

**Prioritizing Clinical Services for Telehealth:
The Development of a Model**

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Abstract

An increase in the demand for Telehealth services has caused an issue in the availability of sufficient resources to meet all the desired service implementations. This is causing the belief that it has become necessary to prioritize the selection of new Telehealth services. It is anticipated that it is feasible to develop a model that would facilitate an accurate assessment of program opportunities. The model would assist in the selection of the most appropriate projects based on evidence. There is much literature on evidence-based decision-making in healthcare. There is however limited literature with respect to the utilization of these methodologies to prioritize the Telehealth industry. This project assesses the necessity of doing so and the feasibility of developing a model to facilitate this need. It also takes a preliminary assessment of the necessary criteria and format required to best meet the immediate needs within the Northern Health Authority.

The findings of this project provide evidence that it is a suitable time to assess this problem. The majority of participants in the interviews conducted through this process, indicated that they anticipate that the current level of resources available will not be sufficient to meet the growing needs of the Telehealth industry in the coming years. For that reason, it will be necessary to prioritize the implementation of new services.

It was also found through this study that it is feasible to develop a model to help with prioritizing services to meet the existing requirements at Northern Health. The model developed utilizes two phases. The first phase is utilized to assess criteria that are mandatory for the successful implementation. If all criteria are met then a secondary phase would be utilized to align with the organizational needs.

Northern Health utilizes a prioritization process to narrow proposed organizational changes that require funding. The capital process through its design was built to help the organization understand which projects best align with the Northern Health strategic directives. By aligning the secondary phase with the criteria of the Northern Health capital funding process, we are able to create a process that supports not only the needs specific to Telehealth for success, but also further facilitates decision making that is in alignment with the organizational needs.

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I hope that my findings through this work on this project helps professionals in Telehealth consider the possibilities and necessity of evidence-based decision-making for Telehealth services. Good luck out there!

Introduction

The scope of Telehealth is quite broad and includes the electronic information needs for multiple disciplines. It is therefore important to define Telehealth to ensure that there is a clear understanding of the extent of the scope of this research. For the purpose of this project, Telehealth will be defined as the use of video conferencing, home technologies and store and forward image technology for the delivery of clinical services to patients in their communities. Deshpande et al (2008, iii) said it very well when they made the following statement. "Canada has an aging population, a vast geographic area, and a limited health care workforce. As a result, Telehealth programs could play a role in providing effective and efficient health services and equitable, fair, and sustainable health care delivery for all Canadians."¹ Further, they note

"Canada is in a unique position to pave the way for effective and efficient health services that result in equitable, fair, and sustainable health care delivery for its citizens. Although weak (due to lack of research and evaluation), the evidence gathered suggests that Telehealth could play a role in this process."²

The Premier's technology council has continually supported the development of Telehealth since inception. There is evidence of this in their reports over the last decade. In

¹ Deshpande A., Khoja S., McKibbin A. and Jadad AR. (2008) *Real-time (Synchronous) Telehealth in Primary Care: Systematic Review of Systematic Reviews* [Technology Report no 100]. Ottawa: Canadian Agency for Drug and technologies in Health; Pg. iii http://cadth.ca/media/pdf/427A_Real-Time-Synchronous-Telehealth-Primary-Care_tr_e.pdf cited October 3, 2008

² Ibid, 8

the most recent report they indicated the importance of developing a “process to identify specific Telehealth needs that will address critical (healthcare) needs in each community.”³

Due to the scarcity of clinical professionals, particularly in more rural areas, it is necessary to utilize technologies such as Telehealth as alternative means to deliver health care. Scarcity of resources will be experienced across many trades and will also create the need to prioritize the implementation of new Telehealth services. There seems to be no apparent model in the Telehealth industry for doing so. In part this may be due to the relative youth and level of acceptance of Telehealth in the industry. It also may be in part because many other countries, such as the United States, have different models than Canada for the delivery of healthcare. This makes transference and learning from each other more difficult as one would first have to understand the model of healthcare delivery to then understand the environment in which a mechanism for prioritization had been utilized.

Implementation of evidence-based decision-making is growing in the healthcare industry. There are new findings and a broad weight of evidence to make the case that it is possible to obtain better value for money in our healthcare system by adopting models of integrated care delivery for seniors and others with ongoing care needs.”⁴

³ Premier’s Technology Council. (2008) **11th Report** Pg. 73
http://www.gov.bc.ca/premier/technology_council/reports.html cited March 17,2009

⁴ Hollander, M., Miller, J. , MacAdam, M., Chappell, N., and Pedlar, D. (2009). ***Increasing Value for money in the Canadian Healthcare system: New findings and the case for Integrated Care for Seniors.*** Healthcare Quarterly, 12(1) Pg. 38-47 <http://www.longwoods.com/product.php?productid=20414> cited October 15, 2008

Many are now “incorporating evidence-based data validated by clinical leaders” to ensure that appropriate decision making is occurring.⁵

In particular, we are seeing organizations in the industry utilizing evidence for the development of their strategic plans. Currently there seems to be considerable bodies of information that should facilitate obtaining the necessary evidence that one would require to build a framework for developing organizational priorities. It would therefore be a pertinent activity to explore the information available to determine if it is feasible to apply this relevant information to this exercise.

Purpose of this Project

This project is framed from a key assumption. This is that it is feasible to develop a model for prioritizing the selection of Telehealth services for implementation utilizing evidence based decision making inclusive of all necessary factors. The purpose of this project is to use complementary evidence and information to develop a conceptual model and make a case for its importance.

Background

Approximately four years ago, a needs analysis was completed to determine which services the Northern Health Telehealth department should focus its efforts. Since this evaluation Telehealth has matured considerably. After approximately six

⁵ Canada Health Infoway. (2007). *The Home Telehealth Business case – A powerful tool to help decision makers analyse and promote Home Telehealth solutions*. Pg. 1 http://www2.infoway-inforoute.ca/Admin/Upload/Dev/Document/2_Home%20Telehealth%20Poster.pdf cited September 10, 2008

years of video conferencing services development and growth, the quality of this technology has improved considerably. This has increased the confidence in the use of video conferencing technology for clinical purposes. Originally the main use of video conferencing was for organizational administrative purposes. More and more clinical professionals are becoming open to the feasibility of supporting patients in innovative ways with the use of technology. The increased interest has introduced a new issue to the industry - the scarcity of resources including funding and manpower among others to implement new services. It is therefore necessary to initiate a process to strategically prioritize the implementation of Telehealth services. This will help ensure that we select services appropriately to support the organization's goals.

It is my expectation that upon analysis, an alternative means to the previous needs analysis process undertaken by Northern Health for Telehealth could be developed to determine the appropriate priorities. If a model were available that would enable us to do this successfully, it would allow us to focus our attention on the implementation of new services. This would, in turn, allow us to know that the decisions being made were truly supporting the most significant needs of the organization and of our patients. It is therefore a relevant activity to invest efforts into understanding the necessary factors for properly evaluating services with a mechanism for prioritization.

It is expected that we will be successful in the development of a model for prioritizing services. However, it is also expected that not all factors can be manipulated into a decision-making model. It is quite possible that external funding sources which

provide an influx to the necessary resources will ultimately triumph over the internal priorities given the current scarcity of internal funding. Therefore, when funding is available, it may be that it will be necessary to take advantage of these types of opportunities as they arise. However, even in those situations, it could be possible due to the growing popularity of Telehealth solutions that even externally funded projects may need prioritizing. If this were the case a successful model would also be feasible to be applied in those situations.

Literature Review

Telehealth, in its many forms, has been around for a very long time. In the last decade Telehealth has really begun to be recognized as a means to break down the barriers of geography, and other health inequalities. Inequalities can include “access to service, quality of services by the financial burden that these impose on people and even by the linguistic, cultural and gender-based barriers that are often embedded in the way in which clinical practice is conducted.”⁶ Telehealth can help alleviate some of the inequities by allowing patients to receive the care they need in their communities and at their homes. There is a great need to have the ability to “provide health care to residents of remote and rural Canadian communities.”⁷ In 2004, Dr. Kendal Ho, Dean and Director of Continuing Medical Education at the University of British Columbia stated, “rural and remote communities, with the historical disadvantage in healthcare access due to geographic isolation, can now look to Telehealth for improvement and equalization of access. This is thanks to modern information and communication technologies like broadband Internet, videoconferencing, and innovations in computing technologies.”⁸ While much progress has been made in the field of Telehealth, we have still not obtained the sustainable, interoperable Telehealth network across Canada⁹ that

⁶ World Health Organization Report. (2008). *Primary Health Care – now more than ever*. <http://www.who.int/whr/2008/en/index.html> Pg. xvi Cited January 4, 2009

⁷ Canada Health Infoway. (no date) *Telehealth Bringing Health Care to Canadians in remote and rural areas*. Pg. 1 http://www2.infoway-inforoute.ca/Admin/Upload/Dev/Document/Infosheet_E_TH_Final.pdf Cited January 4, 2009

⁸ Canadian Healthcare Technology. (2004). *Canada Health Infoway ready to become more active in Telehealth*. Pg. 1-2 http://www2.infoway-inforoute.ca/MediaCoverageDocs/ReprintCHT_NovDec2004pdf. Cited March 17, 2009

⁹ Ibid, 1-2

Canada Health Infoway strives for to benefit both patients and providers.¹⁰ Telehealth is not only appealing for patients, but health insurers and government agencies alike are all very concerned with the rapidly growing cost of healthcare, inconsistency and lack of equitable distribution. If Telehealth is a potential solution to some of the concerns in the healthcare industry, then the question becomes, given that this is the case, what is the most appropriate method to prioritize services to most benefit the stakeholders?

In Canada Health Infoway's (CHI) *Vision 2015: Advancing Canada's the next generation of healthcare*, (no date) the subject of priority setting is broached. In CHI's vision document, they note an understanding that it is unrealistic to believe that Canada can obtain a full implementation of their vision by 2015 given that there are constraints. They describe constraints as what we can achieve due to costs, resource limitations, natural project sequencing as well as the need for time to allow for change management among others factors.¹¹ At a workshop involving Infoway, the Canadian Society of Telehealth (CST) and others leaders in Telehealth, the discussion of scarce resources of both funding and manpower was discussed.¹² Initially Telehealth was very opportunistic as illustrated by the strategy of selecting to implement services in which clinical resources showed interest. This is now changing and we are seeing a growing desire from a variety of stakeholders for Telehealth to increase clinical utilization into

¹⁰ Ibid,

¹¹ Canada Health Infoway. (no date). *Vision 2015 Advancing Canada's Next Generation of Healthcare*. Pg. 3 http://www2.infoway-inforoute.ca/Documents/Vision_2015_Advancing_Canadas_next_generation_of_healthcare%5B1%5D.pdf cited November 16, 2008

¹² Workshop Report. (2007). *Converging the silos of Telehealth and eRecords. A Workshop on the Challenges, Issues and Strategies May 2007*. Pg. 6 http://www2.infoway-inforoute.ca/Admin/Upload/Dev/Document/Telehealth%20Workshop_Converging%20Silos%20Report_EN.pdf cited June 20, 2008

comprehensive programs integrated with the organization's directives and goals. In part, the desire comes from resource concerns of the availability of health professionals. The significant challenges that Canada is facing to meet the health service needs of its population in the next decade will be felt by many health care professionals.¹³ Recruitment and retention of adequate and skilled professionals will be a key issue that healthcare organizations will be forced to address in creative ways.¹⁴ Telehealth has the potential support some of the issues with shortages but also can support the lack of adequate services due to the inability to distribute some types of healthcare professionals into more rural areas.¹⁵ This issue also holds true for other types of professionals and management in the healthcare industry. Particularly in the north, it is difficult to attract suitable, trained professionals to implement new Telehealth programs. This scarcity of appropriate resources for implementation causes a limitation on how quickly multiples of services can be realized. While it is feasible to work with multiple divisions of an organization in parallel, a shortage of resources can cause the consideration of having to prioritize the implementation of services. This leaves necessary and desired work undone.

The difficulty in having to prioritize is that managers and healthcare workers often have limited knowledge on how to prioritize. It is quite often the case that

¹³ Northern Health. (2006). *Environmental Scan 2006-2009 Presentation to the Board November 2006*. Pg. 8

¹⁴ Ibid, 9

¹⁵ American Telemedicine Society. (2007). *A Telehealth and healthcare provider shortages. Position statement of the American Telemedicine Society Approved March 2007*. Pg. 2

http://www.americantelemed.org/files/public/policy/Telehealth_and_the_Provider_Shortage.pdf

Cited September 21, 2008

prioritizing does not occur due to budgets being derived based on historical spending rather than forecasted requirements.¹⁶ Some feel that priority setting can be divided into two different approaches: those that apply it within their program or service area and the broader regional approach that encompasses the scope of defining priorities for the region as a whole. No matter what level priority setting occurs there are different approaches being used. According to Gibson et al (2005, 2), there are three dominant approaches, evidence-based, economic and ethical focuses. While healthcare decision makers are becoming more comfortable and successful with using an evidence-based approach to decision making there is still concern that the priorities being set are ethically sound.¹⁷ The *Accountability for reasonableness*, which is an ethical priority setting framework, could be utilized to help this issue. The framework identifies four conditions of fair priority setting.¹⁸ The conditions include: relevance, publicity (meaning transparency), revision (utilizing a reiterative approach to revisit and revise decisions), and enforcement. Implementing priority setting while utilizing this framework allows for transparency of priority setting process that also includes constructive stakeholder engagement. This ensures that decisions are defensible and support decision makers' priorities and also allows for accountability in managing limited resources.¹⁹

¹⁶ Mitton S., Patten H., Waldner H. and Donaldson C. (2003) *Priority Setting in health authorities: a novel approach to a historical activity*. Pergamon Social Science & Medicine 57 Pg.1653-1666

¹⁷ Gibson J., Martin D. and Singer P. (2005) *Evidence, Economics and Ethics Resource allocation in health services organizations*. Healthcare Quarterly Vol. 8 No.2 Pg. 52
http://www.utoronto.ca/cpsrn/html/documents/EthicsEconomicsGibson_000.pdf cited October 15, 2008

¹⁸ Ibid, 51

¹⁹ Ibid, 52

The limitations of funding is another consideration that is of great importance. Not only is there insufficient funding to implement and achieve the 2015 vision as Infoway indicated, but another critical issue is that currently Telehealth as a department falls under the Information and Technology (IT) umbrella and therefore even though Telehealth directly facilitates the delivery of clinical services it is in competition with the same funding that provides basic services like internet connectivity, networking, computer hardware and software. Canada has historically invested an average IT spending of 1.5 to 2 per cent of the total hospital budget which is significantly lagging what other countries and industries spend.²⁰ This is not sufficient given the mandate that IT have been given and the vision that Infoway has for integration. There are often multiple layers within an organization to put forward a capital request for a Telehealth project unless external funding is secured. In both situations there is still a need to ensure that the correct projects are being put forward and therefore there needs to be a mechanism to determine these important decisions.

In Australia in 2004 they recognized the need to identify priorities that provide the greatest benefit for the available resources. Their intent to prioritize is related to rationing their resource allocation so that they maximize benefits and minimize costs.²¹

²⁰ Canada Health Infoway. (no date) *Vision 2015 Advancing Canada's next generation of healthcare*. Pg. 14 http://www2.infoway-inforoute.ca/Documents/Vision_2015_Advancing_Canadas_next_generation_of_healthcare%5B1%5D.pdf cited November 16, 2008

²¹ Leggat, S. (2004) *Developing a clinical priority framework*. South Australian Department of Health, Adelaide & La Trobe University, School of Public Health, Melbourne Pg. 4-5 http://www.health.sa.gov.au/DesktopModules/SSSA_Documents/LinkClick.aspx?tabid=58&mid=409&tabid=SSSA_Documents&field=ItemID&id=135&link=H%3A%5CUploads%5Cdeveloping-a-clinical-priority-setting-framework.pdf. Cited October 14, 2008

In Alberta, their Telehealth business plan for 2006-2009 indicates that Telehealth is aligned with the Alberta Health and Wellness business plan goals and the regional health plans. Telehealth will be utilized to support their priority areas. This includes expansion for access to mental health and home and community care programs.²² Their primary goal of the health policy framework was to put the people of Alberta first in a patient centered service. Telehealth aligns directly with that objective as the primary objective is to support patients in the communities that they live with the care that they need.

In Ontario, the Ontario Telehealth Network (OTN) utilizes a strategy map to help them break down the work into 5 dimensions and 17 more manageable themes. The OTN has built this strategy map not only to align with the Ontario Health system, but also with the Infoway benefits and evaluation framework.²³ While some of the more advanced Telehealth networks in Canada have processes and governance in place to support the appropriate selection of services, others are lacking such mechanisms due to a lack of maturity and leadership in the industry in BC.

A growing trend over the last decade in healthcare is to ensure that decisions are made with evidence-based methodologies. In the past, The Canadian Health Services Research Foundation (CHSRF) has worked to support management to understand how to make decisions guided by solid, research-based techniques. The CHSRF also

²² Alberta Telehealth. (2006) *Alberta Telehealth Business Plan 2006-2009*. Pg. 18
<http://www.albertatelehealth.com/library%5CISBN%20TelehealthBusPlan.pdf> Cited October 3rd, 2008

²³ Maclean N., Savage C., Gordon, D., Fang, N., Jeganathan, B., Keresztes, C., and Kroeker, A. (2007) *Measuring the benefits of Telemedicine Ontario Telehealth Network. Presentation for the 10th annual CST conference Newfoundland Labrador* Pg. 4

contributes funding to research, building capacity and transferring knowledge.²⁴ Prior to the workshop, the CHSRF asked participants questions about evidence and from that came some interesting concepts. While researchers thought an evidence-based approach was established, decision makers viewed the approach as a growing concept. However decision makers understood that evidence comes from much broader sources than just research. That evidence could also include information alternative sources including statistics, trend analyses, environmental scans, and return on investment.²⁵ The workshop pointed out that there are many important factors to consider when addressing Telehealth. Evidence-based decisions should have a high level of transparency and must utilize a reliable process which can be utilized in multiple situations. Many voices must be heard to enable evidence-based decision-making and many different types of information should be utilized.²⁶ Health Canada is currently looking at how they can foster a culture that includes evidence-based research and practice. There are varying degrees of utilization of evidence-based practices. As well, there are some questions with regard to the quality of information available. However, there are substantial quantities of information.²⁷ The key would be to better understand which information is relevant to stakeholders and then present it in such a manner to them that it is easy to comprehend and apply to decision-making.

²⁴Canadian Health Services Research Foundation (2004) *What Counts? Interpreting evidence based decision-making for management and policy*. Report of the 6th CHSRF Annual Invitation Workshop Pg. 2 http://www.chsrf.ca/knowledge_transfer/pdf/2004_workshop_report_e.pdf Cited March 18, 2009

²⁵ Ibid,5

²⁶ Ibid,9

²⁷ Health Canada. (1997) *Creating a Culture of Evidence-Based decision making Health Canada*. website page http://www.hc-sc.gc.ca/hcs-sss/pubs/renewal-renouv/1997-nfoh-fnss-v2/legacy_heritage5-eng.php#a3 Cited March 18, 2009

There is a growing trend in health care to consider a population health approach.

"A population-based approach proactively addresses the health care needs of a defined population of patients."²⁸ The approach is a broader notion of health that recognizes that a range of factors including social, economic and physical environment contribute to the health of a population. It looks for the root causes of health and uses strategies such as investment upstream, collaboration, engagement and increased accountability.²⁹ This means that healthcare now includes far more than just public health and acute care. Healthcare in BC has entered the realm of environmental health. They work to determine causes of illness and promote healthy living and prevention to deter disease.

While it is clear that it is necessary to prioritize, doing so is not straight forward or simple. Consideration has to include ensuring the appropriate criteria are selected and that the weighting is valid to ensure appropriate ranking. Gibson et al (2004, <http://www.biomedcentral.com/1472-6963/4/25>) found that there has been little work to understand what criteria to utilize to set priorities fairly. In response to this they held a workshop with executives and board members from three separate organizations who were struggling with how to set appropriate priorities. The results provided a framework that would support decision makers to set clinical priorities due to budget

²⁸ Rychnovsky, Jacqueline. (2003). *Population Based Health Care* Journal of Pediatric health Care Volume 17 Issue 3 May-June 2003, Pg. 155

²⁹ Health Canada. (no date). *Public Health Agency of Canada Population Health Approach*. website page. <http://www.phac-aspc.gc.ca/ph-sp/index-eng.php> Cited March 18, 2009

constraints and to guide resources allocation.³⁰ Appendix A outlines the priority setting process elements as well as the priority setting criteria that came as a result of the collaboration and dedication of the participants of the workshop.³¹ The complexity facing decision makers in healthcare clearly points to the necessity for consensus amongst stakeholders in the mechanism of priority setting before implementation of a model into operations.

Whichever criteria are selected, weighting will be an equivalent challenge. Defining the weighting for a model is subjective and therefore multiple stakeholders should be involved to determine appropriate weighting. Wilson et al (2005, <http://www.resource-allocation.com/content/4/1/3>) found through their analysis that a technical approach was not a sufficient tool for decision making to prioritization decisions. However they felt that such a tool provides structure that is necessary for decision-making and provides a framework for building and testing a tool.³² This supports our assessment that a tool would facilitate a mechanism to support decision-making in Telehealth.

Scoring can also be subjective and so similar to a Request for Proposal process or even a comprehensive interview process. Scoring should be facilitated by a team of inter-disciplinary stakeholders. Multiple different scoring ranges have been used

³⁰ Gibson, J., Martin, D., and Singer, P. (2004). "*Setting Priorities in Health Care Organizations: Criteria, Processes, and Parameters of Success.*" *BMC Health Services Research* 4: 25. Website page. <http://www.biomedcentral.com/1472-6963/4/25> Cited March 19, 2009

³¹ Ibid., 3

³² Wilson, Rees and Fordham. (2005). *Developing a prioritization framework in an English Primary Care Trust*. Website page. <http://www.resource-allocation.com/content/4/1/3> Cited March 20, 2009

however the most popular and that which is typically utilized process that ranks proponents is either a score of 0-5 or 0-10 with the higher ranges indicating that criteria were well met and 0 representative as not meeting the criteria in any way.³³

Evaluation of priority setting will be an important factor as the process should be reiterative to ensure that appropriate decision making is occurring. The difficulty in evaluation would be to know when success is attained with some confidence. Gibson et al also developed through the workshop parameters of success. The parameters developed through their work are found in Appendix B.³⁴ The parameters could be utilized as a starting point to work with decision makers to determine whether there are additional considerations required. Contemplation will have to occur to understand who would be responsible for evaluation and how lessons learned through evaluation will facilitate change to the processes.

Priority setting in healthcare, whether at the departmental level, or at an organizational level, is complex. Current methodologies admittedly have flaws but also provide value due to the structure they provide. It is important, however, to ensure that appropriate thought has been given to the criteria, weighting and scoring of the model and stakeholders have been involved in the development to make certain that it is meaningful. In addition it is important for the process to be transparent and

³³ Leggat, S. (2004). *Developing a clinical priority setting framework*, South Australian Department of Health, Adelaide & La Trobe University, School of Public Health, Melbourne Pg. 15
<http://www.health.sa.gov.au/Default.aspx?tabid=58> Cited March 20, 2009

³⁴ Gibson, J.L., D.K. Martin and P.A. Singer. (2004). "*Setting Priorities in Health Care Organizations: Criteria, Processes, and Parameters of Success.*" *BMC Health Services Research* 4: 25. Website page.
<http://www.biomedcentral.com/1472-6963/4/25> Cited March 19, 2009

reiterative to reflect changes due to strategic direction and results from on-going evaluation.

Methodology

There are many factors that complicate the decision-making process for Telehealth. Each factor should be explored for consideration to determine whether it is necessary to include them as a component of the proposed model. Each component will be considered as to why it is important to Telehealth and what the research reveals with regard to understanding the implications to the prioritization of Telehealth services. We also will attempt to understand whether or not each component is necessary to include in the development of a model for prioritizing the implementation of services. Consequently, the following resources contribute to this research project. These are:

1. Interviews
2. Policy, Licensure and Remuneration
3. Availability of relevant information from data sources
4. Regional Strategic Plan and our Population's Health
5. Regional Service Requirements
6. Assessment of existing models

Interviews

Consultation drawn from B.C.'s experts in Telehealth are integral to ensure consideration for all necessary factors to develop the intended model. Qualitative interviews were conducted with Telehealth representatives from all health authorities in B.C., First Nation & Inuit Health, the Provincial Telehealth office as well as professional

Telehealth consultants. The information gathered was aggregated to be utilized for a themed content analysis.

The key factors that were anticipated to emerge are:

1. critical success factors for Telehealth implementation, and,
2. anticipated resource limitations and whether there were perceived constraints on the number of projects that would be able to be implemented.

Information was also gathered to understand the current processes of each organization for project or program approval and whether services are currently prioritized against others. As well, participants were asked what the current processes were within their organization to gain approval to move forward with a project. It was then asked, what factors should be considered if having to prioritize the implementation of services? The questions asked in the interview process with the Telehealth representatives are found in Appendix C. The questions were developed to be open ended with expectation of narrative responses.

Ten independent interviews were conducted with representation from Northern Health, Interior Health, Vancouver Coastal Health, Vancouver Island Health Authority, the Provincial Health Services Authority, BC Cancer Agency, First Nations & Inuit Health (Health Canada), and the Ministry of Health. The information was collected through the interview process and was aggregated for the purpose of this study. The intended interviewees represent a broad range of professionals that currently work in the field of Telehealth - some of which have been working in the industry for a number of years. Typically many Telehealth professionals are nurses by trade. However in B.C. there is a

spectrum of backgrounds which makes for a diverse set of backgrounds and skills.

Telehealth professionals in BC are collaborative by nature with a drive to improve and expand Telehealth in the province. For that reason, every Telehealth professional that has been asked to participate in this study has agreed.

Participants were provided the framework of the project prior to the interview. They were asked to sign a letter of consent which explained the project and the intent for utilizing information gathered from the interviews. All information gathered through the interview process was aggregated and was made anonymous for the purpose of the project. Emergent themes from the analysis of the aggregated information is discussed in the Interview Results section.

Policy, Licensure and Remuneration

In healthcare, policies govern patient access to specific types of clinical resources. These factors need to be considered and this analysis should include whether these policies are being met by the organization. Not meeting these policies puts the organization at risk because they are mandated. Clinical licensure and remuneration factors also contribute to the ability to expand to the existing Telehealth programs. Services that are seen as priorities would also have to be evaluated to determine whether these factors would complicate the implementation of a service. If a service were deemed a priority, these factors would be a barrier to moving a program forward. It would therefore be a priority to advocate with agencies such as the Medical Services Plan (MSP) and BC Medical association (BCMA) to rectify these limitations.

Availability of relevant information from data sources

There are multiple sources of aggregated data, compiled by the Ministry of Health available to health authority administrators to support evidence-based decision-making. Understanding what is available and how these data bases apply to Telehealth will be a key component of understanding what evidence is available to contribute to this project. It is necessary to understand not only what types of data are available for this purpose, but also how to access the information and understand it. In addition, it is necessary to also understand how the available data are utilized to support organization programs and strategic directions. It is further of interest to understand how information contributes to regional service requirements and the strategic and tactical plans.

Not only can these data bases provide information with regard to the health concerns of our population, but it may be that they can also possibly tell us which residents residing within our regions are receiving services from other health authorities. This would be valuable information for Telehealth decision-makers due to the effort to identify gaps in services currently unavailable within a patient's community.

Regional Strategic Plan and our Population's Health

The costs of patient care on the acute care system and the knowledge of our population's current and forecasted health needs should also be considered in the development of a model for determining priorities for Telehealth. Complementing

these factors with the strategic needs of the organization should allow for an understanding of how to include these aspects in the development of a model.

Regional Service requirements

Telehealth is utilized to support the delivery of healthcare services to patients in their communities where those services are not currently available. An assessment of the gaps in services and the needs of communities should therefore be an important factor to include.

Assessment of existing models for prioritization

In the Telehealth industry there is no apparent model that is utilized to prioritize services. While there are approval processes and in some cases governance structures to support decision-making, Telehealth professionals to date have not had to assess the importance of some services over others. With the increase in demand for services it is possible that the environment will change and prioritization will become a necessity. In which case, a model to support the demand will be beneficial. By looking at existing models, we potentially can utilize format and in some cases potentially even content to help support the development of a prioritization tool for Telehealth.

It is expected that through this analysis we will find that some of the factors consider will be required to be included in the model. However, it is also expected that some factors are not necessary. The analysis that we undertake through this process

should facilitate a clearer perspective of this as well as how best to incorporate these factors given their level of importance.

Interviews Results

Information gathered through our interviews with the Telehealth professionals showed that there were many emergent themes. The raw data gathered can be found in Appendix D.

Barriers to Implementation and Planning of Telehealth: Governance Issues

The first question that was asked was with regard to barriers to implementation and planning of Telehealth. While some respondents were concerned with more basic infrastructure requirements, the majority of participants had concerns about the lack of provincial governance. Most participants at one point in the interview brought up the concern about the necessity of Telehealth shifting to a top-down approach driven by the programs at the Ministry of Health to ensure alignment of Telehealth with provincial health service priorities. Additional concerns mentioned by many that potentially cause barriers for Telehealth include: physician remuneration, provincial standards and processes.

All participants responded that they are either already experiencing or foresee experiencing a lack of resources required to enable the expected growth of Telehealth in our province. While some had concerns regarding technology due to limitation in B.C.'s most rural areas, almost all participants identified funding and manpower as a concern. One respondent raised this concern further by identifying the potential lack of qualified manpower as there are many skills that contribute to a skilled resource. These include technical knowledge, clinical knowledge, project management skills and an ability to liaise with a broad range of stakeholders.

Lack of Formal Approval Processes

It was found that for most day to day needs there were no formal approval processes. One respondent talked about the how Telehealth managers have been working to meet all the needs of those who come forward for service. Another respondent made the point that Telehealth providers are in an “untenable position right now; when Telehealth managers say no, patients don’t get service.” Collaboration and the efforts of telehealth professionals have made implementation of Telehealth in such a manner successful to date. There is however great concern for the sustainability of this method. A planned service delivery would limit the types and number of services being implemented at any given time, but would create stability and sustainability.

Lack of Dedicated and Independent Budgets

At a local level it was found that funding for new projects is managed through the Information and technology departments. Some participants were concerned that the delivery of clinical services through this means is in competition for funding that funds basic technological infrastructure and is necessary to “keep the lights on” as well as continue to grow and support the organizational information and technology needs. One respondent went so far to say that “you can’t compete with Information and technology needs, they are trying to keep failing systems running.” There is a general consensus that a centralized governance approach outside of the ITS environment will help us gain direction and access to new funding sources; “we need buy in from the top down.” One respondent said that “Telehealth is on every agenda,” we need to take that

momentum and utilize it. With the necessary governance, support and resources, expansion will be feasible. This will allow for further growth of Telehealth in the province. "There needs to be a supporting strategy (for Telehealth) that aligns with the greater health services needs of the province." Telehealth has still managed to grow organically through the delivery of service. There is however, a lack of strategic planning and while recently we are seeing more of this type of activity and alignment, it is at a health authority level and many feel that it needs to be at a provincial program level. One respondent said "if looking at it from the strategic overall plan, we are fragmented." With the proper governance and framework, Telehealth will obtain the necessary funding and attention to drive it forward.

Currently the processes for obtaining funding and approval to move forward on initiatives varies greatly across organizations. While one organization had quite defined processes, the majority had varied approaches many of which were undefined or ad hoc. A couple of respondents went so far to mention that funding is easier obtained from external sources such as hospital foundations. One respondent said there was "no real process for minor capital projects under \$100,000.00" and found difficulty in that as many smaller projects do not take a lot of money.

Most respondents are currently not utilizing any prioritization processes. Of those that do, one has quite defined processes with "set criteria" and gated processes, while another has just recently initiated and completed a Telehealth strategic plan which provides them with a framework for moving forward over the next number of years. All other participants have not had the requirement to prioritize as Telehealth

has been a mechanism for services rather than an integrated component of program delivery. Services are much more manageable and do not require much supplemental funding. However, in the last number of years we are seeing the emergence of more program development which requires considerable funding, collaboration and manpower to implement. For example in the north we are in the midst of rolling out the Northern Cancer Control Strategy TeleOncology project. This project will provide a comprehensive delivery of specialized services for Cancer patients throughout the north and was built in conjunction with the planning of the overall Cancer strategy for the north. The intent is to supplement existing services in communities with complementary services and remote access to specialists so that we can keep patients in their communities while receiving the care they need. Due to the needs of these types of projects, there will be more and more demand for what little manpower and funding is currently available. All those who do not currently have to prioritize services, with the exception of one, agreed that there will be a need for this in the future. While some thought that a tool or criteria list that would help rank projects would be helpful another respondent did not feel that it was the role of the Telehealth manager to make these decisions. It is however anticipated that Telehealth managers will have influence and a voice in the process. It is therefore feasible to suggest that it would be appropriate to have a mechanism to filter information appropriately and put forward recommendations with an agreed upon, transparent and standardized process.

To ensure that the correct recommendations are put forward all respondents felt that evidence should be utilized in decision making. Most felt though that

administrators listen to data but that it was difficult to obtain. Others said that analyzing data other than that which we create is not our role. "These decisions are made at a higher level...people that run the programs (executives) will know the information and what the needs are." It is true though that "We (Telehealth professionals) need to have a broad vision", "we need to better understand how services fit into the bigger picture, because we are not specific to one clinical area" and otherwise "we end up trying to solve issues that belong to the entire organization."

The findings through the interview process were reflective of the initial thoughts that led to the initiation of this project. Through the assessment of the data, it was found that while there are differences across organizations within British Columbia, there are many similarities in the challenges. With respect to the selection of Telehealth services, there is very little process and methodology in place. This is expected to by all participants in the interview to become an issue. As Telehealth continues to expand and the demands for service increase, it will become more difficult to meet all of the requested needs due to lack of resources. It will therefore be necessary to have a process in which to prioritize the proposed services. It was also found that there are very clear critical success factors to the implementation of Telehealth services. Those that came out of the discussions will be utilized in the development of the model.

Analysis

The analysis undertaken through this project looked at factors to understand what the necessary criteria for the model should be. Each component was considered to understand the importance to Telehealth and whether it was required to include in our decision-making processes. We also attempted to assess the importance for the prioritization considering the organization needs. This helped us determine what factors were necessary and applicable to the development of the model.

Policy

There are mandatory guidelines to which Northern Health must adhere based on populations. If Northern Health is not able to adhere to these obligations because of resource issues, Telehealth might be able to support the necessary delivery of services in some cases. This is an obligation to adhere and therefore should be considered one of the highest priorities to consider when prioritizing services. Policy should therefore be included in the model that is developed through this process. Infoway said it very clearly in an interview with Canadian Healthcare Technology magazine in 2004 “the cross-jurisdictional nature of a Telehealth network must also take into account the differences in medical practice regulations, licensing of medical personnel and privacy laws about sharing medical information,”³⁵ Adhering to policy should be a priority. At

³⁵ Canadian Healthcare Technology. (2004). *Canada Health Infoway ready to become more active in Telehealth*. November/December 2004 edition. Pg.1-2 http://www2.infoway-inforoute.ca/MediaCoverageDocs/ReprintCHT_NovDec2004.pdf Cited March 17, 2009

this time it is not clear which policies, if any, Northern Health does not comply with and therefore it is difficult to include in the model at this time.

Licensure

The College of Physicians and Surgeons of British Columbia (BC) is the licensing and regulatory organization for medical doctors in BC. They are an independent organization from the government that is responsible for establishing standards for licensure and practice of BC physicians in accordance of the Medical Practitioners Act, in order to promote the optimum standards of medical care. Some of the potential challenges of licensure with Telehealth are that traditional boundaries are easily crossed with the use of technology. It is necessary to ensure that the services that we are delivering are not going against current licensure rules. We also need to adhere to privacy law and maintain patients' security when doing so. The position that Northern Health takes on the matter is that physicians are licensed to practice within the province therefore the delivery of service within the province are not issues of licensure. When crossing provincial boundaries we have to be more careful. If a patient is already being treated by a physician in another province, then a follow up visit by Telehealth is typically utilized for the patient to be seen by his or her physician. However, the service delivery is actually occurring in the other province as the visit would normally require the patient to travel.

Due to this, licensure is therefore not normally a necessary factor for us to consider unless we are being asked to provide consultative services across provinces

which to date is not a factor though should be considered for the future. The Provincial Telehealth office, (PTO) is already working to determine how to tackle the provincial boundary so that Telehealth services can occur across provinces as some of our regions patients prefer to go to Alberta for specialized services because of the proximity of their communities to Alberta centres.

Remuneration

Remuneration for services is a critical factor of success for Telehealth services. If remuneration is not in place to ensure payment to professionals for their services it can cause a quick failure in the implementation of a program. There are multiple models of remuneration for health care professional in BC that facilitate the delivery of health services. Some health care professionals are on staff with the health authorities. Typically those individuals are specialists that are mandatory or valuable to the organization. Another model occurs in communities where that can not sustain a private practice. These physicians are on alternate payment plan (APP) which essentially means that they are general practitioners on staff. For these first two groups, employees and APP clinicians, remuneration is not an issue. However for the private practice physicians, it is necessary that the Medical Service Plan (MSP) has appropriate billing codes to accommodate the delivery of services by Telehealth.

The current rules surrounding fee schedules indicate that physicians are expected to have direct one-on-one contact with a patient in order to submit a bill.³⁶ This is changing over time as acceptance of Telehealth grows. Currently MSP billing codes are lacking for Telehealth services. While some are in place for specialized services, the majority of codes that could support Telehealth implementation are not. This is a significant barrier. Billing codes are more often than not critical for the implementation of a new program. For this reason, this is a factor that needs to be considered early on in the planning process as a critical success factor. The procedure for applying for new billing codes can be difficult and sometimes, as we have seen in the past, unsuccessful. We are now seeing that this is changing and we are finding that the bodies that govern billing codes are more open to alternative means for delivery of service. The process, in some cases, has improved when all stakeholders are in agreement of the benefits of the implementation of the service.

The implication of remuneration on a decision-making model is that there is no point prioritizing services in which billing codes are not available, however if an organizational need requires Telehealth to supplement services, then it would be pertinent to assess these types of factors early on to establish whether there is a gap in billing codes that would be required to facilitate a successful and sustainable implementation.

³⁶ Canadian Society of Telehealth. (2007). *Telehealth – What the Future Holds A White Paper*. Pg. 16 http://www.cst-sct.org/en/index.php?module=library&VV DocumentManager_op=viewDocument&VV Document_id=124 Cited September 21, 2008

Liability

Currently there are few legal cases involving Telehealth services. Liability is however, of great importance in our industry as we do not want to put patients at risk.³⁷ Security and privacy of patient information and the exchange of information by Telehealth is of the utmost importance and no session is undertaken in which a patient's privacy might be at risk. The difficulty comes into play when we are initiating new services outside of the current scope. It is therefore pertinent to include risk as a critical success factor to consider when making decisions with regard to Telehealth services. This is validated by the weighted importance of risk and safety in the current capital funding processes at Northern Health.

Available and applicability of data

A vast array of data are available in the healthcare environment. Sources range from facility level information that includes patient demographics and patient encounter information for all acute care facilities to health prevention and promotion data that includes data such as immunization records and communicable disease management. The most pertinent data sources for the purpose of prioritization of Telehealth services to provide us the evidence required for decision-making include the data gathered and utilized for corporate planning which would include data gathered from our facilities, economic data and that which is provided to health authorities

³⁷ Canadian Society of Telehealth. (2007). *Telehealth – What the Future Holds A White Paper*. Pg. 16 http://www.cst-sct.org/en/index.php?module=library&VV DocumentManager_op=viewDocument&VV Document_id=124 Cited September 21, 2008

through ministry data bases such as Quantum Analyzer and Health Ideas among others. Population health data is readily available for management however data are not compiled based on departmental requirements. Ministry data sets are not readily available for much of management and there is a potential lack of understanding of the kind of information available. It seems that there is no current mechanism for disseminating information other than what is provided to us through the web portal which encompasses a bounty of population health information. Other information is currently not openly available, however it is understood that this is the intent in the near future. It is also apparent through this analysis that much of the data are provided to the strategic planning division of the organization for analysis. Information gathered from these sources is currently utilized to inform executive and board members. It is also provides the evidence that helps formulate the strategic plans of the organization as well as the regional health service plans. It can be assumed that rather than attempt to capture and analyze data for the purpose of prioritizing services as originally thought, it is feasible to utilize the directives of these organizational plans as key components in our model to help ensure alignment. This would ensure that programs selected and prioritized over others would support the goals established by the organization based on the evidence they collect. With that in mind it is therefore appropriate to focus on applying the directions of the strategic plans and health service plans rather than attempt to analyze and understand the multitudes of information that is compiled.

Northern Health Strategic Plan

In the past, every four years, Northern Health has undertaken the challenge of building a strategic plan for the organization as a whole. The difficulty in doing so is that through this document Northern Health attempts to identify the key goals and objectives for providing care to the patients in our region. Based on the outcome of the directives, changes are made to the way that we deliver health care in hopes of obtaining improved clinical outcomes. The plans outline the direction in which the various departments are to align to support the larger strategic goals of the organization. In conjunction, Northern Health has implemented a research and evaluation department to help assess and evaluate our efforts which will contribute to our understanding of whether the changes being made are supportive of the desired outcomes for our population's health. Just as Hollander et al (2009, 38) express, Northern health also endeavours to improve the care for the people of the north by ensuring that we make appropriate decision to get the best value for money possible."³⁸

The Northern Health Strategic plan for 2009-2015 has just recently been completed. The plan was developed through a consultative process with the intent to engage stakeholders and to build a long term plan to support the health care needs of the north. Northern Health worked to build a plan that supports the culture with which their staff can identify with. It was hoped that staff would utilize the plan to guide their departmental decision-making for day to day operations as well as their strategy. The

³⁸ Hollander M., Miller J., MacAdam M., Chappell N. and Pedlar D. (2009). *Increasing Value for money in the Canadian Healthcare system: New findings and the case for Integrated Care for Seniors*. Healthcare Quarterly, 12(1) Pg. 38-47 <http://www.longwoods.com/product.php?productid=20414> cited October 15, 2008

new plan is therefore a key component that will contribute to our decision-making model. It outlines Northern Health's commitments to how they will care for the people of the north.

The strategic plan in the past has very clearly identified priorities and goals. Some of these goals even prioritized specific initiatives and populations. This new plan has a more holistic feel to it. It outlines the values of how we will be expected to conduct ourselves highlighting integrity, stewardship and quality. The strategic directions include integrated accessible health services, a focus on people, a population health approach and high quality services.³⁹ What the new Northern Health strategic plan helps us understand, when considering prioritization of Telehealth services, is that evidence is critical when considering these types of decisions. It is also clear that the organization values increasing access to care and innovation as it clearly stated in the strategic plan. This supports the effort to grow the delivery of programs through Telehealth. The strategic directions in Appendix E provide us with some clarity of some of the elements that should be utilized in the decision making process for prioritization of Telehealth services. Those elements that are applicable have been included as key fundamental components in phase two of the model being developed in which we assess programs against organizational priorities.

³⁹ Northern Health. (2009). *Northern Health Strategic Plan 2009-2015* (no page)

Regional Service Plan Requirements

The nature of Telehealth is to deliver services to patients by utilizing technology, where possible, to allow patients access to clinical services that are not currently available in their communities. Regional service requirements are therefore a critical factors that we must understand to determine how best to utilize the technology to meet the needs of the population. The Northern Health service plan establishes a more tactical approach for the implementation of the strategic plan. The service plans, which are developed separately for each of our three regions, support the directives of the strategic plan and utilize an evidence-based Population health approach. This makes these documents and their contents informative to the development of our model. Much work is done to not only understand the health of the people of the north, but also the environmental risks that contribute to disease so that we can also promote prevention. Upon assessing the information available of the analysis, the results are staggering and often provide clear direction for priorities. For example, in Northern Health, data analysis tells us that Cardiovascular Disease accounts for 35% of deaths, Cancer accounts for 29% of deaths, COPD accounts for 4.2% and Diabetes accounts for 2.4% of deaths.⁴⁰ This type of information is valuable evidence that helps the organization assess what health service priorities the organization should focus on.

Quality of life considerations and the impact on the health care system for specific disease are other factors that should be considered. Patients with chronic disease endure considerable decline in their quality of life and therefore managing

⁴⁰ Northern Health. (2008). *Chronic Disease Estimates in Northern Health Oct. 2008* Pg. 8

disease and the prevention of disease is critical. Northern Health has worked to determine the prevalence of disease by compiling information from various data sources. These documents are of great value and should be utilized to facilitate the model rather than attempt to analyze the data outside of these current processes.

Public opinion is considered when determining service requirements. Northern Health has initiated public forums as part of their consulting strategy to discuss health concerns from the perspective of the public. Northern Health compiles the information from sessions throughout the north and utilizes the information to support decision-making and the development of the strategic plan.

There is a multitude of studies available that look at costs to the health care system such as facts like the cost of physical inactivity to British Columbian healthcare system.⁴¹ Northern Health has compiled this information and has developed a repository of data for management and employees to draw from. This information in addition to other consultative processes and analysis provides Northern Health the data to formulate their strategic plan, and regional health service plans based on concrete evidence. We can therefore conclude that by aligning with the strategic plan and the regional health service requirements with our model we will have the assurance that the correct decisions are being made based on appropriate evidence.

Currently the new service plans are not developed as the Strategic plan has just recently been finalized. It is expected that the format of the Service plan may change

⁴¹ Coleman R. and Walker S. (2003). *The Cost of Physical inactivity in British Columbia Prepared for the B.C. Ministry of Health Planning*. Pg. 3 <http://www.health.gov.bc.ca/prevent/pdf/inactivity.pdf> Cited March 14, 2009

considerably, just as the Strategic plan has changed. The information from the Service plan will contribute considerably to the model and supports the intent to make decisions based on evidence. For the purpose of this project this leaves a gap in our efforts to build a comprehensive model for Telehealth at this time. There are two ways in which we could deal with this:

1. utilize past objectives from the services plans with the intent of updating them when the new plan is completed or;
2. build in the components to be filled in at a later date once they are available.

It was determined that for the purpose of this project, the first method of dealing with this was the most appropriate as it is not clear how long it would take for the new service plans to be developed. In the meantime the organization will rely on the existing service plans and therefore it is appropriate to utilize these objectives as criteria in which we can measure projects against. Lastly, after witnessing many failures, there is a desire to also ensure the sustainability of a project and therefore it is necessary to consider the organizations ability to sustain any newly proposed activity. By aligning with the strategic and regional service plans, there is a heightened level of assurance of the commitment and sustainability of a service.

Assessment of Existing models

As noted, Gibson et al (2004, <http://www.biomedcentral.com/1472-6963/4/25>) has done considerable work with multiple health care organizations senior leaders and

board members to assist them in developing a strategy for priority setting.⁴² Appendix F outlines the criteria that came out of the workshops they facilitated. While these criteria are excellent, some additional criteria are becoming critical in the healthcare environment and should be considered when looking at any projects that involve any kind of technology support of implementation. The health care environment is becoming more and more electronic and considerations have to be made to fit with direction and mandate of the provincial and national ehealth initiatives. Therefore it is necessary to also consider factors such as integration, interoperability, complexity, as well as privacy and security risks.

Existing models for priority setting were not accessible through the analysis of this project. It is suspected that many are potentially proprietary due to the fact that independent contractors are sometime used to support the development of such tools. Within Northern Health there are a few tools that can be assessed such as the Request for Proposal process, the interview processes and the capital funding request process. Each of these have components that support a model of prioritizing different applicants and therefore it is possible to utilize not only format, but also in the case of the capital funding model, criteria to develop a model for Telehealth.

The analysis completed provides us with the assurance that while it is important to ensure that evidence is being utilized to support decision-making, the strategic plans and regional service plans are developed by the organization so that it is not necessary

⁴² Gibson, J., Martin, D., and Singer, P. (2004). *Setting Priorities in Health Care Organizations: Criteria, Processes, and Parameters of Success*. *BMC Health Services Research* 4: 25. Website Page <http://www.biomedcentral.com/1472-6963/4/25> Cited March 19, 2009

for departments to undergo this work independently. It is therefore acceptable to rely on these documents for direction to ensure that appropriate decision-making is occurring. By doing so, not only are we utilizing evidence, but we are ensuring alignment with the goals of the organization. In addition, our analysis points to the critical nature of policy, liability and remuneration. These factors, if a concern will cause a failure in implementation of a service. Therefore it would be pertinent to include these factors among others as a preliminary assessment of projects for consideration.

Results

While the need for priority setting is conclusive, the mechanism for doing so is complex and potentially subjective. The literature provides us evidence that it is a meaningful endeavor to ensure appropriate priority setting through a strategic approach based on evidence, stakeholder engagement and transparency due to a forecasted scarcity of resources. The literature also tells us that an effective communications strategy is necessary to ensure an understanding and acceptance of the process prior to implementation. The process should be reiterative and should be evaluated to ensure accountability. In addition the literature warned against ensuring that the appropriate criteria and weighting are utilized so not skew the results.

Due to our focus on Telehealth, there are some factors that need to be considered in addition to the typical criteria in priority setting based on strategic directives. Our analysis and the interviews conducted pointed to these factors which are mandatory for the successful implementation of a project. By including these factors, we will ensure that we are selecting projects and programs that have the greatest opportunity for a successful outcome. These factors should be considered in a preliminary process that looks at the mandatory criteria required for a successful implementation of a new program prior to assessing additional criteria. A quick assessment could be facilitated through a simple check list that would allow for an evaluation of a proposed new service prior to putting in considerable work. This is a similar to a successful process that is utilized when considering implementation of a project called a Readiness Assessment. We would essentially be taking the same

concept and applying it to proposed Telehealth projects or programs by formulating the framework with the appropriate criteria for Telehealth.

If, when applied to the quick assessment, all criteria can be met then the proposed project for implementation would then be assessed against a secondary phase of the process for further evaluation. If not, a supporting decision tree would provide an appropriate next step dependant on which criteria were not met or are in question prior to implementation. Aspects that should be included in the quick assessment of mandatory criteria supported by our interview responses and assessment include the following:

- Basic technical infrastructure including:
 - Connectivity;
 - QOS (Quality of Service);
- Availability of Executive Project Sponsorship;
- Availability of a Clinical Champion;
- Appropriate MSP billing codes in place where necessary;
- Policy or licensure;
- Level of risk to organization such as privacy and security concerns;

These factors contribute to the sustainability of the proposed program which is of great importance. Also contributing to success though not mandatory is whether there is evidence that a service is already proven in the industry with successful implementations from which we can learn. This not only provides confidence to the organization for funding a new program, but also improves the ability to engage with

clinicians and staff when introducing an idea or mechanism for delivery of service. The quick assessment developed has been included in a checklist format found in Appendix G. The supporting decision tree Appendix H provides guidance on how to proceed given that any of the criteria are not fully met when assessed. The quick assessment should be utilized as a primary tool for prioritization to ensure basic components of success are being met.

Should multiple proposed projects meet the criteria in the quick assessment, the next stage of the prioritization process would be to consider the remaining competing projects and programs against each other in a secondary, more in depth phase in which projects are assessed to ensure organizational alignment. Essentially this is what the current capital processes typically do. Therefore if there are no projects in competition then the most appropriate method to put a project forward would be to eliminate phase two of this model and utilize the existing major or minor capital processes. The processes for obtaining both major and minor capital funding within the organization can be labourious. It would therefore be a relevant exercise, if there were multiple projects that met the mandatory criteria of the quick assessment, to further assess projects against additional criteria to ensure only the projects with the greatest potential to meet organizational priority setting go forward.

Current major capital processes are currently under review at Northern Health due to the recent delivery of the new Strategic plan. Specifically, Northern Health's capital process weights and ranks a submission's ability to support the organizational health service plans, the strategic goals and objectives, project funding sources (if any),

project risk , operational impact, safety and risk management considerations, asset life cycle, improved patient outcomes, financial benefit and the total funding request including net present value. Rather than attempt to encompass all of these needs in a secondary phase and duplicate the efforts of the current major capital process, it would be more appropriate to select the criteria to ensure alignment with organizational needs and priorities. We can then apply proposed projects or programs to these criteria in our secondary phase of prioritization to further narrow the proposed priorities.

Given the priority in health care to base decisions on evidence, the most appropriate criteria to include would be strategic and health service plan directives. In addition to this other highly ranked criteria within Northern Health's current process include Safety, Risk and Improved patient outcomes. These are therefore also included to support our means to put forward and propose the most appropriately aligned recommendations.

Appendix I outlines the proposed secondary phase of prioritization of Telehealth projects. Appendix J provides the flow chart for the entire process including how it fits into the existing process.

The key factor that became apparent through this project was that there are some differences that need to be addressed that are not normally factors in a normal prioritization process. It was found through the analysis and through the interviews that these factor contribute greatly to a project's success. It was for that reason that these criteria were determined to be mandatory, a quick assessment was developed to limit the amount of time spent on the process prior to having all of the necessary

components in place. For those projects that have all the primary criteria in place, a secondary process would then allow for a process to prioritize the successful projects by looking at alignment with the organizational strategy and health service plans. In addition, it was determined through the analysis that other important factors to the organization included safety, risk and patient outcomes. The projects with the highest results from the secondary process would then be those that would go forward to the normal major or minor capital application processes for the department or organization.

Conclusions and Recommendations

It was found through this project that it is necessary to consider the need for prioritization of Telehealth services. If not required by all at this time, it is expected that in the near future, that it will be necessary to prioritize Telehealth services due to increasing demand and limited resources. It was determined through this project that it was feasible to build a model specific to the needs of Telehealth. It was also found that there are limitations to in doing so. Subjectivity is the key concern as it is with any decision-making process, whether it be a Request for Proposal or simply a hiring process. It is necessary that those processes are handled by transparency, ethics, a thoughtfulness to the process and stakeholder engagement. Similar to a capital request process the organization must therefore understand in advance clearly what the criteria and weighting are that will measure the value of a given decision. Additional limitations, as we found in our in our literature review, include the difficulty of building a model in which each criteria are mutually exclusive, as well as weighting and scoring appropriately. For the purpose of this project, weighting was not addressed as it was not within scope of this project to work collaboratively with stake holders within Northern Health to address this in the manner that is suitable for organizational decision-making. It is therefore relevant that this work continue within the organization to address this need utilizing the processes discovered through this project.

Evidence was determined to be an important component to ensuring that correct decisions are being made. Initially it was thought that it would be necessary to analyze data to gain an understanding of the implications and considerations necessary

for Telehealth. The expected data sources included the organizational health records, disease specific economic impact on the healthcare system and governmentally compiled data that supports a population health approach. After the analysis, we came to the assumption that the data available are currently being analyzed by the organization and are utilized to formulate the strategic plans and service delivery plans. It was under this premise that the model developed utilized and aligned with the directions in these documents being laid out by the organization. It would be relevant to further study the validity of this assumption to better understand how existing data are applied to organizational direction and the validity of the data that are being utilized to verify that this assumption. It is also necessary that we in Telehealth compile and analyze our own data from the operational functions of our business to further support the marketing and planning processes of our work. This would allow us to further understand our business, so that appropriate reporting to the organization could occur as well as forecasting to address preparation for future growth.

The model developed through this process was built to include some critical success factors in a preliminary assessment. While subjective in some cases, it is necessary to have a trigger which would initiate a preliminary discovery process to better understand to what degree these factors will affect the implementation of a new service. This was important in order to ensure critical success factors were addressed before starting the implementation of a project or even to attempt approval a preliminary check list was developed. For example, if remuneration is not in place for clinicians that require billing codes to be in place for a given service that is clearly a

priority, this should trigger the initiating the application process. Project timelines could be aligned to allow for the approximate time that is required to complete this process. In this type of situation, if at any point the application process is found to be unsuccessful, the project should then be stalled until the issues are resolved.

Evaluation is a necessary and valuable component to implementation of a decision-making model. Research and evaluation teams within healthcare organizations are skilled to support efforts to understand the success of your decision-making. They also are able to provide constructive criticism of any model or framework development. These resources should be engaged early on in any work that will involve organizational change. This would ensure that we have appropriate baselines from which to measure and that there is an assurance that the assessments are valid and sound with respect to research techniques and ethics. Any learning from this engagement should be applied with a continual quality improvement cycle and should result in the necessary changes and reiteration of the model created that may be required. Organizational evaluation of the model, developed through this study, is currently lacking. It is necessary to further this work to include the input and validation from both the clinical realm as well as executives. It would also be relevant to include discussion and input from other Telehealth professional from across Canada as this study only included interviews from those within British Columbia. Some provinces within Canada are further along in the development and implementation of a provincial Telehealth program and it is possible that we could gain perspective and understanding by further engaging with them and learning from their experiences.

There are limitations of the literature review of this study on aspects such as weighting and scoring due to their complexity. Further study in these areas would be valuable due to the subjectivity and the potential to skew result of prioritization should these components not be addressed appropriately.

Under the current organizational structure Telehealth typically reports to the Information and Technology division of an organization in British Columbia. Given that this is the situation, there are potentially multiple layers of approval and bureaucracy to gain approval to implementation a proposed implementation if put forward through the conventional mechanisms. This is particularly true if funding is required outside of normal operating budgets. Projects with respect to technology improvements and operational efficiency are currently managed through this process; however clinical projects for the organization should develop an alternative mechanism moving forward. To eliminate a layer of the capital process and the issues of competing for funding that is allocated to support organizational information and technology requirements, Telehealth should partner with the clinical divisions of the organization to help facilitate the application for capital funding. Not only would this eliminate competing against basic IT infrastructure projects that are often mandatory for the organization due to the continual growing technological needs of the organization, but it would also show collaboration and commitment to the success and sustainability of a project prior to the application process which should be well received by organizational decision makers such as the executive and the board of directors.

Finally, the nature of Telehealth is provincial as services are rendered across health authority boundaries. It is therefore necessary that a provincial strategy and governance structure be established for selecting and implementing provincial programs to ensure alignment and to building an appropriate support structure for such services. Provincial level implementation requires Telehealth to be integrated in the healthcare system from the top down and therefore requires integration and collaboration at the provincial level. Further study to assess how to move to this model would be a valid study as other provinces have successfully moved to this model and have become the leaders in Canada for Telehealth. British Columbia needs to evaluate the environment so that Telehealth can grow to support the provincial requirements in a sustainable model.

Appendix A

Priority setting process elements

- Confirm the strategic plan
 - Clarify programmatic architecture, including program groupings and definitions
 - Clarify Board/Mgmt roles and responsibilities
 - Determine who will make priority setting decisions and what they will do
 - Engage internal/external stakeholders
 - Define priority setting criteria and collect data/information
 - Develop an effective communication strategy
 - Develop a decision review process
 - Develop process monitoring and evaluation strategies
 - Support the process with leadership development and change management strategies
-

Gibson *et al. BMC Health Services Research* 2004 4:25 doi:10.1186/1472-6963-4-25

Priority setting criteria

- Strategic fit
 - Alignment with external directives
 - Academic commitments
 - Education
 - Research
 - Clinical impact
 - Community needs
 - Partnerships (external)
 - Interdependency (internal)
 - Resource implications
-

Gibson *et al. BMC Health Services Research* 2004 4:25 doi:10.1186/1472-6963-4-25

Appendix B

Parameters of success

Outcome parameters

Effect on organizational priorities and budget

- Priorities change; resource shift
- Strategic plan supported/enhanced
- Conditions for growth created/enhanced
- Budget balanced

Effect on staff

- Staff satisfaction neutral or positive
- Staff retention/recruitment neutral or positive
- Organizational understanding improved

Effect on community

- Public media recognition neutral or positive
- Public acceptance or community support improved
- Public perception of institutional accountability improved
- Health care integration through partnerships increased
- Education/research peer recognition enhanced
- Emulated by other organizations

Process parameters

Efficiency of priority setting process

- Increased ease in allocating resources
- Improved capacity for making priority setting decisions
- Perceived return on time invested

Fairness

- Stakeholders understand the process
- Stakeholders feel engaged
- Priorities are justified and seen to be reasonable
- Process is perceived to be consistent and fair
- Winners/losers issue well-managed

Conformity with conditions of 'accountability for reasonableness'?

Appendix C

Interview Questions for Telehealth Managers and Stakeholders

1. What do you see as barriers in clinical Telehealth implementation and planning?
2. Do you see a lack of resources (funding, manpower, bandwidth, equipment, rooms) required to facilitate all possible clinical Telehealth projects as a current issue? If not, Do you foresee this in the future?
3. Tell me what kind of resources you currently lack and those that you can foresee as being issues in the future?
4. When a new service is being requested what is the process for determining whether or not you will move forward with that project? What is the approval process? Who participates?
5. Do you currently have to prioritize clinical projects? (Ex. In the case you do not have sufficient resources to implement)
 - a. If not, do you see this as a potential problem in the future?
 - i. How are you or do you see yourself dealing with this in the future?
 - ii. If you are not currently utilizing a formal process for prioritization, what components do you feel should be included in this decision making process.
 - iii. Do you think that data/evidence could or should play a role in supporting decision making?
 - iv. If so, what kinds of data would be helpful? Do you know of any sources of data that would be supportive of this process?
 - b. If you are currently having to prioritizing projects, what is the process and criteria used for making these decisions? Is prioritization of projects being done for both technical and clinical projects as well? Do the criteria differ?
 - i. Is evidence based decision making being utilized? How so?
 - ii. Is data part of the evidence and if so what sources?
 1. If data is being utilized are there gaps in the data sources? How accurate are do you feel the data sources are? Do analysts provide the analyzed data or it given to you raw? Which would you prefer and why?
 2. If data is not being utilized what type of data would be helpful or should be applied to the decision making process?

Appendix D

Interview Results – Raw Data Collected

Questions	Responses
<p>What do you see as barriers in clinical Telehealth implementation and planning?</p>	<p>Respondent 1 - Physician/Provider reimbursement, lack of a comprehensive robust videoconferencing scheduling solution, operational funding (site coordinators), comprehensive Electronic Medical Records (EMR's), Private Physician offices outside of provincial health network.</p> <p>Respondent 2 - lack of support for sessions short of specialist – some have had bad experiences and this is causing a concern reduces willingness, sustainability is a barrier – no operational budget can get capital, governance structure is not what it should be reactive not proactive</p> <p>Respondent 3 - number 1 barrier is the lack of provincial governance, holds us back – no buy in from the top to do this. With out this projects have to come up through the wood work – no supporting strategy to align with greater health service needs of the province. – drives funding, another missing link is a champion for telehealth in the province the premier gets it the deputy gets it – telehealth is on every agenda, telehealth is trapped in technology side of things and it needs to move out of there.</p> <p>Respondent 4 - access issues for clinicians and receivers of service – providers are wanting convenient access to quality secure VC, access to the right information at the right time radiology, patient info, lab data, affects planning as you can only plan for what you know is there, Support issues – support on the patient sides – what is required for them and what they might need to access services, Payment for or lack there of for physicians, Not a larger voice demanding more \$ for telehealth sessions if equally eligible for payment, Need acceptance of TH from senior executives – MDH and HA without their support and promotion and it should not be a slog from the bottom up should be a top down, also need secure connectivity</p> <p>Respondent 5 - clinician acceptance – still not sold on telehealth 3 points: 1. Telehealth still is resisting adapting to workflow, folks have to go to places ease of use 2. Remuneration – small set of fee codes and such a small number of docs as APP GP will not refer to telehealth if they can not get paid. 3. observed reliability, most clinicians see education as calls that don't happen, pixilation, lack of support and interruptions this would make them concerned, need standards and policy</p>

	<p>Respondent 6 - greatest barrier is connectivity, capacity to interact at the community level , don't have clearly defined resources for telehealth at the local sites, Common scheduler</p> <p>Respondent 7 - getting the physicians on board other staff do what they are asked to do, lack of staff – even people that are higher don't always get the skills, no relief for staff as there is only one individual in a given position – no one to cover them.</p> <p>Respondent 8 - biggest challenge is being dependant on the other half. Can't do anything unless the other side is set up and has appropriate, top down approach – that message goes right down to say we need to do this and how will we accommodate this, Capacity at the other end and getting people to buy in</p> <p>Respondent 9 - money, availability – baby boomer primary users may have fears of utilizing technology, alleviate as they die off. Younger generation will grow up with technology creating too much demand. Bridge capacity: coordination of the process to implement new programs, need lots of people to implement: how will we find a balance between hands on service and telehealth</p> <p>Respondent 10- larger understanding at a political and service delivery system design level. Need to convince practitioners but largely the political will and governance</p>
Do you see a lack of resources (funding, manpower, bandwidth, equipment, rooms) required to facilitate all possible clinical Telehealth projects as a current issue? If not, Do you foresee this in the future?	Yes from all respondents
Tell me what kind of resources you currently lack and those that you can foresee as being issues in the future?	<p>Respondent 1 - Operational funds (site coordinators, technical support, v/c scheduling services, bandwidth) will likely become more of issue, equipment and rooms will be challenges as demand and usage increases, need for real-time v/c scheduling need will only increase</p> <p>Respondent 2 - Yes we need more technical support – 1 person can't do the job. We are expecting a lot from our users – seeing some technical support - emergency medicine – not set up to take that</p>

on. We would need Telehealth (TH) service desk (knowledgeable) specific to telehealth 24/7 we need a better infrastructure. Telehealth managers having to wear too many hats.

Respondent 3 - inter jurisdiction bandwidth is being addressed – health authority network is it sufficient for the anticipated growth. Infrastructure will need to be addressed. PPN FN etc.. Will be good. (standards), definitely a funding challenge – competing with IT funding (lights on) should be driven out of the program areas for sustainability purpose, have issues around helpdesk, bridging and scheduling → with some alignment with some of the provincial opportunities could be alleviated. SSO need to keep the pressure on

rooms – provincially not sure seems to be major commitment but lacking a vision, Hinder growth (the speed of growth), Coordinators and managers in the province get things done with gum and stuff and people take advantage of it because of our commitment. Becomes a problem – unsustainable- We are put into an untenable position - **when we say no patients don't get service...** provincial perspective – areas that BCTDC have highlighted – we don't have the resources

– standards, accreditation FN don't have the depth of past practices they need to step up to the standard of privacy and security – PTO need resources that they can draw on to support this. BCTDC is required to do everything right now but unsustainable – we need to build up resource base to do some of the work.

Respondent 4 - funding – some organizations are a bit different – primary provide service – for OUR ORGANIZATION could use more clinicians champion TH medical director, would like to have some funding to use for infrastructure but also would like funding to go out to facilities to support nursing time on the receiving side, Bandwidth – going HD could be a problem, In the future – going to run into issue of many specialized services then the regions can support – need scheduling resources and figure out the best way to manage time, Resource for facilitating scheduling

Respondent 5 - yes – manpower – local level being able to have someone who is trained in telehealth and can act as a champion. Also at support level – one technical resource for the installs and trouble shooting –growth inhibitor → funding, bandwidth – need shared standards for bandwidth at the health authority network → some is best effort if the network can't perform at a certain standard it will alienate clinicians, Rooms and equipment will be less of an issue now – people on the ground PC units at physicians desks. Rooms are easier to enable and equipment is

cheaper, In the future: – coordination component – manual processes can not handle the scheduling needs and can't allocate resources to more important roles , Referral management will be necessary – IE GP in north need a clinician how do they refer appropriately – need a referral management , On the acute side- coordination is going to be necessary around inter-operability, Central resources – it can be owned or distributed one day workshop to talk about development challenges – Ontario, KO, Alberta Manitoba

Respondent 6 – Resources, bandwidth, manpower, local level at higher challenges new organization coming on- governance issues, appropriate resources – don't want to baby-sit – qualified resources who know IT and healthcare (health informatics), coach has identified this, money is an issue but has skill scrounging for money. Make commitment and then get the money

Respondent 7 - Yes lack of network in some locations, lack of staffing, seem to come up with money – either by raising it through the foundation IT doesn't take your needs seriously – don't understand the critical nature –has to come down from the top for them to take it seriously. Issues with the network have been going on for years. – Can't get the attention that they need. Network and staffing – if we can set up the units for physicians to do that dialing. If we have to do everything with the bridge then staffing will be an issue. Physicians are concerned about electronic orders as they are not currently available. Cause efficiencies if available.

Respondent 8 - manpower and funding – having dedicated network resources to get the things done on the network – that TH issues are taken seriously, Going forward unless it is address → equals poor service – to be successful you need to provide a premium service – you have to look like you know what you are doing because you are selling a services

Respondent 9 - Clinician acceptance of the program, communication barriers or miscommunication, if you don't lay it out – if it's not in writing with clarification you will encounter problems creating assumptions on both sides may cause you to change. Reporting and magnitude of documentation inhibits from doing the actual implementation of the more important work. – Someone to do the clerical work would be nice (pt). Need someone to attend some meetings for TH manager and to do some of the selling of the program. For everyone person that we have right now we probably need 2 or 3. Future needs: need more people as the program grows, we won't be able to keep up.

	<p>Respondent 10 - Definitely there is a funding issue. Also think that there is a Human resources issue and the translation piece the bridge between the technology and the work flow, departmental need to be able to connect the two requirements and bridge the understanding. Environment is not going to change until there is an understanding of the economies of scale and social benefits and system efficiencies. Need to look at this the same way that acute care is looked at.</p>
<p>When a new service is being requested what is the process for determining whether or not you will move forward with that project? What is the approval process? Who participates?</p>	<p>Respondent 1 - There is currently a Project Initiation Process within our organization Project Management Office. A PID (Project Initiation Document) is produced and IM/IT leadership must approve before a Charter is created, a project manager is assigned and PAB (Project Advisory Board) process begun. Telehealth sub-projects can be initiated within the over arching Telehealth Project based on the manager's approval and budgetary, human resources and time considerations.</p> <p>Respondent 2 - First – need funding, board and executive need to be on line – tactical plan and resources are available to get the project in place. Formal process –proposals through the tactical plan – Because funding is provincial it needs to become a top down approach where MOH is mandating telehealth as health authorities align to the MOH priorities. Growing organically – now doing a strategic plan can't support what we have and sustain it and also grow. Trying to prioritize.</p> <p>Respondent 4 – Process – typically at our organization someone phones and not an organized process – it goes forward as long as feasible, whether anything is required and whether patient is comfortable Ex. Mental Health and Addictions – programmatic viewpoint- resources to help them develop their program – provided them info about Telehealth – here are the tool and we will help you develop it.</p> <p>Approval – no formal process – any interested stakeholder comes forward and they facilitate what they can if they want the services.</p> <p>Respondent 5 - mostly based on clinician champion – dealing with value proposition rather than business proposition – if a clinician steps forward – services is an existing service, fee codes community demand. Looked at referral patterns to understand where patients were going and for what services. What is the demand? (Clinical services) then used the network system as a planning partner to pass the information along → knocked on doors to discuss with clinicians whether or not the service might be transferable to telehealth to improve access to the service. Identify the</p>

	<p>demand, Close to wait time issues, back logged on services, Program driven program priority meeting provincial criteria</p> <p>Respondent 6 - BN and sell to your boss – intuition is being utilized – trusts his managers, Common sense and experience that has in the industry is so valuable, Knows the systems, what you can do, Frustration at how fast things move.</p> <p>Respondent 7 - works with the person that she reports COO for our organization as well as the VP. Just talked to them and she signed off on the charter. No process.</p> <p>Respondent 8 - not an approval process per say – one off – TeleStroke provincial initiative= provincial money but not hemophilia – we have equipment, PIA for privacy depends on the magnitude, who it impacts and whether you need funding or new equipment or not. If not do it, if so, If you need funding – have not gotten to that issue – go after foundation funding & private donation funding. Easy to get funding for small sexy projects. reports to ex dir for clinical solutions in IM/IS. Would speak to that person, capital funding is chunk funding if under \$100K no real process for minor capital. Would only go through that route with major capital – business case and compete against the other IT projects. Can't compete with IT lot of things failing. Haven't tried to go through this process would probably not go well because can't compete</p> <p>Respondent 10 - - in our org there is a gating process. CHI qualification process at each gate there is a group of senior leaders to look at whether they have the qualifications in place for a project going to forward. – how does this tie in strategically to an overall telehealth strategy. But if looking at it from the strategic overall plan we are fragmented and the ministry is fragmenting it more by their decision making process and it is not clear. Conflicting processes.</p> <p>Respondent 2 – answered 5b as they have initiated some prioritization.</p> <p>Respondent 5 - Trick – has been open sky but now there is a crunch of being able to move projects ahead, priority projects will come from strategic plans – health service requirements providing a lever to move projects forward as they meet objectives. – If it's in a performance agreement it will have money attached. A. Having a telemedicine statement to have telehealth as a strategy to solve things. B. Specific areas to help C. Key economic and optical drivers</p> <p>Respondent 1, 4, 7 & 8 – No</p> <p>Respondent 10 - Yes, you have to prioritize – there are set criteria at the first gate that helps</p>
Do you currently have to prioritize clinical projects? (Ex. In the case you do not have sufficient resources to implement)	

<p>If not, do you see this as a potential problem in the future?</p>	<p>prioritize – the qualifications criteria.</p> <p>Respondent 1 – Yes</p> <p>Respondent 4 - Suppose it depends on what is the limiting factor – if access to remote sites – it becomes out of our control. Determining the area of greater need – not a telehealth call it's a program call.</p> <p>Respondent 5 - Need to be able to align with the performance agreement and show this well, Being able to situate the application or service within the spectrum of cost centres for health authorities.</p> <p>– Australia – identify – motor vehicle accident victims → respond to high cost business driven world – emerg. transfer avoidance – provide for specialized knowledge in remote facilities – primary care level – support for nurse practitioners.</p> <p>Respondent 7 - Yes we are at the point of breaking- can't keep running the way we are it will cause issues – it is unsustainable</p> <p>Respondent 8 - don't see this happening</p>
<p>How are you or do you see yourself dealing with this in the future?</p>	<p>Respondent 1 - Creating telehealth initiative criteria list to rank the priority of potential projects.</p> <p>Respondent 4- Call in some bigger guns – not TH manager's responsibility to sort this out. Will need to look at clinic space and time and how that is managed – if there are clinical standards that have to be met then they would be priorities.</p> <p>Respondent 7 - I think that a tool would be helpful and you could take this to the clinical people and then they would make the decision</p>
<p>If you are not currently utilizing a formal process for prioritization, what components do you feel should be included in this decision making process.</p>	<p>Respondent 1 - Clinical Champion or level of clinical demand or support, Complexity of Project, Stakeholder engagement, Cost, Potential for using existing infrastructure and resources, Potential for improving patient care and/or safety, Political support (internal administrative support), Technical capacity/alignment with n/w, h/w and s/w standards</p> <p>Respondent 4 - Process will be helpful to call in the bigger guns – some issues will be what the health authorities want not what our organizations want – need a provincial steering committee – what are the biggest provincial needs. Where are we going and how we can help this to occur. Urgent needs around meeting standards. These are provincial decisions. What are we trying to solve</p> <p>Respondent 5 - Have a team at a regional level to develop requirements that will 'fit' a clinicians</p>

	<p>need to move something forward. Enable the programs to get around the blocks in the system</p> <p>Respondent 7 - clinicians need to be involved – the VP and the clinical lead team in each cancer centre</p> <p>Respondent 8 - - might look like – decision would not be made on her own. Directors and VP would be made aware of the need to do. Leave it to them → provides information and let them make the decision.</p>
Do you think that data and/or evidence could or should play a role in supporting decision making?	<p>Respondent 1 - Absolutely because telehealth implementations are often still very new, evidence of success or challenges will help refine the evolution of telehealth initiatives.</p> <p>Respondent 4 – Yes</p> <p>Respondent 5 - Yes – hard to get – its going to turn the crank for telehealth – solid numbers on everything – trouble tickets, satisfaction frequency of service – increasingly the outcomes over time, Challenge with privacy - administrators listen to data -</p> <p>Respondent 6 – There is not much good data to utilize for us.</p> <p>Respondent 7 – Yes</p> <p>Respondent 8 - Yes, successful and establishment of a program – show successes from others – do research from others in Canada.</p>
If so, what kinds of data would be helpful? Do you know of any sources of data that would be supportive of this process?	<p>Respondent 1 - Patient /provider satisfaction, Patient and/or provider travel saved, Role of telehealth in facilitating workflow process redesign benefits, Indicators of reduced wait times, improved access to care, educational benefits (number and quality of sessions)</p> <p>Respondent 4 - Who is being served – this should be done at a higher level – TH job is to facilitate access for docs and patients for an appropriate level of care. Sometimes that's not saying yes. We are not specific to one clinical area – we end up trying to solve issues that belong to the entire system. We have to have a broad vision – we can provide services for any group and we need the province to figure this out. What will happen is that there is going to be a competition, Our role can be to look at a program area is based on what we know on what you are doing this is what we can do for you. In the bigger scheme of things we need to know where all of these services fit into the bigger picture, Governance at a number of different levels – ex. NH needs to make a stand and set forth very clearly what the directions are. And help the health authority meet its needs in a cost effective and efficient way.</p>

	<p>Respondent 5 - Prevalence of disease, referral patterns are really important ,where people are going</p> <p>Medical geography stuff – able to visualize how changes impact on everything. Travel patterns, prescription – mapping – to create pictures in policy makers heads.</p> <p>Also ability to look at First Nation data bases out there that can create distinctive pictures of disparities. Ex. KO – homecare project end of life implementation – collected number of times resources visited and collected massive amounts of data. –physio in the home</p> <p>Respondent 6 – concerns with validity of data – need face to face consultation and we need to then understand if the needs are realistic to utilize Telehealth.</p> <p>Respondent 7 - Number of events, where they occur, how many patients for a particular community use telehealth against those that travel, Need a data analyst, Tracking the number of trouble calls, Troubles are occurring because don't call the call centre so trouble are not being tracked</p> <p>Respondent 8 - decision makers within the health authority would have that information. Don't have ease of access to that information, People that run the program will know the information and what the needs are. – These decisions are made at a higher level.</p>
If you are currently having to prioritizing projects, what is the process and criteria used for making these decisions	<p>Respondent 2 - Funding currently drives prioritization</p> <p>Interviews/consultation/surveys/workshops with stakeholders</p> <p>Hired an external resource to help build strategic plan → align with organizational plans</p> <p>Respondent 10 - Cost recovery, over all provincial initiative, scaleable, meet a need around the goals – efficiency health care and go through quantification. MOH trumps all throw out the process out the door. Lifecycle with deliverables</p>
Is evidence based decision making being utilized?	<p>Respondent 2 – No, Environmental scan and SWOT analysis</p> <p>Respondent 10 - Yes and no – getting there. Ex. Chronic disease Management (CDM) did an economic modeling with CDM what kind of effect can you have on the acute care services etc....</p>
Is data part of the evidence and if so what sources?	<p>Respondent 2 - Patient evaluations, manual stats on travel saved and the associated green house gas emissions</p> <p>Respondent 10 – we became involved with research → working with Kendal Ho trying to make partnerships with economic bodies to help understand the environment and the effects on society.</p>

Appendix E

Northern Health Strategic Directions 2009-2015

1. **Integrated Accessible Health Services:** Northern people will have access to integrated health services, built on a foundation of primary health care;

We will:

- Partner with others to establish multi-disciplinary 'Primary Care Homes'* where people will access coordinated health services
- Partner with aboriginal people to build a health system that honours diversity and provides service in a culturally relevant manner
- Build efficient and effective secondary and specialty services which are aligned with the 'Primary Care Home' and designed to meet the needs of Northern populations
- Develop and implement strategies that improve service provider collaboration
- Measurably improve satisfaction with the health services provided by Northern Health

2. **A Focus on our People:** Northern Health will create a dynamic work environment that engages, retains and attracts staff and physicians;

We will:

- Measurably improve staff and physician engagement within Northern Health
- Establish a culture of workplace health and safety
- Establish and implement an innovative retention strategy that includes:
 1. Developing and supporting effective, innovative leaders and managers who will guide our organization now and in the future
 2. Educating, developing, and mentoring our staff internally and through partnerships with academic and other organizations
 3. Providing clear expectations of staff through performance planning
 4. Develop and implement an innovative recruitment strategy

3. **A Population Health Approach:** Northern Health will lead initiatives that improve the health of the people we serve;

We will:

- Work with communities and organizational partners to identify and act on key issues where a population health approach can have a significant positive impact on the health of Northern people
- Work in partnership with our staff and physicians to create initiatives that foster a safe, healthy, and environmentally responsible workplace
- Use population health evidence to inform health service planning and resource allocation

4. **High Quality Services:** Northern Health will ensure quality in all aspects of the organization;

We will:

- Establish a culture of continuous quality improvement and patient safety
- Establish the organizational structures and processes required for effective decision making
- Foster a learning environment and engage in research, in partnership with academic organizations
- Strengthen our capacity to manage the change needed to improve quality
- Identify and manage risks to the organization and strengthen our preparedness for emergencies

* A 'Primary Care Home' is where people establish a long term relationship with a multi-disciplinary team and through this team, receive health care and are supported in managing their own health.

Appendix F

Priority-setting criteria (Gibson,Martin and Singer 2004)

Criterion	Description
Strategic fit	The extent to which a health service contributes to advancing the strategic directions of the organization (i.e., “fit” with the organization’s mission, vision, values and goals)
Alignment with external directives	The extent to which a health service is limited by government mandates (e.g., protected programs) and legislated obligations, and/or contributes to achieving regional or provincial health services objectives
Academic commitments: • Education • Research	Education: The role a health service plays in educating future health professionals and in facilitating the integration of education activities with health services delivery. Research: The role a health service plays in establishing and/or using best practices, generating new medical knowledge or developing and/or applying technological innovation.
Clinical impact	The extent to which health services volumes are sufficient to ensure clinical competency, patient safety and effective care, as well as considerations related to uniqueness of the service in the local/regional area and to quality of service provided
Community needs	The extent to which health services and volumes are consistent with health needs of a defined community (or catchment area), including present and future demands for service
Partnerships (external)	The extent to which a health service works in partnership with other organizations to coordinate delivery of care to defined populations (e.g., to enhance service quality, improve access, optimize resource utilization in the region or local catchment area)
Interdependencies (internal)	The extent to which a health service coordinates and collaborates with other health services within the organization to enhance quality or optimize resource use
Resource implications	The extent to which the resource context for health services delivery has implications for degrees of freedom in relation to prioritization, including funding source (e.g., base hospital budget,ministry of health volume-based funding, donation, revenue-generating activity), availability of staff (e.g., nurses) and capital resources (e.g., equipment, space), contractual arrangements (e.g., union contracts) and model of service delivery (e.g., efficient versus inefficient)

Appendix G

Priority Setting- Part 1 - Quick assessment

If all criteria can be checked then proceed to Part 2

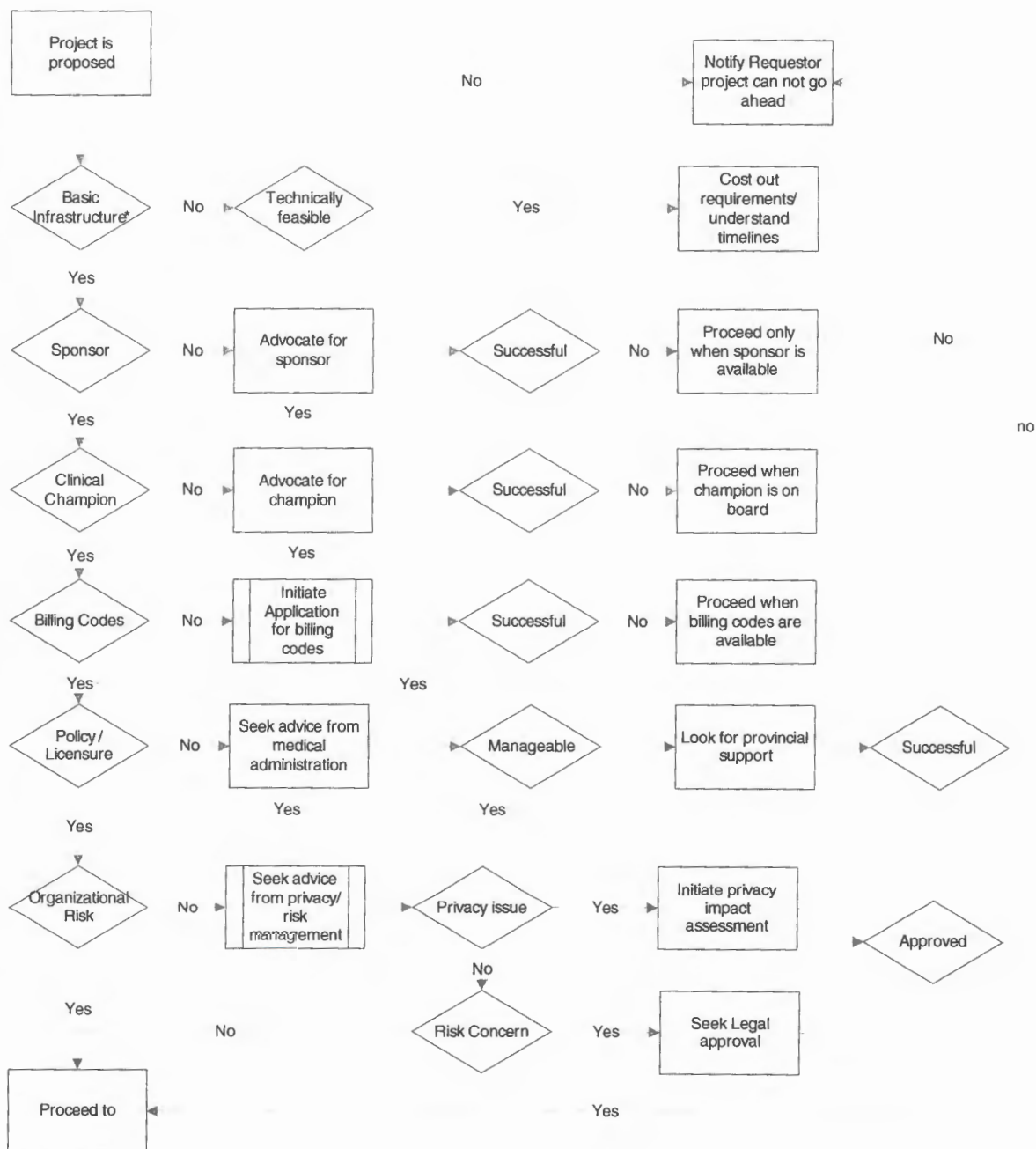
<input type="checkbox"/>	Basic Infrastructure at the proposed sites is in place	Determine if there are proposed plans for upgrades that would eliminate these problems. If not, advocate for the basic infrastructure requirements to be resolved with appropriate stakeholders and partnerships.
<input type="checkbox"/>	Is there an executive sponsor?	If no, this is necessary before moving forward
<input type="checkbox"/>	Is there a clinical champion that will provide services?	If no, this is necessary before moving forward.
<input type="checkbox"/>	Do the necessary billing codes exist?	If no, initiate application for billing code process
<input type="checkbox"/>	It is not anticipated that there are policy and/or licensure concerns	If not, seek advice from medical administration and/or Director of Clinical Informatics
<input type="checkbox"/>	It is not anticipated that the new service does not introduce risk to the organization	If not, begin with either a privacy impact assessment for approval from the privacy officer and/or a Security and Risk assessment for the security officer and risk management.

Bonus question:

- ☐ The new proposed service is a proven service with successful implementation elsewhere.

Appendix H

Quick Assessment Decision Tree



Appendix I – Phase 2 - Summary Page

Section 1
Safety/Risk Management

Section 2
Improved Patient Outcomes

Decreased Patient Stays
Improved Patient Comfort
Improved Access to Care
Improved Standard of Care
Improved Quality of Life

Section 3
NH Goal / Objective

Integrated Accessible Health Services
A Focus on our People
A Population Health Approach
High Quality Services

Section 4
NH Health Services Plan

Acute Care
Community Programs and Aboriginal Health
Primary Health Care
Organizational Support
Home & Community Care
Public / Population Health
Clinical Workforce

Cummulative Totals

Project 1 Project 2 Project 3 Project 4

0	0	0	0
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0	0	0	0
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0	0		0
0	0	0	0
0	0		0
0	0		0
0	0		0
0	0		0
0	0	0	0

Totals

0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Totals

0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Totals

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Prioritization Process – Phase 2 –Utilize Assessment for each project

Section 1	
Safety/Risk Management (Indicate issues that apply by marking with an "X")	
<div> <div>Potential for harm is HIGH, supported by one or more of the following: Documented evidence and/or incidents of significant hazard to safety/health of patients and staff. Orders from legislated authority. Non-adherence to code (life threatening). Project is needed to ensure continued operations.</div> <div> <div> <div>HIGH</div> <div>MODERATE</div> <div>LOW</div> <div>NONE</div> </div> <div>20</div> <div>10</div> <div>5</div> <div>0</div> </div> </div>	
<div> <div>Potential for harm is MODERATE, supported by one or more of the following Documentation of incidents having occurred. Recommendations from legislated authorities. Non-adherence to code (risk of injury).</div> <div> <div>Select Ranking:</div> <div>NONE</div> </div> </div>	0
<div> <div>Potential for harm is LOW for 12-18months, however there is evidence of one or more of the following Non-adherence to code (non-life threatening and no risk of injury). Documentation of potential for incidents to occur. Suggestions or recommendations from reviewing bodies.</div> <div></div> </div>	
<div> <div>No potential for harm</div> <div></div> </div>	
Section 2	
Improved Patient Outcomes	
<div> <div>Decreased Patient Stays</div> <div>Improved Patient Comfort</div> <div>Improved Access to Care</div> </div>	<div> <div>Improved Standard of Care</div> <div>Improved Quality of Life</div> </div> <div> <div>Select Ranking:</div> <div>Does Not Address</div> </div>
	0

Section 3

NH Goal / Objective

Integrated Accessible Health Services

Y/N		1	0
	Partner with aboriginal people to build a health system that honours diversity and provides service in a culturally relevant manner		
	Partner with aboriginal people to build a health system that honours diversity and provides service in a culturally relevant manner	1	0
	Build efficient and effective secondary and specialty services which are aligned with the 'Primary Care Home' and designed to meet the needs of Northern populations	1	0
	Develop and implement strategies that improve service provider collaboration	1	0
	Measurably improve satisfaction with the health services provided by Northern Health	1	0
		5	0

A Population Health Approach

Y/N		1	0
	Work with communities and organizational partners to identify and act on key issues where a population health approach can have a significant positive impact on the health of Northern people		
	Work in partnership with our staff and physicians to create initiatives that foster a safe, healthy, and environmentally responsible workplace	1	0
	Use population health evidence to inform health service planning and resource allocation	1	0
		3	0

A Focus on our People

Measurably improves staff and physician engagement within Northern Health	Y/N	
		1 0
		1 0
		1 0
Establishes a culture of workplace health and safety		
Establishes an innovative retention strategy that includes:		
*Developing and supporting effective, innovative leaders and managers who will guide our		
*Educating, developing and mentoring our staff internally and through partnerships with academic		
*Providing clear expectations of staff through performance planning		
*Develop and implement an innovative recruitment strategy		
		3 0

High Quality Services

Establish a culture of continuous quality improvement and patient safety	Y/N	1	0
Establish the organizational structures and processes required for effective decision making		1	0
Foster a learning environment and engage in research, in partnership with academic organizations		1	0
Strengthen our capacity to manage the change needed to improve quality		1	0
Identify and manage risks to the organization and strengthen our preparedness for emergencies		1	0
		5	0

Section 4

NH Health Services Plan

Acute Care

Improve Access to Acute Care

Develop Community Health Centre Models of Care

Develop Chronic Care Management

Strategy

Provincial Health Service Delivery Redesign

Y/N	Weight	Score
	1	0
	1	0
	1	0
	1	0
	1	0

Community Programs and Aboriginal Health

	1	0
	1	0
	1	0
	1	0
	1	0

Shift to early prevention approach

Decr. ALC days for Mental Health/Alcohol/Drug patients

Improve continuity of care following discharge

Redesign Alcohol and Drug programs

Develop capacity for Riverview bed replacement

	1	0
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Primary Health Care

Integrate primary health care services

	1	0
--	---	---

Organizational Support

Develop systems for org. & admin. support

Section 4			
NH Health Services Plan		Y/N	Weight Score
Home & Community Care			
Develop long-term care facilities for Complex Care		1	0
Provide Independent Living Units		1	0
Enhance Community Services, including Palliative Care		1	0

Public / Population Health

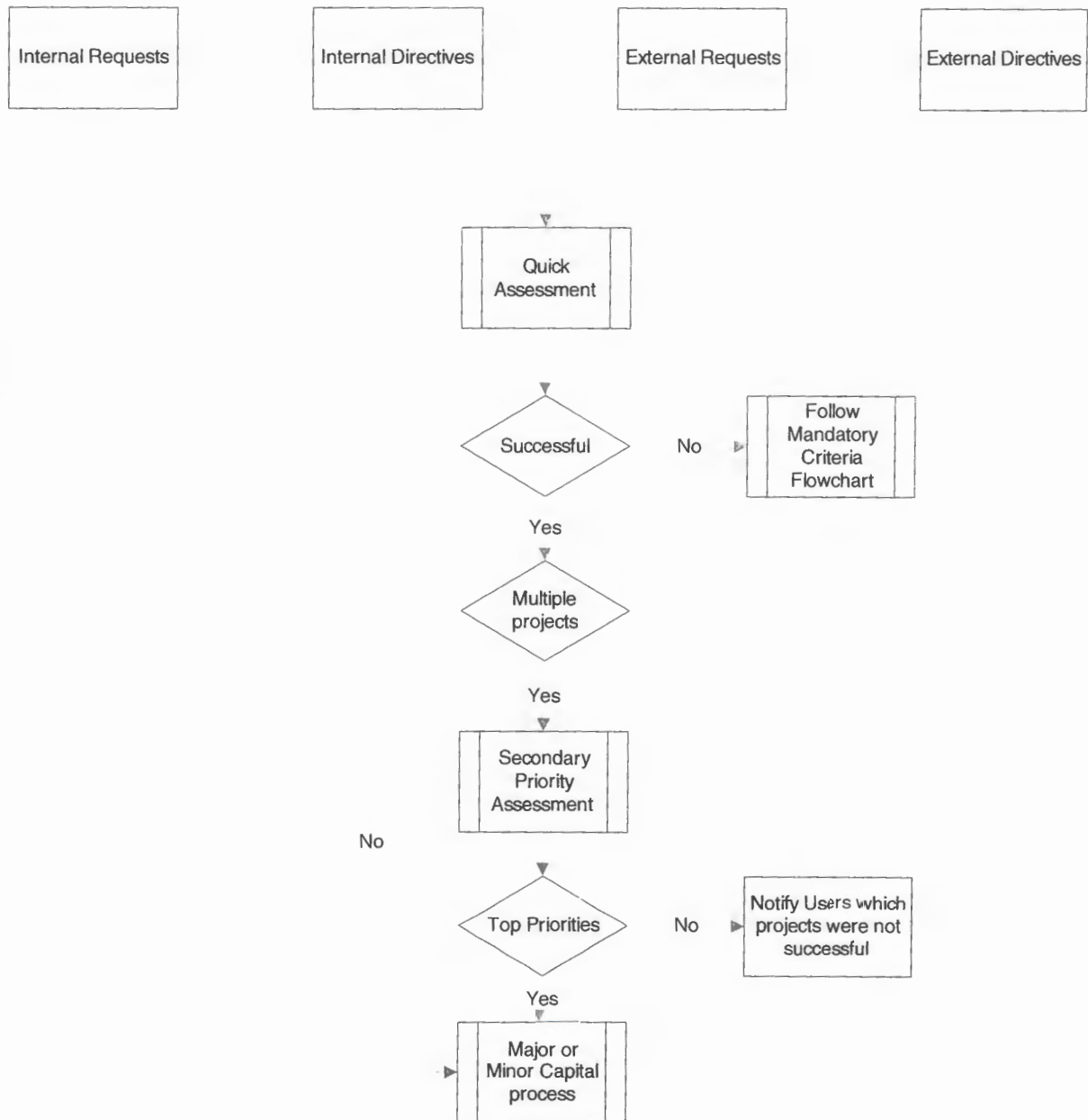
Develop Public Health core programs w/ MOH		1	0
Create an NH-wide system of integrated services		1	0
Decrease the incidence of communicable disease in NH		1	0
Develop population health strategy and research capacity		1	0
Implement Aboriginal Health Services Plan for NH		1	0

Clinical Workforce

Impl. strategies to recruit, retain & develop clinical workforce		1	0
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Appendix J

Prioritization Process Flowchart



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