the real challenges.

At Saint-Eustache, a Montreal-area hospital, they worked with the privacy commission, the Quebec medical association and others from the very beginning of their electronic health record initiative to ensure that the laws in that province were, "acceptable to a truly paperless record". (Shaw 2001, p.1)

British Columbia's Freedom of Information and Protection of Privacy Act (FOIPPA), (1993, p.20) states: "A public body may disclose personal information for the

purpose for which that information was obtained or complied, for a use consistent with the purpose; if the individual the information is about has identified the information and has consented, in the prescribed manner, to its disclosure."

The Health Authorities Working Group of British Columbia's Ministry of Health have been addressing this legislature in regards to electronic health information for the past two years. Just recently British Columbia's Information and Privacy Commissioner and the Chief Information Officer for British Columbia's Ministry of Health co-chaired the first meeting of the Privacy Team. This team is comprised of members from health professional bodies, health authorities, ministry of health department, and stakeholder experts. Their mandate is to look at the electronic health record and the laws that govern information sharing and recommend ways to provide electronically the information needed for continuing patient care while still protecting the patients privacy. The province has recognized that the legislative issues will pose some of the major problems for the EHR and in so doing, will help our initiative.

Information Security

There are very strict guidelines to the security of patient information. The Canadian Health Record Association (CHRA) has a Code of Practice for Safeguarding Health Information (Appendix D), that is used by health facilities across the nation as a basic performance indicator when auditing their information protection procedures. In 1989 they released a position statement: "Security of Computerized Health Information" (CHRA, 1989). Listed below are some of the highlights of this statement:

1. The CHRA in it's Code of Practice, recognizes the individuals right to privacy in relation to health information. Computerized health information is subject to the same security as is written information.

2. It is recognized that a computerized health information system can be as secure as a paper system and shall allow relative ease of use for authorized personnel while eliminating unauthorized access.
3. An individual's access to his own computerized health information shall follow existing guidelines as in CHRA's position statement on Patient Access to Health Records.
4. Information from computerized health information used or maintained to facilitate information exchange in support of patient care shall be accessible only to authorized persons.
5. Data security shall include data integrity. Healthcare facilities must take steps to ensure the reliability of data input. (p.1-2)

As well, CHRA endorses the Canadian Organization for Advancement of Computer in Health (COACH) document entitled "Guidelines to Promote the Confidentiality and Security of Automated Information Records". This document which provided a very broad policy guidelines is now under extensive review by COACH. The International Standards Organization (ISO) has just endorsed the British Standard (BS7799) as its acceptable standard for securing and sharing electronic information.

No matter what laws are in place or what procedures you have set up, if the infrastructure that you share and store this information on is not secure from unwarranted access, the electronic health record will not be acceptable as a method of sharing information. Steinman (2001, p.26) in her article, "Security the great beyond", states: "What the challenge really is in the wireless world is how to mirror the security in the brick-and-mortar world." That is truly what we are trying to accomplish.

Leger (2000, p.12) states: "Privacy legislation would ensure the confidentiality of patient records but not unduly limit information-sharing among practitioners, who

have been granted access. The public would realize that EHR's are more secure than paper records because of security-enhancing technology and built-in measures to ensure confidentiality."

The task will be educating the public to the methods that are being used to have them reach that sense of security needed to feel comfortable with the technology used. Virtual Private Networks (VPN), Public Key Infrastructures (PKI), and Extensible Markup Language (XML) are just a few of the new technologies being tried in healthcare. Which one is the best? There is no one answer to that question, as long as it meets or exceeds the expectations of the standards that have been accepted by the province. At present, recommendations are being made to British Columbia's Standards Council on which standards should be accepted by this province.

Managing Change

The EHR seems to be inevitable. There is documented collaboration at all levels of government and task forces and teams are being struck to move this initiative forward all across Canada. Guerriere, (1999, p.14) states, "Indeed, the belief that the status quo will reign is likely nothing but a desperate wish for stability after 10 years of downsizing, changing rules, and uncertainty. Despite this emotional yearning for stability, the forces of change in the way we deliver healthcare grow stronger with each passing day." Moving into the environment of "virtual" is just another change. (Pritchett and Pound, no date) speak to this in "Business as Unusual – The Handbook for Managing and Supervising Organizational Change". They suggest that we should not brace ourselves to change but, rather to loosen up and roll with the flow, encourage risk-taking and initiative. If we promise what we can deliver, that would definitely be change, we do not lose our integrity with our peers and staff.

This is a very exciting time, crossing jurisdictional boundaries, vast distances and community cultures open up for us an opportunity to not be isolated and working on our own, but to value our colleagues and their experiences. We need to create a

supportive work environment and act as coaches and mentors. In this role it is very important that we also reduce the job stress that comes with change. Keep your sense of humor and don't forget to ask for help. This is a big task, but Prtichett and Pound (no date, p.27) encourage us to "seize the opportunity and be a LEADER".

Campbell (2001) at her workshop on Managing the Changes of Organizational Excellence, guided the attendees through the following stages of change:

Preparing for Change – Assessing the need, understanding organizational and individual readiness, and examining the context of change. Awareness, need and context.

Planning Change – not a straight-line process but a chart to our destination. Do you really know what change is really about? Do you understand the phases of change, what you might expect next and how to prepare yourself and your team for changes?

Implementing Change – this requires a lot of effort, skills and energy.

Resistance to change – methods of managing resistance.

Monitoring Change – how do we know that we are succeeding, what next? Keep your eyes on the progress. Have tools to measure growth and encourage ongoing development. Performance indicators and results, behaviour and attitude cycles.

Measuring Change – what did we achieve, what have we learned, what can we celebrate, what do we know for the future?

Taking these steps helps to work through the change process. Campbell made a point to tell the workshop participants that with each of these steps it was important to

recognize leadership at all levels and reward it. Baldwin cited by Koo, (no year, p.8) reminds us, "Most of us are about as eager to be changed as we were to be born, and go through our changes in a similar state of shock"

There needs to be a team of champions to head this initiative that have the capability to understand and manage change.

CHAPTER THREE – CONDUCT OF RESEARCH STUDY

Research Methods

Action Research

The researcher chose action research as the methodology for this project. This methodology usually involves qualitative data analysis of which interviews and learning circles are part. Faris as cited by Dewar, Greer, Hamilton, Parsons, (2000) defines action research as:

> ...research which involves the members of an organization as an integral part of the research process. The researchers involve the members, in varying degrees in analysis, fact-finding, conceptualization, planning, execution and evaluation and then uses the results of the initial study to begin a new cycle of these activities. The emphasis is on research that leads to action. (p.2-3)

This research project not only involves members of an organization but members of a number of organizations. This project is a "living project" that will continue after the end of this paper, to refine and add to the methods of developing the virtual team. New technologies and concepts will be researched and tested as the team grows and as new mandates become part of its responsibility.

This project is a collaborative venture that is designed to find a way to sustain a virtual team in North Western British Columbia. Stringer, E. T. (1996) states

> Community-based action research is a collaborative approach to *inquiry* or *investigation* that provides people with the means to take systematic *action* to resolve specific problems. This approach to research favors consensual and participatory procedures that enable people (a) to investigate systematically their

> problems and issues, (b) to formulate powerful and sophisticated accounts of their situations, and (c) to devise plans to deal with the problems at hand. (p.15)

In judging if the project warrants the use of action research, the three standards of reasonableness, redundancy and transferability are reviewed.

Reasonableness:

This project meets the criteria for reasonableness. It does not consume excessive resources. The desired end outweighs the costs of the resources used, both financially and human. This project will inform of future action and this will have a great significance to all members of the North West Health Authorities that have to work regionally.

Redundancy:

The results that will come from this research project will be significant to these team members. It will help to set a new means of communication between the North West Health Authorities and foster an environment that will enhance the change of ideas between individuals that cannot get together on any type of regular basis. It will also provide an environment in which business can be conducted on a confidential basis and in which standard procedures can be collaboratively developed for used amongst the Health Authorities.

Transferability:

The basic use of the technology can be transferred to other groups. Within each health authority, there are shift workers. These employees may use the virtual team as a means to solve departmental issues. There are regional incentives within the North West being considered such as, regional purchasing and regional pharmacy. These teams may use the technology being tested to discuss the set up of the regional

programs. This would reduce the number of face-to-face meetings necessary. These teams may also use and/or enhance the instructions being set up for this virtual team.

The research gathered on the issues raised in the "Virtual Team Building" section of this paper; the barriers and benefits encountered by the virtual team, how the practices of leadership effect the virtual team and communication will help any team to prepare itself for "virtual teaming".

Statistical Analysis

In order to disseminate the data collected from the interviews, a procedure was created following Kirby and McKenna's (1989) system discussed in Methods from the Margin. To protect each participant's identity, they each received a unique identifier. The data was sorted into themes for each question. The different themes were then recorded for use in the analysis of the project. Some of the issues that will be addressed in the analysis are:

- Is there a common desire of the members that can be used as a starting point for team building?
- What will it take to develop the inspired shared vision?
- Can this virtual environment foster a "sustainable team"?
- Did the team show Kouzes and Posner's (2000) leadership practices?
- Did the virtual team experience the benefits and barriers presented by Jude-York et.al.?
- Was there communication to help the virtual team evolve?
- Was synergy reached?

The quality control for this research comes from the way the data was collected. In the interviews, each participant was sent the interview questions and then they were either interviewed face-to-face or over the phone. As the participants answered the

questions, their answers were transcribed into the body of the interview file. The questions and their answers were then emailed back to them for validation. They made changes directly to the email file and sent them back for updating. In the virtual learning circle environment, electronic discussion groups were used. Each participant entered their own information into the electronic discussion group. Using this method did not require transcribing of tapes and the later validation of the transcribed material. It was done first hand by the participant.

Data Gathering Tools

Interviews:

The interview questions were used to gather pertinent information from the participants. This provided information in six basic areas. Why there were here, what they were bringing to the team, their understanding of the project, virtual team knowledge, previous team building experiences and their understanding of synergy. This information would be used to set up the electronic discussion groups and as data in evaluating the virtual team. The following are the interview questions.

Interview Questions

Why there were here:

1. Were you drawn to participate or requested to participate in the Health Record Initiative?
2. What excites you in this endeavor?
3. If nothing, what would excite you about this endeavor?
4. Is your participation personal or career focused?

What they were bringing to the team:

5. What do you offer the team in expertise and knowledge? Is this leadership-based knowledge or clinical skills?
6. What else do you want to contribute to the project?
7. What else can you contribute to the project?

The project:

8. Do you understand the scope of the project?

9. What would help you understand the scope of the project?

Virtual team knowledge:
10. Do you understand the concept of a virtual team?
11. Have you ever participated in a virtual team environment?
12. Do you know the skills that are needed to participate in this environment?
13. Do you know and have access to Email, Outlook Web Access and Outlook Express Discussion Groups?
14. If not, what is needed for you to obtain both the skills and the technology needed?

Team Building:
15. Have you ever participated in team building exercises?
16. If you have, what type of exercises did you do?
17. Did you find this beneficial to the team that you were in?
18. If yes, how was it beneficial?
19. Are you able to compare teams that you have been on that have had team building exercises and ones that have not?
20. If yes, what are the differences, if any?

Synergy:
21. Do you know what synergy is?
22. Have you ever reached this in any team that you have been a part of?
23. Can you describe how you felt?

70% of the participants knew what synergy was and 85% of these feel that they have reached this in a group. Describing what happened to them in the group

Virtual Team Focus Groups

It was first thought that using the focus group methodology was the method of preference. However, Greenbaum (1998) recommends that this method not be used over the Internet. He speaks to the important characteristics of the focus group, which include:

- The authority role of the moderator
- the benefits gained from group dynamics the focused attention of the participants to the task at hand
- the ability of client personnel to be part of the research process while it is happening

- the moderators ability to work with both verbal and nonverbal inputs from the participants, and
- the moderators control of the security of the group. (p.99)

Further, he then describes in depth his reasons for not wanting focus groups as we call them today, to be used on the Internet. Greenbaum (1998)

> The leadership role of the moderator is significantly diminished. This is because of the general anonymity one gets without any direct eye contact with the moderator. While desktop videotechnology of the future could help alleviate this problem, there is little question that a moderator would have much more control over the people in a group when meeting face-to-face than in any other venue
>
> The Internet environment does not ensure that each of the participants in a group is totally focused on the subject being discussed. There is no way of knowing what the participants in an Internet focus group are doing while the group is happening and therefore the output about the topics being discussed may not be particularly thoughtful or in concert with the general line of questioning in the session.
>
> There is no way to ensure security of the information being discussed. This is a function both of the limited security one gets when exchanging information on the Internet and the inability of the moderator to know who is in the room with the participant while engaged in the group discussion.
>
> There is virtually no way to generate group dynamics when working on a computer screen in a group environment. Even though people can react to each other's comments, this is very different from the interpersonal experience obtained from actually being in a room with others where they can respond to both verbal

and non-verbal reactions of their peers.

In the current environment, it is not possible to provide participants in an Internet focus group with visual stimuli to generate reactions. Most focus use some type of "external stimuli" to stimulate discussions among the participants, and this is often the key purpose of the groups, which may be seeking inputs on advertising, packaging, or new product ideas. While this is another issue that could be practically solved in a videoconference environment, it still would not work as effectively as in a live focus group session.

The Internet environment does not enable clients to feel close to their customers, since the only interaction they have is with the words on the computer screen that comes from the participant in a group. This is very different from watching the customer through a one-way mirror or on a video monitor. (p.100)

Focus groups as we know them today requires the presence of everyone. Understanding this, a new methodology was chosen. The one that was considered most appropriate was the Learning Circle.

Virtual Learning Circles

Information received from the MALT 99-2 presentation on Learning Circles, August 4, 2000 listed the following about learning circles.

- They are easy to implement
- Adaptable – there is not a right way to do it
- Everyone has an opportunity for equal voice
- Circles can achieve deep meaning/deep learning
- Allows thought, ideas to emerge from individuals

- Researcher's bias and assumption don't come into play in the data gathering. Frees the researcher up from making assumptions.
- The researcher is/may be a fully involved participant in the circle. The experience provides the opportunity for experiential learning.
- Circles build relationships and make connections

Each of the above criteria met with the needs of this research project, the challenge was to find an electronic method that would meet and promote this to happen. The electronic discussion group was chosen as the data-gathering tool for the Learning Circle for the following reasons.

- The electronic discussion group was available to every participant. The training for the software could be done over the phone or by written instruction. Every participant knew and used email and the electronic discussion group had many characteristics of email. All of these attributes would make it very easy to implement.
- The electronic discussion group is very adaptable. You can either "post" or answer to the group, directly email messages to members or start new lines (threads) of discussions. This gave the participants flexibility and room for growth of the topics.
- The electronic discussion group allows for everyone to have an equal voice. Posting can be done at anytime to any question. There can be dialogue on any issue and it is all captured within one thread and documented. This helps achieve the circle to have deep learning as the thoughts to each topic are listed there for everyone to see and read before they at their dialogue.
- Data collection and dissemination is made easier in the electronic discussion group because each individual participant enters it all. Validating the information is not necessary because the originator is doing the entering of the information. Every question contains all of the answers making it easier to theme each question.

- New ideas or questions can be started in a separate thread and that allows for the thoughts on that individual topic to be collected separately.
- Having the participants document their own thoughts, which allows for the researcher's bias not to influence the data gathering.
- The researcher may chose to be a participant, but does not have to in the electronic discussion group. The researcher can monitor the process and answer any problems the group would have within the software.

Study Conduct

Participants

As listed in an earlier chapter, the participants were selected from members of the North West Health Authorities Electronic Health Record Team. These individuals were all contacted by phone and email requesting an interest for participation in this study. On page 4, I have listed the Health Authorities that agreed to participate. The first step was to have them sign the consent form and then participate in the initial interview. This step took longer than anticipated. Other initiatives, delays by Health Canada in advising us about our funding for the North West Health Authorities Electronic Health Record and participant absences pushed the starting date of this project later and later. It also changed the willingness of participation from some individuals. As time progressed, those who finally agreed to participate were interviewed. These interviews were done via phone and face-to-face as well as by the interview questions being answered via e-mail.

The research data collected was verified for correctness in the following manners. For those participants that emailed their answers, there was no need to validate the data received, as the participant was the originator of the data. Face-to-face and telephone interview data was transcribed directly into the questions as the participant

was being interviewed. The transcribed data was then either given to or emailed to the interviewee. They in turn made any corrections that they wished and sent or emailed the revised interview data to the researcher.

Data analysis method for interviews

Kirby and McKenna (1989) give a very detailed instruction on setting up data analysis worksheets. Each participant was given a unique identity that only the researcher has access to. This protects the confidentiality and anonymity of the participant for these interviews. Each question was listed on an individual spreadsheet, the responses from each participant were listed under the appropriate spreadsheet and then similar answers were put into theme categories.

Virtual Team Learning Circles

It was now time to set up the Virtual Learning Circle. Jude-York, et.al. (2000) notes that a virtual team needs to have an urgent need to work together. Lau, et.al. (2000, p.46) targets a common project goal as a necessity for virtual teams to be effective. Since the group had not yet received word on the funding for the North West Health Authority Electronic Health Record the participants agreed for the groups to be divided. One group comprised of Health Records personnel who would work on a procedure for Injury Prevention Data to be transferred to the Injury Prevention Unit. The other group comprised of the Information Systems personnel that would work on developing an email policy that could be used by the entire North West Health Authorities.

After tackling a few technology glitches, the team members were able to access the electronic discussion groups on line. If they had an email address that was a part of British Columbia's HealthNet group, then it was very easy to set them up either in Netscape, Outlook, or Outlook Express. The problem came when their email addresses were outside of the HealthNet security cloud. To over come this the North

Coast Community Health Council's Systems Support technician set up access for them through Outlooks Web Access and the project was ready to move forward.

Every participant who did not understand the electronic discussion group software was given an informal over the phone lesson on using this communication media. They were also given written instructions on Netiquette and Emoticons (Karleen, 1999, p.27). In addition, they were given the definition of a virtual team, benefits and barriers to the team and also the four key ingredients to a virtual team. They were also to each be supplied with a copy of Virtual Teaming but Jude-York, Davis and Wise (2000). This is a workbook that walks participants through questions and exercises to have them become more familiar with virtual teaming. It was planned that this workbook would be part of the first face-to-face meeting but as stated earlier, this meeting never materialized and the books were late in arriving.

Henry and Hartzler (1998) discuss in Tools for Virtual Teams, four factors needed in the direction of the team. They are Charter, Vision, Mission and Goals and Objectives. Kouzes and Posner (1997), in The Leadership Challenge, speaks to goals, vision and mission statements. No matter what the environment the team has to have direction and the will to move towards that. The teams were also asked to work on some Ground Rules that they would follow during their work together. Three electronic discussion groups were set up Vision, Mission and Ground Rules. The teams were asked to work in these groups to accomplish the dedicated task. This would help them become familiar with the virtual environment and set a course for them to follow. They were asked to answer the questions in the "Process" section after they had finished work on these tasks. The "Process" section contained the first set of questions that was going to be used in the data collection of learning circles. The questions consisted of:

Check in daily: How are you feeling before starting the teamwork today?

Check out: How are you feeling after finishing the teamwork today?

After describing your feelings please go to the "Process" section in the electronic discussion group and answer the questions.

1. Did you have any problem understanding how to use electronic discussion groups?

2. How comfortable were you in your virtual environment today?

3. What did you find most interesting in your virtual teamwork today?

4. What did you find most exciting in your virtual teamwork today?

5. Were there any problems with your technology today?

6. Did you have any challenges in this environment today? If so what were they?

7. Did you notice any "good" practices in team communication today?

8. How do you feel about your role on the team?

9. Rate how you felt the team process went today :

• Was unstructured	1 2 3 4 5 6 7	Was structured
• Distracted us from the task	1 2 3 4 5 6 7	Facilitated our task
• Was conflicted	1 2 3 4 5 6 7	Was cooperative

10. What suggestions do you have for the team to make it function better, if any?

After a week of doing this, the two "Task" discussion groups were added to the discussion section. It was during this week that the workbooks arrived. The participants were asked to read them, do the questions and then start working on their tasks. They were reminded not to forget to document in the "Process" section. Each participant was to work on their tasks daily, answering all of the discussion threads in their group, put input into their task and then to document in each question in the "Process" section.

Roddick (1993) points out that:

> Learning Circles involve telling our "stories" ourselves and are a method to reveal, share and express knowledge. In participatory, community based work, one ideal goal is to attain a balance of peoples' knowledge and expert knowledge. Peoples' knowledge, also known as peoples' science or indigenous knowledge, is the "popular wisdom" about daily realities of the community situation. Expert knowledge, sometimes from external sources, is about skills and techniques to achieve what the people want. When these two forms of knowledge come together as complements, new knowledge is created, which often empowers both the people and the experts. (p.107)

It was through the documentation in the "Process" section that our Learning Circle would be, but in a virtual environment. This process was to last for one week, however work commitments precluded the majority of the participants from participating, so the process was extended for another week. On the last day a final set of questions was added to the "Process" section and each participant was asked to answer these. They are as follows:

1. Was the workbook helpful? How could it have been more helpful?
2. Do you notice any difference in this team compared to other teams that you were on?
3. Some of you knew each other previously, did that help in the virtual environment?
4. For those of you that did not know anyone or everyone, would it have made a difference to know them personally?
5. Do you feel that your team has reached synergy? If so describe your feelings?
6. If your team has not reached synergy, what would it take to reach it?
7. What suggestions do you have for the team to make it function better, if any?
8. What do you feel about the longevity of this team from this point forward?

9. What else do you feel is needed for each of you to continue ahead and champion the Health Record Initiative?

10. What were some of your biggest challenges in this environment?

11. Where do we go from here with these teams?

Data Analysis for the Virtual Learning Circle

The data was already categorized by question because of the nature of the electronic discussion group. It was printed out and duplicate sections were crossed off so that they could not be used twice in the analysis. The data was then put into themes and these themes were used in the benefits and barrier analysis as well as the lessons learned section.

CHAPTER FOUR - RESEARCH STUDY RESULTS

Study Findings

Interview Questions – 10 participants

Why they participated:

1. **Were you drawn to participate or requested to participate in the Health Record Initiative?**
2. **What excites you in this endeavor?**
3. **If nothing, what would excite you about this endeavor?**
4. **Is your participation personal or career focused?**

Seventy percent of the participants took the initiative themselves to work on the EHR project. They listed their reasons for being excited about the project as follows:

5 - collaboration with other health authorities

4 - learning a new communication technology

5 - the change in the way we do business

1 - the possible cost savings

All ten participants stated that their participation in this project was career focused however eight also stated they had personal reasons for participating. They listed the following very favorable reasons they wanted to participate:

- bonus for the community
- organizational dynamics is a fascinating area
- make my job easier
- love to work with others and don't want politics to get in the way
- chance to meet and learn about other people at different sites over the Internet
- telecommunication is the way of the future
- great learning opportunity
- obligation to do the best for the region

What they were bringing to the team:

5. **What do you offer the team in expertise and knowledge? Is this leadership-based knowledge or clinical skills?**
6. **What else do you want to contribute to the project?**
7. **What else can you contribute to the project?**

The participants brought a variety of skills and knowledge to the team. These skills included:

- information technology and health information expertise
- computer skills
- teams building experience
- managerial experience

They were interested in sharing their leadership, clinical, project management, life and team experiences with the group. They did express concerns about the limited amount of time available for them to participate in the project. This concern was voiced because participants have heavy workloads and other commitments.

The project:

8. **Do you understand the scope of the project?**
9. **What would help you understand the scope of the project?**

The researcher questioned each interviewee to their understanding of the scope of the project. The scope was understood by 80% of the participants and explained to the rest. The researcher was confident that each participant understood the scope before proceeding to the next question.

Virtual team knowledge:

10. **Do you understand the concept of a virtual team?**
11. **Have you ever participated in a virtual team environment?**
12. **Do you know the skills that are needed to participate in this environment?**

13. **Do you know and have access to Email, Outlook Web Access and Outlook Express Discussion Groups?**
14. **If not, what is needed for you to obtain both the skills and the technology needed?**

All participants understood the concept of a virtual team. Approximately 30% of the interviewees had participated previously in a similar team. The whole group had access to Email while 80% had access to the Outlook Express discussion group. Sixty percent of the group had access to Outlook's Web Access and 40% believed that they required some training in the use of the technology. This training was given to them over the phone and via Email as issues occurred.

Team building:

15. **Have you ever participated in team building exercises?**
16. **If you have, what type of exercises did you do?**
17. **Did you find this beneficial to the team that you were in?**
18. **If yes, how was it beneficial?**
19. **Are you able to compare teams that you have been on that have had team building exercises and ones that have not?**
20. **If yes, what are the differences, if any?**

Ninety percent of the group had previously participated in team building exercises such as: brainstorming, problem solving and role-playing. The majority found these skills to be beneficial at that time in their work environment. These skills had helped build trust within the group, allowed participants to understand their role, empowered them and gave them skills to work together. However, team collaborations were not encouraged at later times and therefore the learned skills were soon abandoned.

Thirty percent of the group were able to compare the differences between the teams that they had done team building exercises with to the ones that they had not. They noted that the ones that did not have the team building exercises were slower to develop communication (10%), lacked ground rules (10%) and not as connected on issues (10%).

Synergy:

21. **Do you know what synergy is?**
22. **Have you ever reached this in any team that you have been a part of?**
23. **Can you describe how you felt?**

Eighty percent of the participants understood what synergy was and 60% of those had reached a synergistic level in one or more of the teams that they had previously participated on. They described their feelings on these teams as satisfied, wonderful and elated. They felt that the teams had no personal agendas and that the creative thoughts were encourage on these teams. Any conflicts that developed were resolved by discussion. The teams also shared information freely with the same objectives in mind.

Virtual Team Daily Learning Circle Questions – 7 Participants

Three of the participants were unable to continue with the project after the initial interview and introduction. One contacted the group and cited time as the major factor. The other two did not give reasons.

No one was able to work in the electronic discussion group daily as had been requested for this part of the study.

The data is being presented as follows:

- The number of participants in the question.
- The themes of the comments for use in the qualitative analysis of this project.

Check in daily: How are you feeling before starting the teamwork today?

Participants: 4

Comments:

We are excited about getting on with the project

We are very busy at work

We want this collaboration exercise to be successful.

Check out daily: How are you feeling after finishing the teamwork today?

Participants: 3

Comments:

Enjoying teamwork

No time to answer questions

Task was not moving as fast as they thought it would

Good introduction

Work seems to be fun

During their check out synopsis, the health records team raised questions with each other about the process. They also helped each other out with problems that happened during their task work in this area.

After describing your feelings please go to the "Process" section and answer the following questions.

1. **Did you have any problem understanding how to use electronic discussion groups?**

   Participants: 2

   Comments:

   The only question asked here related to posting, (entering your reply so that it is seen by everyone in the thread, which is the step ladder way that the messaging appears when posted).

2. **How comfortable were you in your virtual environment today?**

Participants: 4

Comments:

One hundred percent of the participants noted that they became more comfortable with their environment the longer they worked in it.

3. **What did you find most interesting in your virtual teamwork today?**

Participants: 4

Comments:

Each participant listed a different interesting episode. They were: enjoying watching the interactions in the postings; seeing how they were helping each other; learning something new each day; and, getting to branch out into new topics.

4. **What did you find most exciting in your virtual teamwork today?**

Participants: 5

Comments:

The participants listed: crossing boundaries; learning a new technology; connecting to other people to discuss issues; and, having more people in the conversation made it more exciting.

5. **Were there any problems with your technology today?**

Participants: 6

Comments:

At the very beginning there were two questions regarding technology, which could be answered by others in the group. After those initial questions, the group commented that the technology was fine and working well.

6. **Did you have any challenges in this environment today? If so what were they?**

Participants: 6

Comments:

There were two challenges mentioned by the participants. Eighty three percent of the group listed the first as being, the difference between "post" and "reply", (which sends an email message to the person to whom you are answering or replying). The reply option does not get seen by anyone else in the group including the sender, where as the post option sets it under the question it answered and it seen by everyone. The second challenge, having and making the time to work in the electronic discussion group, was mentioned by 67% of the participants.

A complicating factor for the researcher was that there were three different methods of accessing the electronic discussion groups. Until the researcher understood all three methods, there was a slow response to the questions posed by the participants about one of the access methods.

7. **Did you notice any "good" practices in team communication today?**

Participants: 5

Comments:

They cited good collaboration within the team (40%), meeting new people and learning from each other (60%). As not so good, they noted: missing the members of the North West that were unable to participate (20%) and not having the time to do the work in the group as they had wanted to (60%).

8. **How do you feel about your role on the team?**

Participants: 5

Comments:

Sixty percent of the group felt 'good' about their role. Forty percent however, were unsure of their role at the beginning of the session and did not post during the session to explain if their feeling had changed.

9. Rate how you felt the team process went today

- Was unstructured 1 2 3 4 5 6 7 Was structured
- Distracted from the task 1 2 3 4 5 6 7 Facilitated our task
- Was conflicted 1 2 3 4 5 6 7 Was cooperative

Participants: 3

Comments:

The ratings started lower between 3 – 4 and then progressed higher to between 6 – 7 at the end of the second week.

10. What suggestions do you have for the team to make it function better, if any?

Participants: 4

Comments:

One hundred percent of the participants stated that they wanted more people from other areas to participate. The people who were unable to participate in the group were missed. One participant suggested that the group also use email, teleconferencing and other means to expand the participation.

Task Work

Mission – 5 participants

Both groups started on their mission statements, but did not complete them before going forward to do their main tasks. There was considerable collaboration between the participant. One participant listed all of the suggestions in a Word document so that everyone could see what had been suggested so far.

Vision – 4 participants

Participants of each group started their own vision, but later suggested that the statement should be a collaborative effort by the two groups. The vision statement(s) was/were not completed before the main task was started. There was little collaboration on this topic.

Ground Rules – 5 participants

This started slowly but there was some dialogue about ground rules. Questions were asked about how ground rules for virtual teams differ from ground rules for other teams. Once again, ground rules were not set before the main task began.

Time Frames – scheduling – 5 participants

The group started this 'thread' as they were getting to know each other and playing in the electronic discussion group. It was noted that the Health Record group was talking amongst themselves more than the Information Services group. Questions were asked as to why this was happening. Ideas from the group included:

- it was the same issue in all health authorities
- the task was pertinent to health records right now
- they all have the same software programs to work with
- the information services task was important but was not a high priority
- the loss of interest

There was very good dialogue by the participants around this question.

Additional Comments – 3 participants

As participants felt the need, they would post additional comments to the electronic discussion group that did not pertain to the tasks at hand. These

comments are very significant in the process of building a team. They were very courteous of each other, either letting each other know when they were not going to be able to participate or apologizing for their absence when they entered the group again. They also used this means to question and answer each other about technology issues.

Introductions – 8 participants

One of the participants in the early stages started an introduction section. Everyone entered a brief biography here.

Information Technology Task – Email policy – 4 participants

There was not a great deal dialogue in this section. An example was given and agreed to, then later it was questioned whether the policy needed to be broader. This was not continued forward as the timeframe for group had ended.

Health Record Task – Procedure for downloading Injury Prevention Data – 4 participants

There was a great deal of dialogue within the group. There were comments indicating that they wished everyone in the North West could participate. New people were introduced to each other. Everyone learned. The task however, was not completed within the timeframe provided.

Virtual Team Final Learning Circle Questions

1. **Was the workbook helpful? How could it have been more helpful?**

   Participants: 4

   Comments:

   The participants thought the workbook was helpful but would have liked either face-to-face assistance, or a teleconference to do some of the group

questions from the workbook in the beginning (50%). One participant was unable to get to the workbook and yet another felt that the workbook was nothing special.

2. **Do you notice any difference in this team compared to other teams that you were on?**

Participants: 4

Comments:

The virtual team takes longer to get into the heart of things, but the conversations are all recorded (25%). Some of the group felt that the setting was sterile (25%), but there were also comments that there was not the feeling of isolation that was expected (25%). The most obvious difference between the two types of teams was stated as, no face-to-face contact (25%). One bonus mentioned was the increase in keyboarding skills that had been achieved.

3. **Some of you knew each other previously; did that help in the virtual environment?**

Participants: 4

Comments:

Answers indicated that there were both advantages and disadvantages to previously knowing team members. Knowing each other can sometimes allow the team to quickly get to the heart of an issue (75)%, but at other times can slow down creativity in resolving issues (25%).

4. **For those of you that did not know anyone or everyone, would it have made a difference to know them personally?**

Participants: 5

Comments:

One hundred percent of the participants stated that it would not have made a difference if they did not know anyone previously.

5. **Do you feel that your team has reached synergy? If so describe your feelings?**

Participants: 4

Comments:

One hundred percent felt that the team did not reach synergy at this time, but that there was a lot of good interaction.

6. **If your team has not reached synergy, what would it take to reach it?**

Participants: 5

Comments:

All of the participants decided they should go fishing. Communing with nature and having a bonfire may not reach synergy but it couldn't hurt the team process. There was a good deal of humor in this group from the Pacific North West.

7. **What suggestions do you have for the team to make it function better, if any?**

Participants: 6

Comments:

Answers covered the following:

- more members from other Health Authorities to participate

- more training at the beginning, on the newsgroups
- ample time to participate
- try a chat group and other communication media
- time to set up technology correctly
- CEO sanction
- adequate resources, i.e., money and time
- face-to-face to begin with
- access to internet at home
- longer time lines.

8. What do you feel about the longevity of this team from this point forward?

Participants: 6

Comments:

The entire group wants to continue but strongly feel that there is a need for the CEO group to sanction this type of communication first. They enjoyed their experiences and suggested that the group use this means of communication for brainstorming sessions. They also suggested that there be more depth added to the team membership by asking for participants from other areas of expertise. Along with this comment, they also stated that they wanted the rest of their peers in the North West to be a part of any further projects so that everyone had a voice.

9. What else do you feel is needed for each of you to continue ahead and champion the Health Record Initiative?

Participants: 6

Comments:

One hundred percent wanted the CEO's endorsement. Along with this, they also wanted time in the day so that they could participate the way that they wanted to.

10. What were some of your biggest challenges in this environment?

Participants: 3

Comments:

The learning curves (33%), no one-on-one teaching (33%), understanding the program (33%) and time (66%), were listed as their biggest challenges.

11. Where do we go from here with these teams?

Participants: 5

Comments:

One hundred percent agreed that they want to keep going. They suggest talking with CEO group and receiving training on the electronic discussion group software. They want to promote the use of electronic discussion groups to other areas in the health authorities and show others what they have done and accomplished. The participants want to use the skills that they had learned.

Benefits and Barriers to the Virtual Team

The researcher was interested to know if the teams would experience the benefits and barriers listed below from Jude-York, et.al. (2000), as they went through their virtual teaming experience. Comments are in regular font in each section.

Benefits	Barriers
Flexibility in balancing personal and professional life. (Yes, but time was an issue)	**Work may occur outside of normal business hours.** (Yes, participants were accessing the group at all hours)
Cost savings on central office space. (Not an issue that was discussed)	**Limited opportunity for daily interactions.** (Yes, time was a factor even though there was open access)
Work goes where the employee goes. (Yes, this is very portable with the proper secured access.)	**Less focus and more distractions.** (No information received to substantiate this)
Quick information gathering technology using technology. (Yes, substantiated by group process)	**Greater investment in training, equipment and support.** (Yes if done properly)
"Just in time" feedback. (Yes. information available for project analysis)	**Increased difficulty for leaders/managers to motivate employees.** (No information received to substantiate this)
Shared accountability with team members.(Yes, shown in task groups)	**More difficult to establish team spirit.** (Yes, although this may be attributed to the timeframe the group was together, but requests were made by the group for face-to-face meetings to augment their virtual team)
Increased knowledge base. (access to information and experiences of others) (Yes, the group enjoyed learning from each other)	**Technological challenges and associated learning curve.** (Yes, mentioned on numerous occasions by participants)
Potential decrease in travel costs. (due to	**Cultural barriers may be difficult**

the use of technology) (Yes, there was not travel incurred)	**to overcome.** (No information received to substantiate this)
High autonomy and self-direction. (Yes seen in some)	**Social isolation.** (Yes, experienced by one participant)
Dynamic membership. (team membership can shift in response to changing project needs) (Yes)	**Individuals feel less connection to the overall organization and its vision.** (Yes, the Mission, Vision and Ground were not completed)
Communication is often in writing making documentation and retrieval easy. (Yes, very easy to gather data for research and have information available for task)	**Few non-verbal cues could result in miscommunication and misinterpretation.** (p.8-9)(Yes, the researchers instructions were not as clear as they could have been)

Five Practices of Exemplary Leadership

The five practices of leadership that Kouzes and Posner (1997) list in their book, The Leadership Challenge, are listed below. How the team showed these practices is listed beside them. This is only the beginning for the team, but as shown below, they have started.

Practices	Shown By:
Challenging the Process	The group, in accepting the challenge of working in a virtual team, showed their willingness to change, grow, and be innovative and to improve themselves. In the electronic discussion groups they helped each with problems and enjoyed the

	process.
Inspiring a Shared Vision	As noted previously the group started the vision statement, however it was not finished. It is important that this statement is complete so that they team can work towards being sustainable.
Enabling Others to Act	The group is just at the beginning of their process. They worked in a collaborative nature during this project, but with the absence of a face-to-face meeting, they did not have the chance or the time to build a total trusting environment. They are however, willing to continue with their virtual team to accomplish this.
Modeling the Way	The electronic discussion group talked about values when they started to make their ground rules. This too is important to be completed in order for the group to be sustainable. The team is very interested in showing others how to work in this type of environment and to gain more knowledge on the software program. By doing this, they can model the way for others.
Encouraging the Heart (p.9)	The group showed their appreciation to others by their actions and comments within the electronic discussion group. The one thing that

	was forgotten was the celebration when the project came to a close. They have all agreed that the virtual team needs to continue to grow and evolve; however a celebration for the first part of their journey is forthcoming from the researcher.

Study Conclusions

1. It is possible for the North West Health Authorities to use the electronic discussion group as a means to building a sustainable virtual team. However, the electronic discussion group should be augmented with face to face meetings, teleconferencing and regular email. The possibility of using a chat line should be researched as well. This project should be continued and developed more fully. It then could be advocated to the administrators and other professions in the North West.

2. For the North West Health Authorities to successfully move to an EHR, the CEOs need to sanction this method of communication and the virtual team. This would allow the participants to take the time needed within their busy schedules to work in this environment. Also if there is money needed to enhance the infrastructure, the CEOs will need to approve this. The participation of all of the health authorities in these groups would have enhanced the learning of the group. Those that were unable to participate were missed.

3. More training must be given on electronic discussion groups so that everyone can understand the functionality of the software. Everyone should be given access to the electronic discussion groups over the Internet. This would provide everyone with the opportunity to work from home if they wish.

4. Time needs to be taken to understand security issues around the electronic discussion group and the reason why the electronic discussion group port is blocked to access in HealthNet.

5. There was not enough time to have the groups reach synergy and this could be researched further. The teams did not complete their Vision, Mission and Ground Rules, it was not possible to make any conclusions if this would have started them on their journey to synergy.

6. The team needs to have stricter timelines to adhere to when working on their tasks. Even though the flexibility is there for the participants in this type of communication tool, without timelines, time can be lost and as was seen in the group, the tasks were not completed.

7. The group started with an inspired shared vision of an EHR. When the news was received that there would be no federal funding for this initiative, the time should have been taken to work on the vision for virtual teams. The time must to be taken to do a Mission Statement, Vision and have the group set their Ground Rules. Direct personal communication with each participant would have encouraged the team to focus on his or her tasks.

8. There needs to be an "urgent need" for the group to meet and work together. This was seen as the difference between the information services team and the health records team. The email policy was not vital to the work of the information services group, however the impending Injury Surveillance Program created that "urgent need" for the health records team.

9. Time is an issue. Whether you are having a face-to-face meeting or one that is in virtual space, you need to make the time to do the work. The virtual team allows the person more flexibility to work; however he/she must have the personal commitment to do it.

10. Whether face-to-face or in a virtual setting, the team needs to enjoy the work and have a sense of humor. This group accomplished this by "going fishing".

11. The virtual team needs leaders. The virtual team members have different roles than face-to-face teams and these roles need to be understood by the team. A training session on this and Kouzes and Posner (1997) leadership practices would have been beneficial to the team. At a later date, it would be beneficial for the group to have a highly skilled facilitator come to the North West and do a workshop on Managing Change. Each of these three areas of training would enhance the likelihood of the virtual team being sustainable.

12. The team needed to have the first face-to-face meeting. It is very important to help the team build trust within their environment. It also helps to put a name to a face and let the participants have a chance to get to know their fellow team members.

13. Jude-York et.al. (2000) list benefits and barriers that need to be taken into consideration when starting a virtual team. These recommendations do contain pertinent information that is necessary to the success of a virtual team. This should be discussed at a face-to-face meeting. These were supplied to the participants but not left to open discussion.

Study Recommendations

1. Obtain the North West CEO's commitment for the participants to continue with the following mandate: They are to pursue the use of the virtual team, utilizing electronic discussion groups, email, teleconferencing and videoconferencing when it becomes available. They are to be designated as the North West Health Authorities Information Management Team and work on the North West Information Management Plan.

2. Ensure that the North West Health Authorities formally designate a participant with the ability and resources to actively engage as a team member.

3. Ensure time is authorized and scheduled each work-week for the participant to engage in the team process.

4. Organize a face-to-face meeting with all of the participants of the North West including those that were unable to participate in this project, to go through the workbook and establish the Mission Statement, Vision, Goals and Objectives and Ground Rules for the team.

5. Set up training during a face-to-face meeting on the electronic discussion group software, Kouzes and Posner (1997) leadership practices and virtual team roles.

6. When the group is ready, set up a workshop with a highly skilled facilitator on Managing Change.

7. Set up a virtual discussion with the team to discuss Jude-York's et.al. (2000) benefits and barriers to the virtual team. Have the group do analysis of these and make recommendations on how they can overcome the barriers and enhance the benefits.

8. Have the teams finish their tasks with the researcher taking a more active role in the electronic discussion groups.

9. Once the team is sustainable, advocate the concept of the virtual team to other teams and committees in the North West Health Authorities and other health care agencies in the North West.

CHAPTER FIVE – RESEARCH IMPLICATIONS

Organizational Implications

Leadership and support is needed from the organizations to continue and implement the viability of a virtual team. Each organization will need to designate a participant and ensure that they have knowledge and resources to participate on the team. Knowledge sharing and reducing duplication of processes was mentioned by the participants as a benefit of the time that they had spent together on line.

Collaboration was shown in the data collection to be what has excited the participants the most. They met (although virtually) their counter parts in the North West and did not feel isolated in their work. They were able to go over issues pertinent to their work and brainstorm for common processes while taking the time to think about their answers. All of this accomplished, without incurring travel costs. There will be initial costs for travel in the beginning for the organizational implications listed below and for biannual meetings, but there will not be continual monthly travel costs. Collaboration and cost savings are both resource savings, one is human the other financial.

There is a requirement for a couple of face-to-face meetings at the beginning so that the group can set up their Vision, Mission, Goals and Objectives and Ground Rules. They also need to discuss this experience in the virtual team as well as understand their roles. This will be an expense to the health authorities, but it is a necessary expense to help the team become sustainable.

When the group is ready, a workshop should be arranged with a skilled facilitator like with Sherry Campbell on "Managing the Changes for Organizational Excellence". To cut the costs of the workshop, invitations should be sent to others in the North West.

Work needs to be done on the infrastructure upgrade for the North West. Word was received during this project that there was not going to be federal money to do this. There are other funding initiatives that have been started, but it will take a rework of the original proposal to apply for this money. The reasons for embarking on the EHR have not changed and therefore it is still important that the infrastructure upgrade continue to be pursued. This would open other communication avenues for the virtual team.

Time needs to be spent on researching the security of the electronic discussion group so that it can be used to its fullest potential. Virtual Private Networks and Public Key Interfaces are other methods of providing a secure environment for exchanging data. The cost of providing these should be investigated against the cost of this implementation.

The whole concept of the EHR was to have different systems that integrated together to provide the information necessary for patient care. During this project we saw that there were three different ways to access the electronic discussion groups, some easier and more flexible than the others but each had its own limitation. While having a choice produces problems in standardizing training, it also allows uniqueness and the ability to use the available technology. There needs to be training sessions set up for each access method so that informed choices can be made by the participants as to which method they would prefer to use.

This form of communication could be very easily implemented internally into each health authority. There would not be the security issues involved because of the groups residing in their own internal intranet. This communication could augment monthly face-to-face meetings and data could be collected on the impact to the efficiency of the meetings.

The North West Health Authorities are mandated by the provincial government to have a regional information services plan. The project participants will make up the majority of this team. Augmenting the electronic discussion group with other methods of communication will help the team. The NWCHSS can set up teleconferencing for the group using their ProvNet connection.

Implications for Future Research

The participants would like to continue to meet in the virtual forum and develop a strong team. They are willing to expand the virtual environment to include teleconferencing, email, faxes and videoconferencing when the technology is available to them. The researcher believes that it is important to continue to gather data on this type of communication. The initial research has been done on virtual teams and further research could include expanding to use different methods of communication. Finding the right method or combination of methods is necessary for this.

The researcher believes that electronic discussion groups can be used within the facilities by individual departments for discussion amongst staff members. Health Care has many shift workers and this type of communication would allow for discussion topics to occur on issues that either would be discussed at staff meetings or would be discussed in this type of forum only. The electronic discussion group could be set up before the meeting to gather ideas or after the meeting to continue on a discussion topic.

Future research could be done to see if gender makes any difference to the participation in virtual teams. The health records team was comprised of all female participants and the Information Services team of all male participants. There were differences seen between how the two groups worked on their tasks, but gender was not researched. As well, further research could be done to see if the cognitive learning style of each participant plays any part in virtual teams. There has been research done on how different cognitive learning styles effect the face-to-face team and how their personal characteristics play a part in the team dynamics. If the face-to-face aspect were removed, would people participate differently?

Synergy was not reached within the team. Further research could continue with this team to see how this could be accomplished.

The researcher is interested in continuing to do action research on the recommendations mentioned above, with the help of the team, but this time taking a more active role on the team.

CHAPTER SIX – LESSONS LEARNED

Research Project Lessons Learned

Security

British Columbia's secured Ministry of Health, HealthNet, was not accessible by participants whose email systems were not part of this system. Opening up the port on the HealthNet system that allowed electronic discussion groups, was not an option available to this project. Security is a big issue in health care and in order for this communication method to be used by others in health care, having a secured environment was a necessity. After troubleshooting, these participants were given accounts on our mail server and were set up to use Outlook Web Access. This method of access to electronic discussion groups was then learnt by the researcher so they could provide troubleshooting support.

Discussion with the service provider as to the reasoning why the port in the secure HealthNet system is unable to be opened for electronic discussion groups needs to occur.

Virtual Private Networks and Public Key Interfaces need to be further researched to see if they will enhance this type of communication and/or provide another cost effective alternative for doing business within the health authorities.

Training

It is apparent from the research data that more instruction on how to use the electronic discussion groups would have allowed the participants to feel more at ease with this new technology. There are different learning styles and this was not addressed in the

learning process. It would have been beneficial to the group if there had been a written tutorial on how to use Outlook Web Access. Some of the problems encountered were also due to having different access methods to the electronic discussion groups.

Technology

Having different methods to access electronic discussion groups makes this type of medium affordable and an optimum method to use for virtual teaming. However, the researcher learned that a standard way to access the electronic discussion groups would have made the start up of the project less complicated. To overcome this, the researcher should have been aware of all of the different types of access methods and have researched them before the beginning of the project. Not doing this meant that there was a lag time for some of the participants in the beginning while their access systems were investigated and learned by the researcher. This could have been avoided it the question that dealt with the use of the different types of technology was more specific to the type of systems that they were using.

Face-to-Face

Henry and Hartzler (1998) emphasis that it is important to have one of the first meetings of the group face-to-face. It allows the members to "become clear and align themselves with the project" (p.15). Having the face-to-face meeting would have set the stage for the group to do their Vision, Mission and Ground Rules. It would have allowed them to start building a bond with each other. The need for a face-to-face meeting was suggested by all of the participants of this project.

Time

The need for better time management is paramount in training exercises. Using electronic discussion groups on a your own time was thought to be a benefit. In order for the electronic discussion groups to work, there needs to be more structure and

stricter deadlines. The start up of the project was constantly delayed due to other time commitments. The time that it took to get the consent forms signed was over two months. Different methods to obtain the consents should have been used and the project started earlier. This would have allowed for a longer "getting to know each other" period. It is important that the initial steps in building a team are done.

The researcher knowing that face-to-face meetings happen infrequently, especially when there is distance involved with the participants, hoped that daily meetings in a virtual environment would provide the team with the opportunity to get to know each other quicker and provide an environment for trust. The time frame of one week was chosen due to the limited availability of the participants to give the project dedicated time. Daily work would keep the project interesting and the momentum of the job flowing. Daily access to the project was very hard to do over the period of one week and the time frame was expanded to two weeks. Job commitments, did not allow this to happen for those that did not have the flexibility to work on the project at home.

Communication

The team evolved and grew over the time that they participated in this project. However, other forms of communication need to be used in a virtual team in order to make it viable. If you have the technology, teleconferencing allows the participants to see each other. Don't forget to use the phone, email and fax.

Team Process

It is apparent that the Mission, Vision and Ground Rules are just as important to a virtual team as a team that meets face-to-face. These tools need to be developed and posted as a constant reminder to the team of what they have developed together (inspired and shared). It is imperative that time is taken to do this. The group worked

to develop these during the beginning stage of the team, but they were not completed before the task was started. This section was then forgotten as the task took priority.

Kouzes and Posner (1997) five leadership practices showed up in the group work. A group discussion or training session on these would have helped the group.

Organizational Commitment

This commitment was obtained from the CEO group for the Electronic Health Record Initiative. This project was to work with the participants to create a sustainable virtual team that would lead the EHR project. When we learned from Health Canada that there would be no financial assistance for the EHR, we were greatly disappointed. Even though the groups were working on individual tasks pertinent to their health profession, when the announcement came in regards to the funding the initial reason for the excitement of collaboration was taken away. There needs to be renewed leadership and resources by the CEO group to continue with the development of a virtual team that can be used for many other initiatives. The reasons for looking at the virtual team concept are still there. The participants agreed that their participation in this project was in part career focused, and an excellent learning experience for all.

Action Research

The researcher would take a more active role in a future project. For the present project, the researcher chose a monitoring and helping role in order to do an objective study.

The electronic discussion group met the criteria needed for action research, however the researcher based that on daily interactions between the participants. A longer time frame would have allowed the participants to work more in the environment and

generate more data for analysis. It also might have allowed those that were not able to participate as often to have more input into the group discussions and task work.

Managing Change

The group was excited about crossing jurisdictional boundaries, collaborating with others, using new technology, taking a risk and having fun. Pritchett and Pound (no date, p.1, 8)) encourage us to "roll with the flow and promise what we can deliver, change." The participants did all of this. They still have a great deal to learn and understand about virtual teams. They need to take the time to do this. However, the time will come when they will need to be developed into coaches and mentors and to have them manage the change. This will help them to be champions of the virtual team. An inservice with a skilled facilitator will help the group to understand the steps in managing change.

Program Lessons Learned

During the completion of this action research project the researcher demonstrated her ability to apply and integrate the following MALT competencies:

1c. Provide Leadership

The researcher has provided leadership by having participants take the risk of becoming a virtual team. Having team members see what possibilities there were in a virtual team encouraged a shared vision. Being part of the electronic discussion groups and learning new things enabled participants to develop self-confidence. Modeling the way by giving team members the Netiquette and Emoticons and other instructions. Finally encouraging dedication by sending encouraging email, phone calls and helping participants whey there were having problems. The leadership practices discussed by Kouzes and Posner (1997) were used as a guide.

1e. Recognize Ethical Considerations

The researcher has protected participant anonymity, had them sign consents and also researched the security of the virtual environment and the technology used. The researcher has researched the privacy and confidentiality of sharing information in the health sector and found software that will do this.

2b. Apply Systems Thinking to the Solution of Leadership and Learning Problems

The researcher has applied systems thinking to the actions taken from the first interview questions. She has required significant system thinking in designing the recommendations presented in this paper. Also the researcher followed up each problem that was encountered in the electronic discussion group to help with the continual evolution of the group.

4a. Assess the Implications of Learning Environment

The researcher has accomplished this as part of the evolving growth of the group. They were asked to play and learn the electronic discussion group software as they were building their Mission, Vision and Ground Rules. As this process was watched they were encouraged to try different things and problem solve when they were having troubles.

The electronic discussion group was chosen as the data collection method for this project after the decision was made to use a Learning Circle. This communication tool seemed to be the way to accomplish the Learning Circle environment in virtual space. There still needs to be augmentation with other forms of communication to enhance this form.

4c. Help Others Learn

The researcher has helped others to learn by giving them instructions on the electronic discussion groups. She has also given them questions that would allow them to experiment with the new technology while working on a task. The participants were given a workbook with exercises to complete and were asked to do self-reflection as part of their daily process work. Team members took it upon themselves to help each other.

5a. Identify, Locate and Evaluate Research Findings

The researcher has shown during this project that she can identify, locate and evaluate research findings. This is apparent from the "Conduct of Research Study and Research Study Results" section.

5b. Use Research Methods to Solve Problems

The researcher has used the action research method to solve issues that have arisen during the project. The three tests for action research; reasonableness, redundancy, and transferability have been justified on page 26 of this report.

6a. Evaluate the Impact of Technology

It is the ever-changing world of technology that makes this project possible. The impact of this technology has been evaluated in the "Lessons Learned" section of this report.

7b. Communicate with Others Through Writing

The researcher has shown competency in this area by using the email system to organize this project. She has used the electronic discussion groups to educate and train the participants and also assist them with the problems they are having with the technology.

7e. Use Computers to Facilitate Communication

The researcher has chosen an electronic medium as the data collection tool. The concept of this study is to use computers and the Internet to bring people together so that they can act as a team while not in the same physical arena.

Additional Competency Added

3d. Evaluate and plan one's own role and future within an organization

The researcher knows that learning is a continual process. Enabling and watching others learn and grow has given this researcher the opportunity to be excited for others accomplishments. You learn and grow from your experiences and others. This project has been a valuable learning experience for the researcher. As Pritchett and Pound (no date, p.27) state " Be more than a manager or supervisor…be a LEADER – Seize the opportunity!"

The opportunity exists in the North West to develop a sustainable virtual team. The foundation has been set and the researcher is excited to work with the participants and showcase the development of this new and innovative communication environment for British Columbia's North West Health Authorities.

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APPENDIX - A

NORTH WEST POPULATION PROFILE

Overview of the North West Region

The North West Health Region encompasses the entire north west area of the province and the Queen Charlotte Islands/Haida Gwaii. The North West region, the largest in the province, encompasses an area of approximately 254,400 km_2. The area, which is heavily defined by its geography is vast and sparsely populated; harsh winter weather conditions affect most of the region."

The area is serviced by the Yellowhead Highway #16 (east - west) and Highway #37 (north - south). Approximately forty (40%) percent of the communities are located on a major highway while the remainder of the communities are located on gravel, dirt, restricted and/or winding roads, or have no ground access whatsoever to other communities. A minority of the communities have limited scheduled access to passenger rail service. Greyhound serves the communities located on Highway #16 although the demonstrable benefits of this service are questionable due to the schedule arrival and departure times in a number of communities. Ferry service (BC Ferry Corporation) is available between the Queen Charlotte Islands/Haida Gwaii and between some of the coastal villages.

The communities of Prince Rupert, Sandspit, Smithers and Terrace/Kitimat have access to commercial airline service on a daily basis. Rates, however, are high and the frequency of flights is limited. Local and/or charter flights are available between Prince Rupert and the Queen Charlotte Islands/Haida Gwaii and charters, which are expensive, are available between the larger communities and the outlying areas.

The Region is bordered to the north by the Yukon Territory border, to the east by the Northern Interior health region, to the west by the Pacific Ocean; and to the south by the Cariboo health region. The health region is comprised of the:

- Bulkley Valley Health Council;
- Kitimat & Area Health Council;
- North Coast Community Health Council;
- Queen Charlotte Islands/Haida Gwaii Health Council;
- Snow Country Health Council;
- Stikine Health Council;
- Terrace & Area Health Council;
- Upper Skeena Health Council;
- North West Community Health Services Society; and the
- North West Regional Hospital District

APPENDIX - B

GENERAL CHARACTERISTICS

The nature of the geography of the North West impacts directly on both access to, and the delivery of, health services. Challenges have been documented in previous reports[1] and are summarized in the following pages.

Geography

- Residents of the North West experience significant barriers to accessing necessary and reasonable health care. Some communities have minimal or no primary services "close to home" and/or lack public transportation required to access those services.

- Residents across the entire region incur substantial costs and hardship to access secondary and tertiary care due to a number of factors, including high travel costs, lost time and wages, the absence of promised "beds" upon arriving at a tertiary facility, and the social isolation experienced by hospitalized individuals when family and friends cannot travel to visit them.

- Barriers obstructing access to services for the general population often cause even greater hardship for the most vulnerable groups within society, many of whom already experience lower, or poorer, health status compared to the general population. Groups affected are not mutually exclusive and include, among others: individuals with physical disabilities, children and youth, Aboriginal peoples, seniors, individuals with mental illness or disabilities, ethno-cultural minority populations, victims of mental and physical abuse, and persons living in poverty and/or on fixed incomes. For persons experiencing chronic health problems which require ongoing specialized care/services, a move to a larger centre which offers the necessary services is often considered necessary (e.g. HIV/AIDS, cancer, chronic heart disease, etc.).

- Both health care professionals and technical personnel are frequently difficult to recruit and retain; this, in turn, adds yet another significant constraint to the provision of comprehensive and consistent health services.

- Appropriate, ongoing training has been identified as an issue for all health care providers; this is particularly so when it comes to emergency (ambulance) personnel when one considers the unique demands of working is remote communities.

- Economies of scale are more difficult to obtain in an area such as the North West; the impact is seen in a number of areas including: the ability to support medical specialties and the ability to obtain a wide range of goods and services at a reasonable cost and in a timely manner.

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[1] Reports referred to include, but are not limited to: *Closer to Home - Summary of the Report of the British Columbia Royal Commission on Health Care and Costs - Volume I (1991); The North Coast Regional Health Plan* (prepared by Health Resource Group, June 1990); the *North West Health Services Review* (November 1992); *Report of the Northern and Rural Health Task Force* (May 1995); and the *Regional Health and Management Plan for the North West Regional Health Board* (1996).

- The ability of governing bodies and management personnel to have ongoing and appropriate face to face, communication is, in many parts of the region, both prohibitively expensive and logistically difficult. This has affected the ability of these groups to make decisions and conduct business in an efficient and cost effective manner. This problem will continue to affect the North West Region through the foreseeable future.

Climate and Transportation

The climate varies widely across the region depending on the exact location and topography of the respective communities. At various times of the year, many areas of the region experience snow, heavy rains, strong winds, black ice, avalanches, dense fog and/or heavy runoffs.

It has been noted by all communities, as well as in a number of previous studies of the region, that climatic conditions adversely affect road and air transportation while also having a significant effect on how the region interrelates.

Issues directly relating to climate and transportation include:

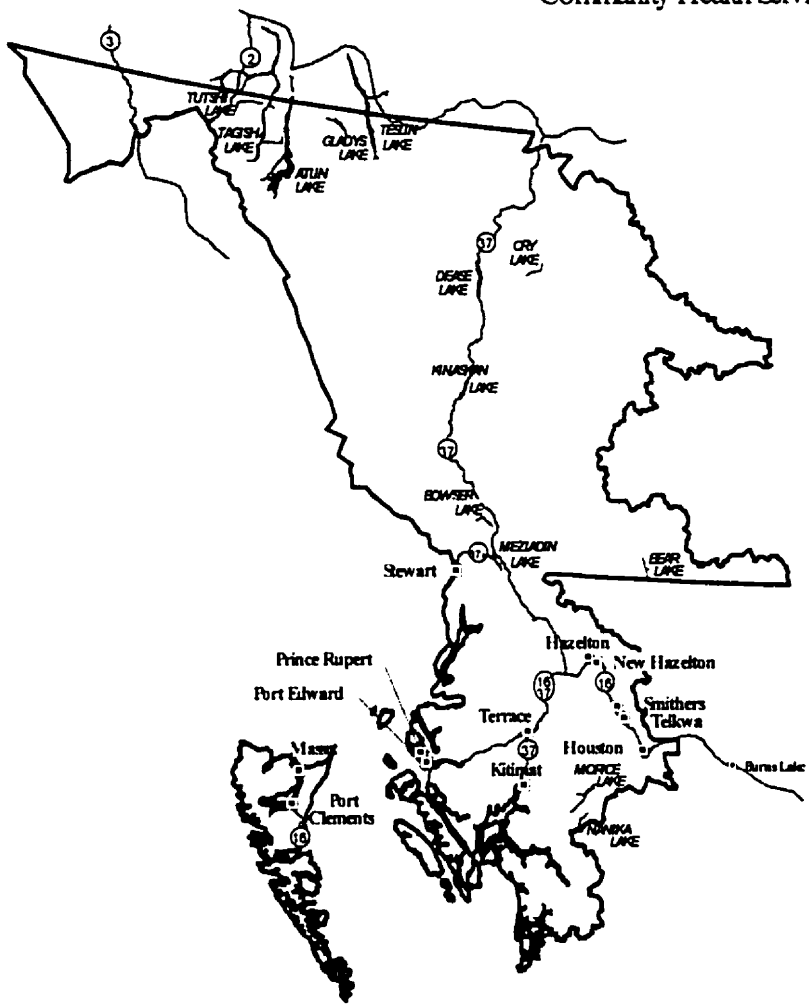
- The great distances between communities, combined with climatic conditions and variable transportation access create difficulty both in accessing and delivering health services, particularly for the more remote communities.

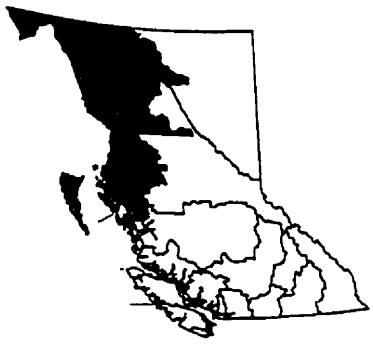
- The physical separation between the communities in the region has resulted in services (health care, commerce, etc.) being delivered on a community by community basis often resulting in significant service duplications across the region.

For services that cannot be accessed within a community or sub-region, the natural flow of travel has typically flowed from north to south, rather than from east to west. Many of the communities consider travel to Vancouver to be more efficient/effective than travelling great distances within the region, or to Prince George, to access secondary or tertiary services.

APPENDIX – C

Community Health Services Society
North West





1996 Municipal Population

Hazelton	384
Houston	3,936
Kitimat	12,077
Masset	1,493
New Hazelton	826
Port Clements	577
Port Edward	835
Prince Rupert	17,681
Smithers	5,794
Stewart	1,083
Telkwa	1,328
Terrace	13,372

• *Municipality* — *Highway*

Prepared by: Information & Analysis Branch, Ministry of Health and Ministry Responsible for Seniors
Boundary Source: BC STATS, Ministry of Finance and Corporate Relations

APPENDIX - D

Canadian Health Record Association

Code of Practice for Safeguarding Health Information

This Code of Practice is for the guidance of all persons in Canada who handle and have access to health information and records.

The underlying principle is that all health information related to an identified individual must be treated as confidential. This information may be in written, verbal or other form.

The primary purposes of the health record are:

i. to document the course of an individual's health care, and

ii. to provide a means of communication amongst health care professionals for current and future patient care.

1. All individuals, institutions and organizations maintaining, handling or processing health information shall:
   - Have written policies regulating access to, release of, transmittal and destruction of health information;
   - Educate all their employees with regard to maintaining confidentiality of information, and have them sign a pledge of confidentiality. This procedure shall apply also to researchers, volunteers, contracted individuals and employees of firms and corporations performing contract work.

2. Health information shall be accessed or released only for:
   - *Direct care use* – when requested by a physician or health care facility responsible for the direct care of the individual;
   - *Individual use* – when authorized by the individual or his legally authorized representative;
   - *Secondary use* – when requested by properly authorized persons or agencies
   - *Legal use* – when required by law.

3. Requests for confidential information should be in writing; however, policies governing verbal requests shall be outlined by the individual institution.

4. Any authorization for release of information shall be an original and specific as to: source, content, recipient, purpose and time limitations. Reproductions of original signatures shall not be accepted.

5. Information released to authorized persons shall not be made available to any other party without further authorization.

6. Health information and records shall be kept in a secured area and not left unattended in areas accessible to unauthorized individuals.

7. In research, individual confidentiality shall be maintained in the handling of information and any reporting or publication of findings.

8. When health information is sent to any service organization for processing, the contract shall include an undertaking by the recipient that confidentiality will be maintained.

9. The authorized destruction of health information shall be effective shredding, burning or erasure.

10. Any misuse of health information shall be reported to the responsible authority.