

MBTelehealth Benefit Evaluation Report

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EXECUTIVE SUMMARY

This report presents the results of an evaluation completed by MBTelehealth (MBT) using the Manitoba eHealth Benefits Evaluation Framework (adapted from Canada Health Infoway Benefits Evaluation Framework) to demonstrate benefits in order to inform: policy planning; program development; targeted program expansion; and clinician uptake. Modification was required to the proposed framework in order for it to be suitable for review of a telehealth program. MBT identified the dimensions of relevance and then proceeded to refine and reposition study questions and make revisions to study methods to ensure evaluation within the identified scope was feasible.

The primary focus of the evaluation was the assessment of benefits in the domains of patient service and access with additional information on efficiency and sustainability benefits for the healthcare system. Evaluation data was collected through patient and regional administrator's surveys over a four week period with a response rate of 32% and 14% respectively. Additionally, data for specific time periods were analyzed to calculate patient and regional health authority costs avoided. While there were some limitations due to the utilization of a convenience sample for information gathering, MBT is confident that the results closely reflect the overall perception of the benefits provided by the network.

Results indicate that most patient respondents have a high level of satisfaction regarding the service they received and perceive telehealth as improving access to service. A majority of patients indicated that they would have traveled for their appointment if MBT was not available. Regional administrators also identified that telehealth improved access to health care services for the patient population in their region. Consequently, these findings support the premise that telehealth meets patient service requirements and increases ease of access and/or ability to access some services for some patients.

A majority of regional administrator respondents indicated high satisfaction with MBTelehealth and that the service decreased expenses for regional and facility staff travel. A conservative estimate identifies a one million dollar cost saving in staff time and travel per year. The major barrier for RHA's was access to equipment as site activity increases. Estimates also indicate MBT services results in avoiding financial costs in terms of "out of pocket" costs for individual patients and families related to travel for face-to-face healthcare appointments for approximately 2.6 million dollars per year.

Further study is required to better understand the impact of MBTelehealth's services on net benefits. The program will continue to work with the RHA's to support further benefit through cost avoidance and reduction of barriers in order to aid in the development of quality initiatives and inform strategic planning.

INTRODUCTION

This document outlines the results of an evaluation of the services provided by MBTelehealth (MBT) which utilized Manitoba eHealth Benefits Evaluation Framework (adapted from Canada Health Infoway Benefits Evaluation Framework).

MBT is a provincial program operating within the Winnipeg Regional Health Authority (WRHA) with direct reporting responsibilities to the WRHA Senior Management Team, through the Chief Information Officer, Manitoba eHealth. MBT uses live interactive videoconferencing to enable the delivery of health care services, continuing education and administrative connections between urban and rural communities across Manitoba. Multiple forms of technology are used for network connectivity with all of the sites linked using Internet Protocol via the Manitoba Government Services' secure Provincial Data Network (PDN). Integrated Services Digital Network (ISDN) capacity is available out of Winnipeg for access outside the MBT network including regular connections to the Ontario Telemedicine Network and Nunavut sites. The videoconferencing equipment and peripheral equipment available at each site varies, however, all are interoperable.

MBT is responsible for the planning and delivery of telehealth services in Manitoba. The program provides a number of services including health related clinical, education, administration and televisitation. The potential benefits of the MBTelehealth services include:

- increased access to services not available locally (providing clinical services using telehealth technologies is not believed to reduce wait times, but rather to improve equity of access, especially for Manitobans living in rural and remote areas)
- decreased travel time and costs for patients and organizations who fund patient travel (Northern Patient Transportation Program (provincial) and Insured Benefits (federal) and healthcare staff administrative and education-related travel (Regional Health Authorities);
- decreased time away from community and work;
- provision of patient-centered care by allowing patients' friends and/or family to be at a telehealth appointment while the patient receives complex diagnostic and/or difficult prognostic information;
- improved staff recruitment and retention;
- ability to enable health care providers to work to the full extent of scope of practice;
- reduced sense of isolation for practitioners.

EVALUATION OBJECTIVES AND SCOPE

The primary goal of this MBTelehealth benefit evaluation is to demonstrate benefits in order to inform: policy planning; program development; targeted program expansion; and clinician uptake. The primary focus of the evaluation is the assessment of benefits in the domains of patient service and access. Additionally, efficiency and sustainability benefits for the healthcare system will be examined through measures designed to estimate the patient and regional health authority costs avoided with the use of telehealth services.

Canada Health Infoway has developed a framework designed primarily for electronic health record program Benefits Evaluation (BE). This framework requires the assessment of three program components: System Quality, System Use, and Net Benefits as shown below:

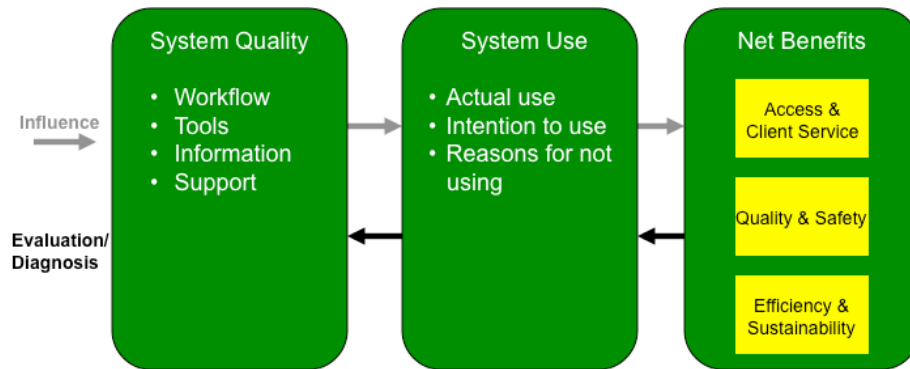


Figure 1: Manitoba eHealth Benefits Evaluation Framework (adapted from Canada Health Infoway Program BE Framework)

While the focus of Manitoba eHealth benefits evaluation is primarily on determining whether Net Benefits are achieved, Net Benefits are dependent upon achieving the anticipated level of system use, which is in turn dependent upon achieving system quality. Consequently, this evaluation also collected data on key stakeholder perceptions of current system quality and usage issues.

KEY STUDY QUESTIONS AND METHODS

While a basic framework has been proposed for the Manitoba eHealth Benefit Evaluation initiative in general, not all were applicable for review of this program. The dimensions of relevance and associated key questions for the MBTelehealth benefit evaluation are listed below.

Access and Patient Service	Patient Service	How satisfied are patients in rural/remote communities with MBTelehealth services? How many patient trip kilometers have been avoided as a result of delivering care through MBTelehealth?	Patient Survey Patient Survey; Program Data Analysis
	Access	Do patients in rural / remote areas perceive better / worse access to specialized services as a result of telehealth?	Patient Survey

		From the patient's perspective does telehealth remove barriers to accessing service the patient may have otherwise faced? (include various dimensions of patient impact i.e. cost, missed work, travel, emotional impact, etc.)	Patient Survey
Efficiency & Sustainability of the Health System	Efficiency	<p>What travel costs were avoided with the use of MBTelehealth services in place of patient transportation for face-to-face consultation?</p> <p>What travel costs were avoided with the use of MBTelehealth services for RHA / facility staff administrative and educational functions?</p> <p>To what extent could cost reductions associated with MBTelehealth services offset investments in MBTelehealth?</p>	<p>Patient & Regional Administrator Surveys; Program Data Analysis with cost estimation</p> <p>Regional Administrator Survey, Program Data Analysis with cost estimation</p> <p>Program Data Analysis</p>
System Quality and System Usage		<p>Are regional administrators satisfied with their region's current utilization of and experience with MBTelehealth services?</p> <p>Has the use of MBTelehealth provided increased opportunities for inter- and intraregional collaboration?</p> <p>Has the use of telehealth resulted in improved access to RHA/facility staff education opportunities?</p>	<p>Regional Administrator Survey</p> <p>Regional Administrator Survey</p> <p>Regional Administrator Survey</p>

Evolution of the BE plan

During planning for the implementation of the detailed Telehealth BE plan (submitted to Infoway in April 2010), the need for three types of revisions were identified and subsequently implemented:

- Refinement to study questions to more accurately reflect the nature of the data available and/or feasible to collect;
- Repositioning study questions on regional administrator perspectives on their utilization and experience with the program as an assessment of system quality and usage (pre-requisites for benefits) rather than as an assessment of patient service and access net benefits; and
- Revisions to methods, resulting from limitations in available data and the scope of evaluation activities feasible to conduct with available program resources.

Refinement to study questions

The following changes were made to study questions:

- *How satisfied are patients in rural/remote communities with Telehealth services?* was changed to *Are patients in rural/remote communities satisfied with MBTelehealth Services?*

Rationale: Satisfaction was measured using “yes” and “no” response categories so it was not possible to report the degree of satisfaction.

- *Has the use of telehealth resulted in improved access to RHA/facility staff education opportunities resulting in improved specialized service availability, quality and/or efficiency?* was changed to *Has the use of telehealth resulted in improved access to RHA/Facility staff education opportunities?*

Rationale: It was decided to limit data collection to perceptions regarding improved access to education only, as it would be unlikely that respondents would have access to objective data or direct experience on which to base their perceptions of the impact of improved access to education on availability of specialized service, quality or efficiency.

- *What impact does MBTelehealth have on regional/facility staff?* was changed to *Are regional administrators satisfied with their regions’ current utilization and experience with MBTelehealth services?*

Rationale: It was felt to be more useful to assess regional administrator’s satisfaction with their current utilization of and experience with MBTelehealth services as this is likely to be linked to current and future adoption. Furthermore, the MBTelehealth service is not intended to directly result in net benefits related to providers. Education to providers could theoretically improve quality and safety of care if providers acquire new knowledge and skill. However, it would be very difficult to identify telehealth’s particular contribution to any measured improvements in quality and safety.

- *Financial savings* was changed to *cost avoidance*

Rationale: All study questions pertaining to *financial savings in travel costs* and *cost reductions associated with MBTelehealth* were reframed to reflect estimation of *avoided travel costs* as it was felt that this was a more accurate reflection of what could be answered with the available data. Calculation of financial savings would require having

sufficient data to determine that the costs avoided exceed what is still spent on travel and operations etc. for telehealth services/appointments. Data is not available to facilitate this type of financial savings calculation. Additionally, it was discovered that data did not exist to support reasonable cost estimation of even the travel costs avoided with use of MBTelehealth for health care provider education.

Repositioning study questions within the BE framework

As Manitoba eHealth began to implement the BE framework, there is a recognition of the importance of defining the Net Benefits of patient service and access as impacts on health service on *patients* rather than on administrators or providers. However, it is important to understand regional administrator perspectives on their individual regions utilization and experience with the service as health provider adoption is necessary for achievement of patient service. Administrator satisfaction with MBTelehealth services and perceptions of impact on opportunities for inter- and intra-regional collaboration and health care provider education are not seen as Net Benefits in and of themselves but rather preconditions to ensuring that the system is used optimally to realize Net Benefits.

Revisions to methods

It was necessary to revise the proposed study methods. In some cases, proposed data sources were determined not to be available. For example, it was determined that both the Northern Patient Transportation Program (NPTP) and rural regional health authorities lacked detailed monitoring data to assist in answering the study questions related to kilometers of travel avoided and/or the related costs avoided for education and administrative telehealth use. Additionally, although focus group and interview data collection was originally proposed for some study questions, a decision was made to only use survey data collection. Feasibility of implementation and analysis utilizing available program resources was a primary consideration in finalizing the scope of evaluation activities to be undertaken.

METHODS

Patient Survey

MBT conducted patient surveys for all clinical appointments that took place during the period between October 18 and November 12, 2010. During this period patients who presented at telehealth appointments at any telehealth site in Manitoba were given a voluntary survey (Appendix A) to complete. Patients were invited to participate in the survey through written instructions and verbally reassured that they would not be identified if they completed a survey. Participation was voluntary and patients were advised that their care would not be affected as a result of participating in the study.

The patient survey was comprised of ten questions that the patient could complete immediately following the appointment or take home and mail or fax in at a later date. Response choices for the first nine (9) questions were “yes”, “no” and “unsure” with the final question being an open-ended and optional question asking respondents to indicate in which community they live.

Regional Administration Survey

A targeted email survey was sent to regional health administrators throughout Manitoba who were identified by MBT staff, in each of the eleven health regions in Manitoba (Appendix B). A regional administrator is defined as a RHA employee in a senior administrative role with decision authority for the RHA.

The survey was sent in October 2010 and respondents were given a four week period to return the survey to MBT. Respondents were assured that they would not be named individually in any report. The survey was sent to 265 individuals and 37 surveys were returned for a 14% response rate. By comparison, on a similar survey sent in 2009, MBT received 63 responses, but the number of surveys delivered then was not tracked and the titles of the respondents were not requested; responses may have been returned from individuals who were not part of the target audience.

Surveys were sent to regional administrators who were identified by MBT staff in the regions. In previous years, the surveys were sent to MBT staff and they were instructed to send the survey to the regional administrators in their region. Many of the respondents in previous years were administrative assistants and others who were not in the relevant administrative roles. In the most recent instance, MBTelehealth wanted to target the surveys to receive data from those who are in the top administrative positions within the regions.

The Regional Administration survey was comprised of thirteen questions that the administrator was asked to complete and return via fax or regular mail.

Estimation of Patient Costs Avoided

Survey respondents' self-reported estimate of "out of pocket" costs avoided was supplemented with analysis of program data and was used to derive a program level estimate of travel avoided (kilometers) and related costs (i.e. mileage cost per kilometer).

Patient mileage costs avoided were estimated through the following process. A two month summary of all clinical appointments was reviewed for scheduled appointments pulled from the electronic scheduling system used by MBTelehealth. July and November were the selected months as these are representative of months with lower utilization and average utilization respectively. Distance from the patients home community to the assumed consultant site (i.e. for an in person appointment and to the telehealth site where they presented was defined and the difference in travel was calculated.

Estimation of Regional Health Authority Costs Avoided for Administrative Use

Mileage costs avoided by regional health authorities were estimated through a one month review of all administrative appointments for scheduled meetings pulled from the electronic scheduling system used by MBTelehealth. Distance to travel from the participating sites to the host site was calculated in kilometers and a cost savings was calculated.

Limitations

In this benefits evaluation, assessment of access and patient service net benefits for the MBTelehealth service was limited to collection of key stakeholder (i.e. patients and regional administrators) post-service self-report of satisfaction and benefits. Due to the fact that a

convenience sample was used for administration of this survey and detailed demographics were not collected, it is not possible to know how representative the respondents are of the general population of patients and regional administrators using the MBTelehealth service. Additionally, analysis of some close-ended questions has highlighted the need for further qualitative data collection to explore and better understand the more specific factors affecting stakeholder perceptions.

Regional administrator perceptions of system quality and service issues were collected in an effort to better understand the current state of these elements within the benefits realization pathway or results chain. However, these findings cannot be interpreted as achievement of Net Benefits.

FINDINGS

Participation and Response Rate

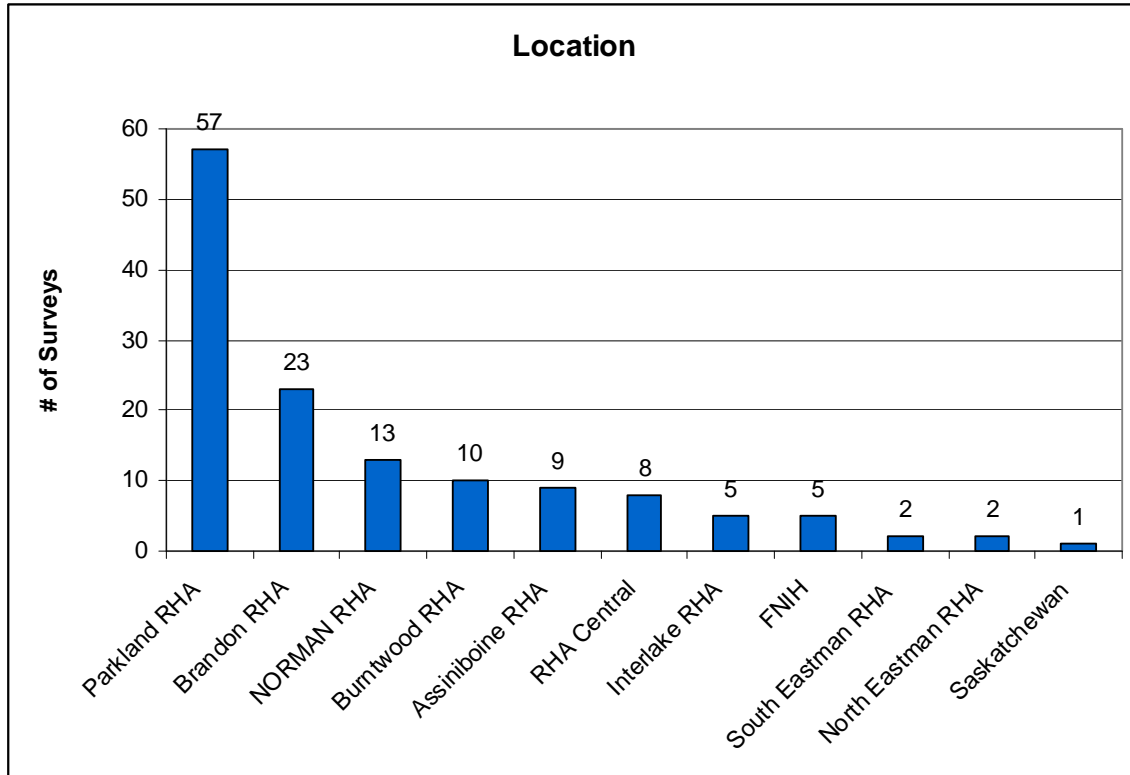
Patient survey

During the four week time period there were 725 clinical appointments that occurred and MBT received 233 completed surveys representing a 32% response rate. There was a similar response rate for a patient satisfaction survey delivered in 2009.

Fifty-eight percent of respondents answered an optional question asking them to identify the community in which they live. The results are outlined below:

Swan River	26	Viriden	3
Brandon	23	Hamiota	2
Roblin	11	Pine Falls	2
Dauphin	9	Steinbach	2
Flin Flon	8	Arborg	1
Thompson	8	Deloraine	1
Portage la Prairie	7	Leaf Rapids	1
Grandview	6	Saskatchewan	1
Ste Rose du Lac	5	Selkirk	1
The Pas	5	Shamattawa	1
Cross Lake (Pimicikimak)	4	Thompson	1
Ashern	3	Winkler-Boundary Trails Health Centre	1
Killarney	3		

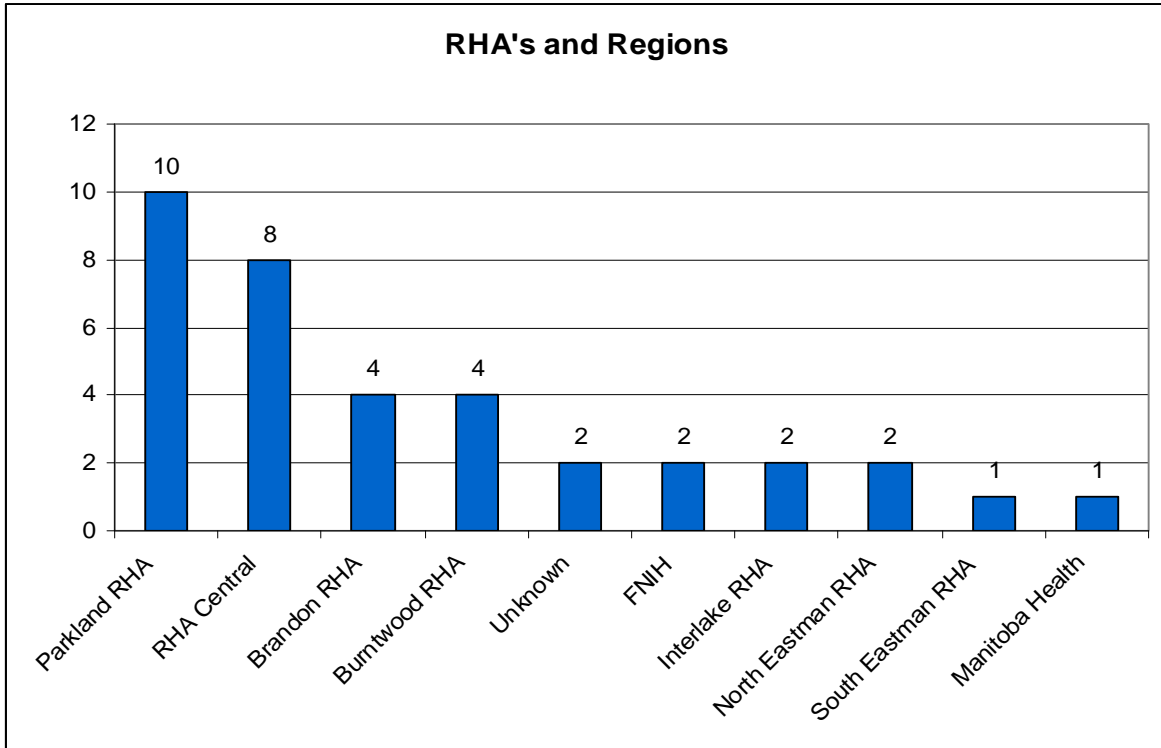
The graph below identifies the number of patient surveys that were completed in each region and the number of surveys in each region below is consistent with the highest utilization of telehealth services:



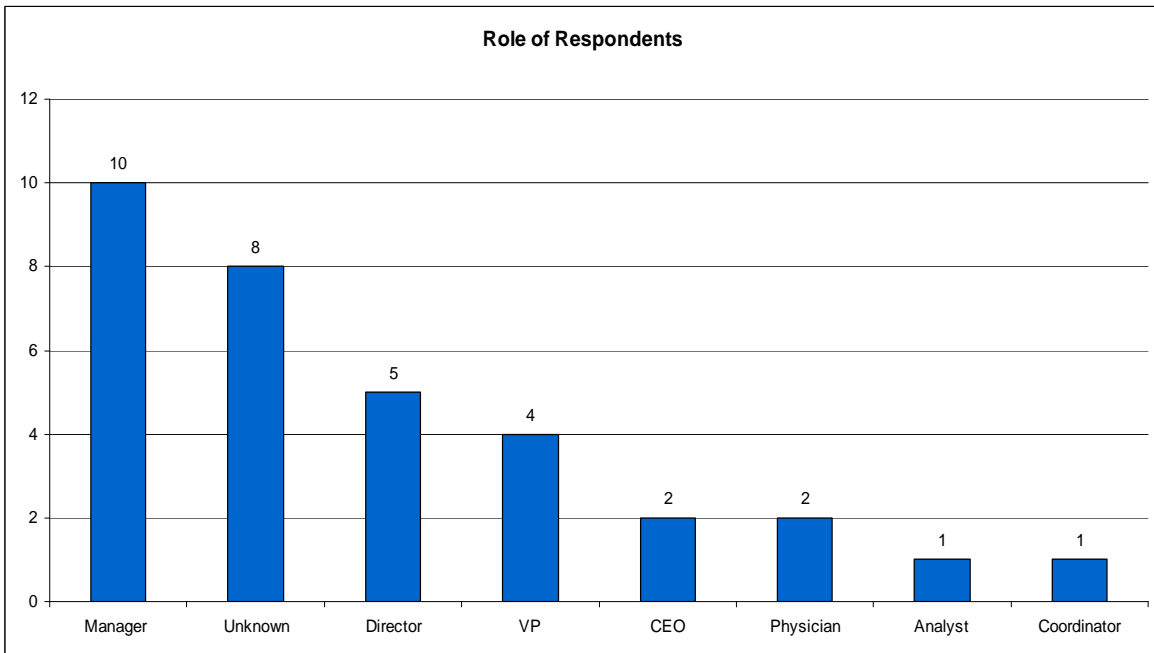
Regional administration survey

A total of 37 regional administration surveys were returned. The response rate was lower this year than in 2009-2010 but MBT is satisfied that the surveys were targeted to the correct individuals and roles.

Information on the Regional Health Authority (RHA), facility name, current role and number of years in that role of the respondent was collected. Responses were received from 7 out of the 11 RHA's, Manitoba Health and First Nations & Inuit Health (FNIH). Two respondents did not indicate their RHA or facility name. The two surveys received from administrative assistants were not included in the data as this survey was not targeted for this role. The RHA's are listed below:

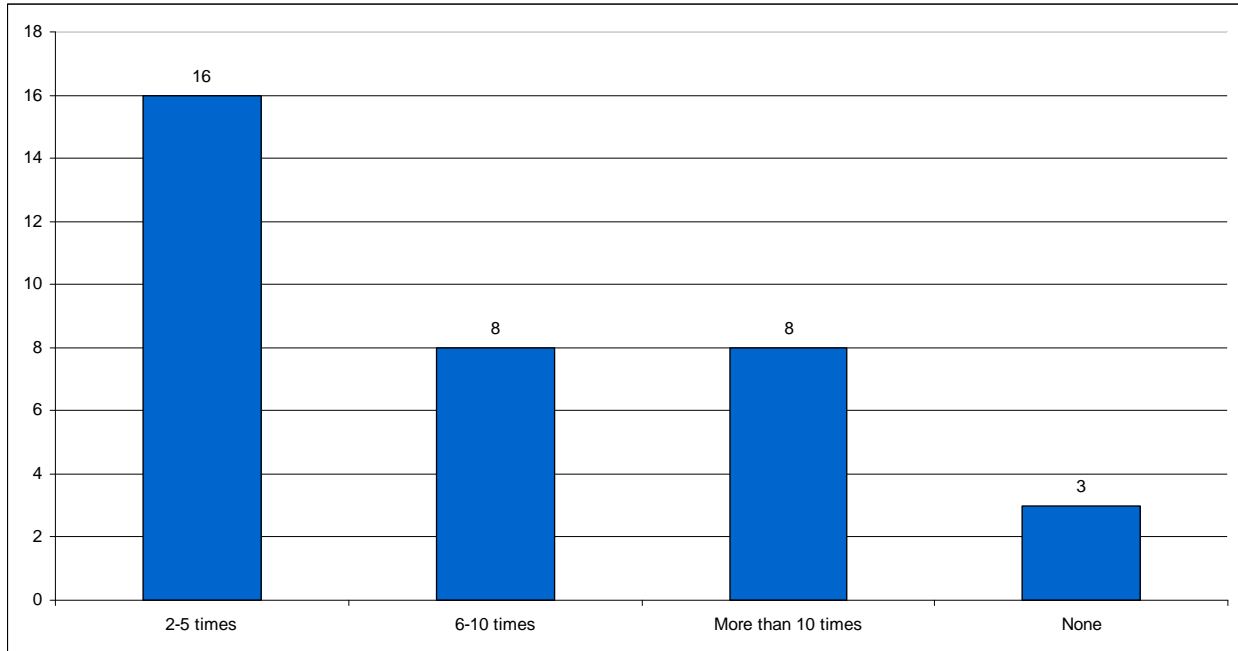


The chart below is a breakdown of the roles of the respondents:



Regional administration participants were also asked to identify how many times they had participated in a telehealth session within the last year in order to understand the extent to which respondent perspectives were informed by personal, direct experience with

MBTelehealth. The table below graphically depicts that all but three (8%) regional administration participants had had direct experience with MBTelehealth within the last year per self-reported responses to this question. Forty-five percent (45%) of respondents indicated they had participated in telehealth 2 – 5 times in the past year, 23% had participated 6 – 10 times and 23% had participated more than 10 times.



Patient service

Obtaining patient perspectives on the patient service net benefit category was a key focus of the patient survey. There were four (4) questions on the patient survey designed to capture the patient respondents' overall perception of and satisfaction with the telehealth service in order to answer the study question "Are patients in rural/remote communities satisfied with MBTelehealth services?"

Questions asking patients to indicate whether or not they were satisfied, and whether they would use the service again or recommend the service to friends and family, were intended as indicators of their satisfaction with the experience. Patient responses to these questions suggest that almost all respondents were satisfied with their experience.

- 97% (n=226) of all respondents reported that they were satisfied with their MBTelehealth appointment;
- 99% (n=230) of respondents indicated that they would use MBTelehealth again; and
- 98% (n=228) of respondents indicated that they would recommend MBTelehealth to their family and friends.

Given that patients may be unaware of telehealth, health care providers are asked to notify patients that their appointment will be conducted using telehealth technology. MBTelehealth program operations experience has suggested that patient awareness of what to expect at a telehealth appointment is an important contributor to patient experience and satisfaction with the program. Consequently, survey respondents were also asked whether someone had given them an explanation of what to expect. Responses to this question appear to suggest that this aspect of patient service is happening for a majority of patients. 88% of respondents reported

having received an explanation of what to expect from the telehealth appointment, while 9% indicated that no one explained what to expect.

In their response to an open-ended question requesting additional comments, many respondents (n=39 of 97) commented positively on their perception of and experience with the service. These comments generally described MBTelehealth as a “great service” with some also expressing appreciation for the fact that it is available to them. Several comments reiterated a high level of satisfaction with the program (e.g. “We think it is great!”; “Very happy”). Some also commented positively on the quality of the service delivery and the helpfulness and professionalism of the staff involved. A couple of comments indicated recognition of MBTelehealth as a healthcare system improvement, stating that “this is a wonderful advancement for our community” and “This truly is progress in Manitoba Health’s service”.

A generally high level of satisfaction was also evident in the fact that only 3 of the 97 comments pertained to opportunities for improvement to the service and service delivery (e.g. scheduling processes, video quality, and more locations). A few (n=4) also suggested that efforts be undertaken to have telehealth services used by more healthcare providers.

Access

The study questions pertaining to the access net benefit category are:

- From the patient’s perspective does MBTelehealth remove barriers to accessing service the patient may have otherwise faced? (include various dimensions of patient impact- i.e. cost, missed work, travel, emotional impact) (Maybe patient service too)
- How many patient trip kilometers have been avoided as a result of delivering care through telehealth? (better service/access for patient)

Patient respondents were asked three closed-ended questions to determine if they avoided travel by being able to use an MBTelehealth appointment and obtain their perceptions regarding whether MBTelehealth makes access to healthcare easier and/or increases access.

Regional administrator respondents were also asked to share their perception of whether MBTelehealth improves access to healthcare services for their patient population.

Patient perspective

Ease of access to care

Almost all of the respondents (98%) indicated that telehealth makes it easier to access health care services. This question assumes that the type of health care service that the patient is receiving is not available in their home community and that the type of service the person needs is available through Telehealth. Several patient comments also highlighted how avoiding travel (see below) makes it easier and more convenient for them to see the required healthcare professional.

Ability to access

Seventy-eight percent (78%, n=182) of patient respondents reported that they felt that some people would not receive health services that they need if MBTelehealth were not available. These results appear to suggest that many respondents perceive that telehealth improves access to health care services and may be the only way for some to receive some healthcare services.

When responding to an open-ended question inviting any additional comments that they would like to share, a few respondents also made comments about how telehealth improves access to healthcare for rural patients. They highlighted barriers to access to traditional care, such as time, cost and access to transportation, suggesting that telehealth overcomes these. In the words of one respondent, “Many people aren’t able to go to Winnipeg for appointments and with telehealth it is affordable for everyone”.

Travel avoided

Seventy-six (76%, n=178) of patient respondents indicated that they would have traveled for their appointment if MBTelehealth was not available. Seventeen (7%) indicated that they would not have traveled. An additional 37 patients (16%) indicated that they were “unsure” if they would have traveled.

More information is required to better understand why some responded that they were unsure if they would have traveled or that they would not have travelled for their appointment. Patients may not want to travel for a variety of reasons including but not limited to the problem may have gone away, they may not be able to afford it, and they may not be physically capable to travel to see the provider.

These results suggest that, in many situations, MBTelehealth is reducing the need for patients to travel for healthcare appointments and/or is increasing access by removing this barrier for those who would not follow up with recommended care otherwise. Interpretation of responses to this question is complicated however, by the fact that it was posed in way that implies that patients are not traveling when attending a telehealth session. In reality, many patients must still travel various distances from their home community to reach the nearest community with an MBTelehealth site.

Many respondents (n=33) used their response to an open-ended request for any additional comments as an opportunity to further highlight the benefit of avoiding or reducing travel. Many of the comments highlighted how use of telehealth saves them time and/or is easier and more convenient for them. One respondent went so far as to state that “Telehealth is a real lifesaver for rural patients”. A few comments such as “save stress of going away” and “relaxing to be talking to someone here instead of traveling...” also noted a stress reduction benefit for some. Several others also linked the travel avoided to travel-related costs avoided for them (and a couple suggested for the government).

Regional administration perspective

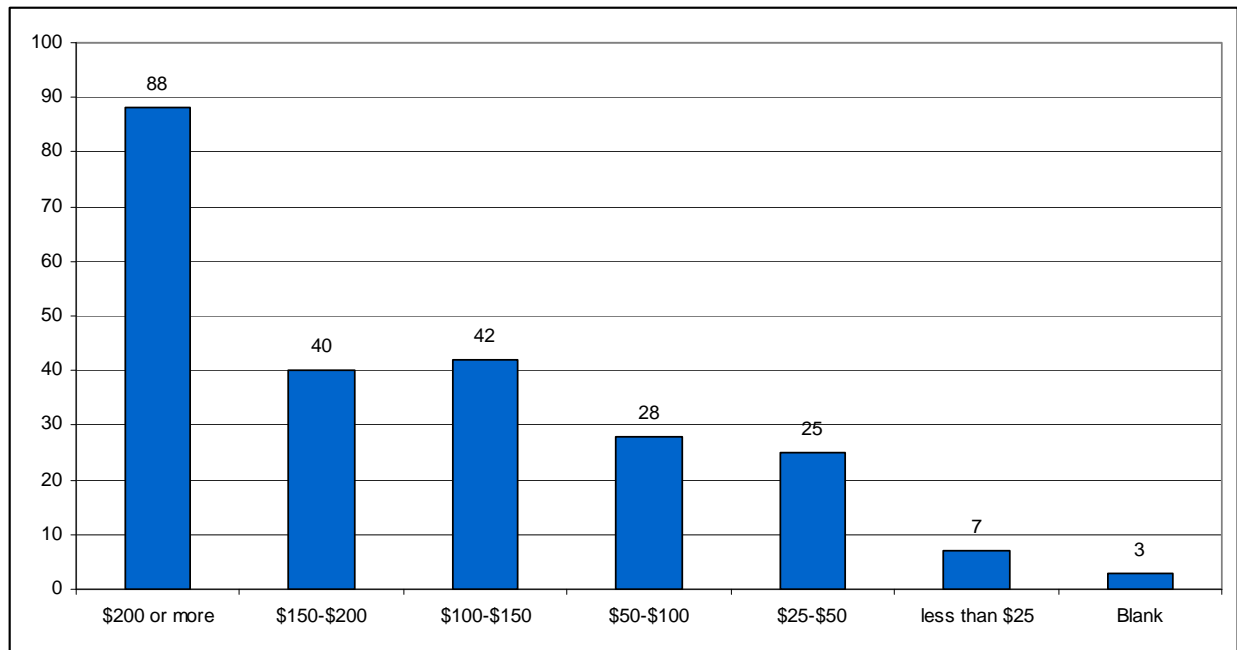
A large majority (85%, n=31) of regional administrator respondents reported their perception that MBTelehealth improved access either “greatly” or “somewhat” for the patient population in their region. However, it is interesting to note that 3 respondents (8%) indicated that this question did not apply to them, suggesting that they may not anticipate improved access as a Net Benefit for telehealth.

Cost Avoidance

Patient costs

Survey results

The following table summarizes the “out of pocket costs” that patient respondents reported that they would have incurred if they had had to travel to attend their appointment (i.e. to see provider face-to-face rather than via telehealth).



Almost 73% (n= 170) respondents reported saving \$100 or more as a result of using telehealth instead of traveling for a face-to-face appointment. Given that many patients are likely to see the specialist more than once for the treatment of a problem, the cumulative amount of the costs avoided could be significant savings for the individual. If one assumes the highest dollar amount in each category was expended, the total savings for all respondents was \$37,000 in out-of-pocket costs during a four week period. If this total estimate of “out of pocket” patient costs is averaged for the 233 respondents and then multiplied by the total number of telehealth clinical appointments in the 2008/09 fiscal year (6,959), an estimate of cost savings for all MBTelehealth patients for that year would be \$1,105,077.

It is important to note that the highest proportion of respondents (i.e. approximately 38%) indicated that they saved \$200 or more. These estimates seem reasonable given that respondents were asked to take into account travel time, gas, babysitters, food/accommodation, missed work/employment and any missed work/employment for anyone accompanying them when reporting their “out of pocket” costs avoided through use of telehealth. Consequently, future surveys to provide additional, higher dollar value ranges in order to capture a more precise value of the costs avoided for those experiencing higher “out of pocket” costs. .

Additionally, more than 10 of the 97 comments provided in response to an open-ended question inviting other comments specifically noted that use of MBTelehealth saves patients and families money in terms of travel-related costs and/or time off work. Several other respondents made comments such as “telehealth saves me many miles of travel” without specifying whether the perceived benefit from their perspective related to financial savings and/or increased convenience.

Estimation of mileage costs avoided

Two months of data were reviewed from the electronic scheduling system to represent normal utilization months and months with lower utilization during holiday periods (July, August and Dec). An assumption was made as to where the patient would present if they were required to have a face-to-face appointment for that particular specialty. Two calculations were computed for each patient appointment, the round trip distance from the patient's home community to the telehealth site where they presented and the round trip distance from the patient's home community to the specialist location for that particular specialty. For the month of July there were 599 patient appointments in 41 different specialty areas. A total of 19,408 km were travelled by patients to a telehealth site compared to 418,180 km travelled had the patients been required to travel to the specialist site for a difference of 398,772 km. Using the WRHA current travel reimbursement rate of \$0.40 per km the cost savings to patients would be \$159,509. Based on these figures, when the monthly savings are multiplied by the three lower utilization months the savings are \$478,526. The overall figure would be higher as road travel from many of these sites is not possible as they are accessible by air or train only or have other costs such a ferry requirements in addition to the driving costs.

For the month of November there were 855 patient appointments in 41 different specialty areas. A total of 38,337 km were travelled by patients to a telehealth site compared to 634,113 km travelled had the patients been required to travel to the specialist site for a difference of 595,776 km. Using the WRHA current travel reimbursement rate of \$0.40 per km the cost savings to patients would be \$238,310. Based on these figures, when the monthly savings are multiplied by the nine normal utilization months the savings are \$2,144,794. The overall figure would be higher as road travel from many of these sites is not possible as they are accessible by air or train only or have other costs such as ferry costs in addition to the driving costs.

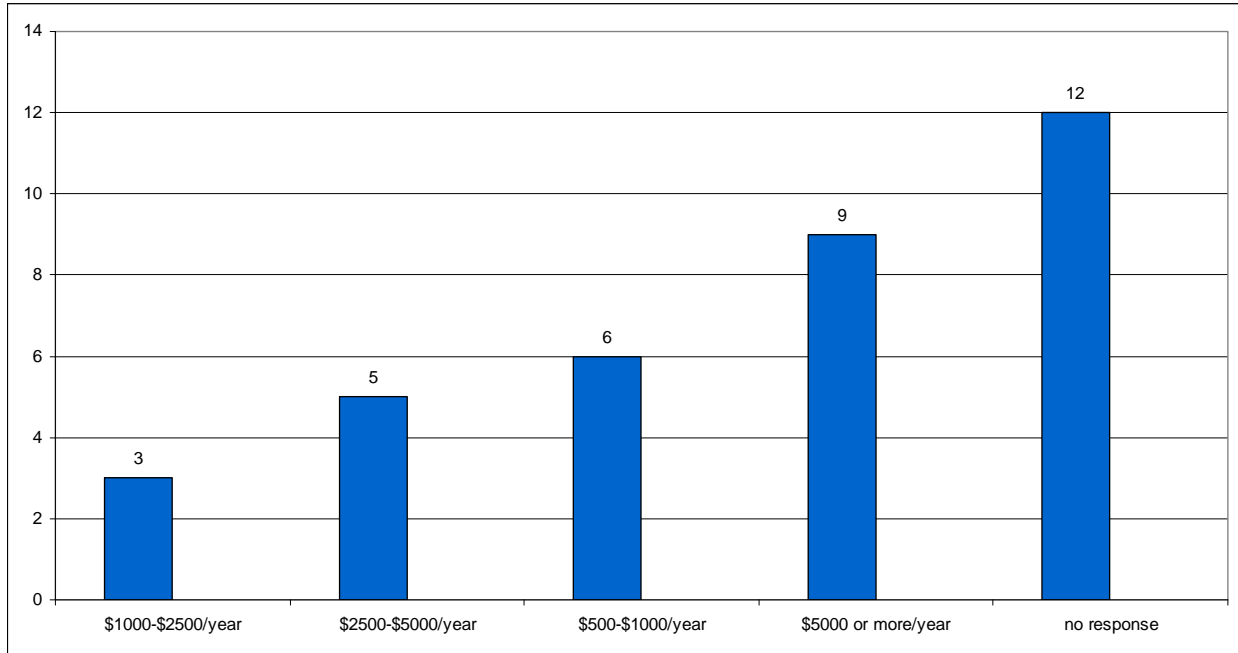
Based on these figures, the total estimated value of savings for patient travel for one year is \$2,623,320. It is important to recognize that in some cases patient travel costs would be the sole responsibility of the patient and/or family so the reduced travel results in reduced out of pocket expenditure for them. Additionally, many patients in more northern and remote regions are eligible to receive subsidy or assistance with medical-related travel costs from the federal First Nations Inuit Health or provincial Northern Patient Transportation Program. Consequently, reducing the distance travelled for patients who use MBTelehealth services should result in a reduction in patient subsidy expenditures for these government programs.

Regional Health Authority Costs

Survey results

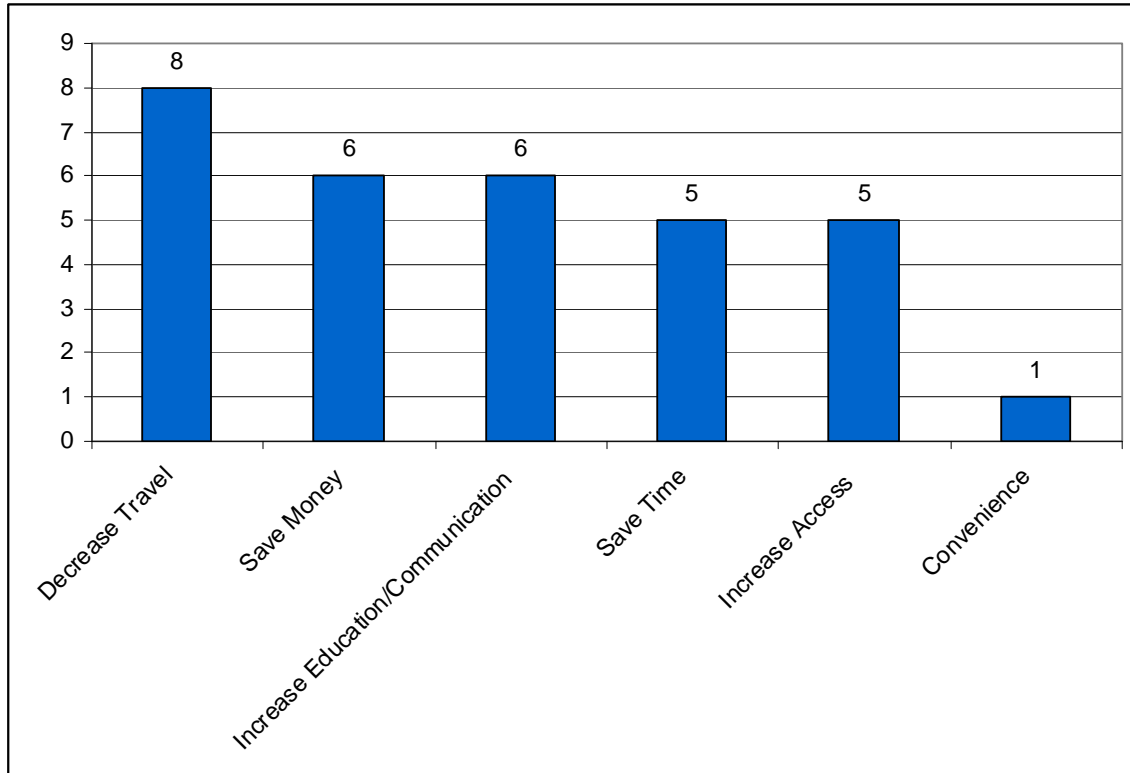
Regional administrators were asked "Does the use of MBTelehealth result in cost savings related to regional and facility staff travel?" A majority of respondents (29 or 83%) indicated "yes" to this question with only one (1) responding "no". It is not possible to know what respondents considered when determining whether or not there had been cost-savings. For example, some may have simply considered perceived reductions in travel while others may have considered whether travel savings exceed ongoing MBTelehealth-related operating costs. When asked to identify the amount of estimated travel cost savings for their RHA as a result of MBTelehealth, regional administrator respondents from all of the RHA's and regions indicated that they saved between \$2500 - \$5000 or more annually. .

The table below summarizes the frequency of response by the dollar value ranges provided as response choices:



Given there was more than one respondent from each of the 7 RHA's and 2 other regions that responded to this question, respondents were sorted by region and the highest reported amount for each region was used to calculate an estimate of \$45,000 as the total combined cost savings for all RHAs.

Fifteen (15) respondents provided comment in an open-ended question inviting them to describe "any other financial savings or efficiencies your region experiences by using telehealth. Comments were grouped into common themes as presented in the table below.



Overall, respondents' comments reflected perceptions of efficiencies resulting from telehealth and increased access to patient service and health care provider education and communication. While the majority of comments (n= 20 of 31) referred to what could be summarized as the efficiencies of telehealth, some regional administrators (n=11) also commented on the value of increasing patient and provider access.

The following are examples of efficiency-related comments:

- *Clearly, this is a very convenient and sensible communication tool both for care providers, administrators and patients. It makes a great deal of sense to expand this program.*
- *It allows for physicians to attend CME sessions in [home community] and see patients [on same day].*
- *One educator delivering a session to 6 sites rather than sending that educator out to 6 sites or having multiple educators delivering the same message.*

The following is an example of a comment that recognizes both the savings from efficiencies and the value of increasing access:

- *I think the efficiencies and savings are experienced more by patients receiving access to specialists closer to home than staff, as planned patients use often prevents its use for longer meetings or education sessions. That said, it has provided additional access to education events that staff would have not participated in if it had not been available by telehealth-in particular, shorter 1-2 hour education sessions that staff would just not have travelled to attend or been approved to attend given the cost of transportation and time lost.*

Estimation of Regional Health Authority costs avoided with administrative telehealth use

A total of 84 administrative meetings were conducted during the month of November 2010 using videoconferencing involving a total of 191 sites. The travel distance from each participating site to the scheduled host site and return trip was calculated for a total of 109,851 km travelled. Using the current travel reimbursement rate of \$0.40 per km the saving for this month would be \$43,940. This does not include any associated parking, food or accommodation costs. This figure assumes that it was possible to drive to each site reviewed which is not the case as there is no driving route to Churchill (air, train or northern cruise ship access only) and many of the First Nations sites (many remote fly in only access). The overall figure would be higher if air or train travel was factored in. Based on these figures, when the monthly savings are multiplied by ten months (administrative meetings significantly decrease in July and August each year) approximately \$439,400 could be saved on travel costs with the use of telehealth for administrative meetings.

Estimated time for each return trip, assuming only one vehicle was used to travel from the participating site to the host site, was approximately 1423 hours with an average of almost 17 hours of staff time spent travelling to and from meetings. Using a conservative salary of \$35 per hour and assuming only one person travelled from the site to the meeting \$49,455 would have been spent for staff to travel to and from administrative meetings in November if MBTelehealth was not available. The overall savings are likely higher as often more than one person travels from the site and salaries are likely higher. Based on these figures when the monthly savings are multiplied by ten (administrative meetings significantly decrease in July and August each year) approximately \$494,550 could be saved on staff time spent travelling for administrative meetings for a total of approximately \$933,950 total saved in one year related to travel costs.

Perceptions of system quality and system use

The study questions that informed the design and implementation of this benefits evaluation assume that it is imperative to understand key stakeholder perspectives on system quality and system use as healthcare provider adoption is required in order to create the potential to realize net benefits in terms of patient service and access, quality and safety and efficiency and sustainability of the health care system. Findings pertaining to the following study questions were deemed to be important in understanding the current state of MBTelehealth operations along this intermediate benefit pathway:

- Are regional stakeholders satisfied with their region's current utilization and experience with MBTelehealth services?
- Has the use of MBTelehealth increased provider opportunities for inter- and intraregional collaboration?
- Has the use of telehealth resulted in improved access to RHA/facility staff education opportunities?

The regional administrator survey collected these key stakeholders' perspectives on the following intermediate benefits:

- Regional stakeholder satisfaction with their current MBTelehealth utilization and experience;
- Inter-regional and intraregional communication and collaboration; and
- RHA/facility staff education opportunities.

Regional stakeholder satisfaction with MBTelehealth utilization and experience

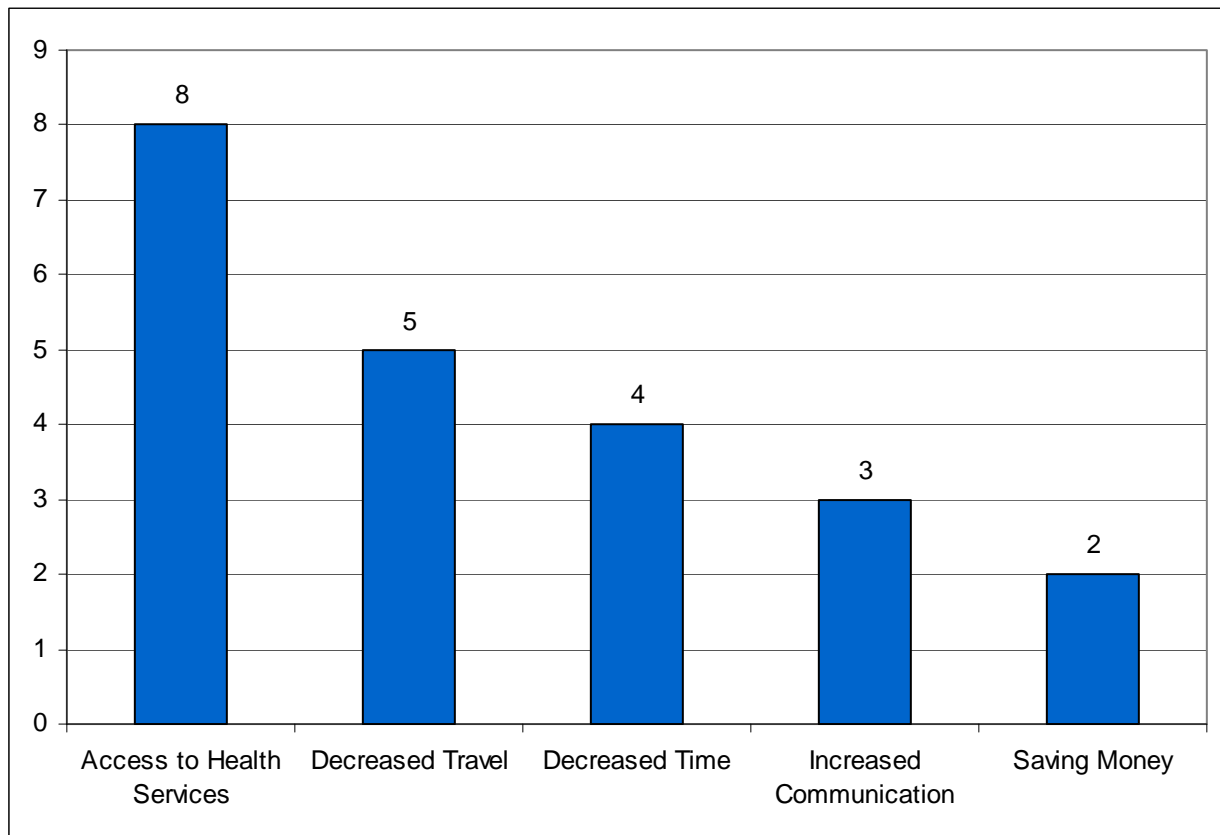
Given that healthcare staff utilization of MBTelehealth is a prerequisite for realization of net benefits, regional health administrator perceptions of MBTelehealth services, current impacts

and opportunities for improvement and further development were felt to be important to this benefit evaluation. To this end, administrators were asked to indicate whether or not they were satisfied with the services and whether the services in their region currently meet the identified needs. Additionally, open-ended questions asked respondents to identify what they perceived to be the most significant benefits of and barriers to telehealth.

Overall, regional administrator responses appear to indicate both a generally high level of satisfaction with services and recognition of some benefits currently being realized.

- 97% of respondents indicated that they were satisfied with the MBTelehealth services (20 respondents reported that they were greatly satisfied and 14 respondents reported that they were somewhat satisfied); and
- 65% (n=23) of respondents indicated that telehealth met their needs while 28% (n=10) respondents indicated that telehealth did not meet their needs. Of those who indicated telehealth did not meet their needs 7 of them indicated that they needed additional pieces of equipment within their sites and more sites in their region. One indicated that appointments need more clinical support.

All respondents made comments in response to the question asking them “what are the significant benefits of telehealth”. The most common benefit that was noted was access to health services specifically for education sessions and specialist appointments. Other comments included decreased travel for patients and staff members and decreased time spent travelling. Respondents indicated that telehealth increased communication and that it was convenient, and saved the RHA’s money. The significant benefit response themes and the frequency with which they were reported are summarized below:



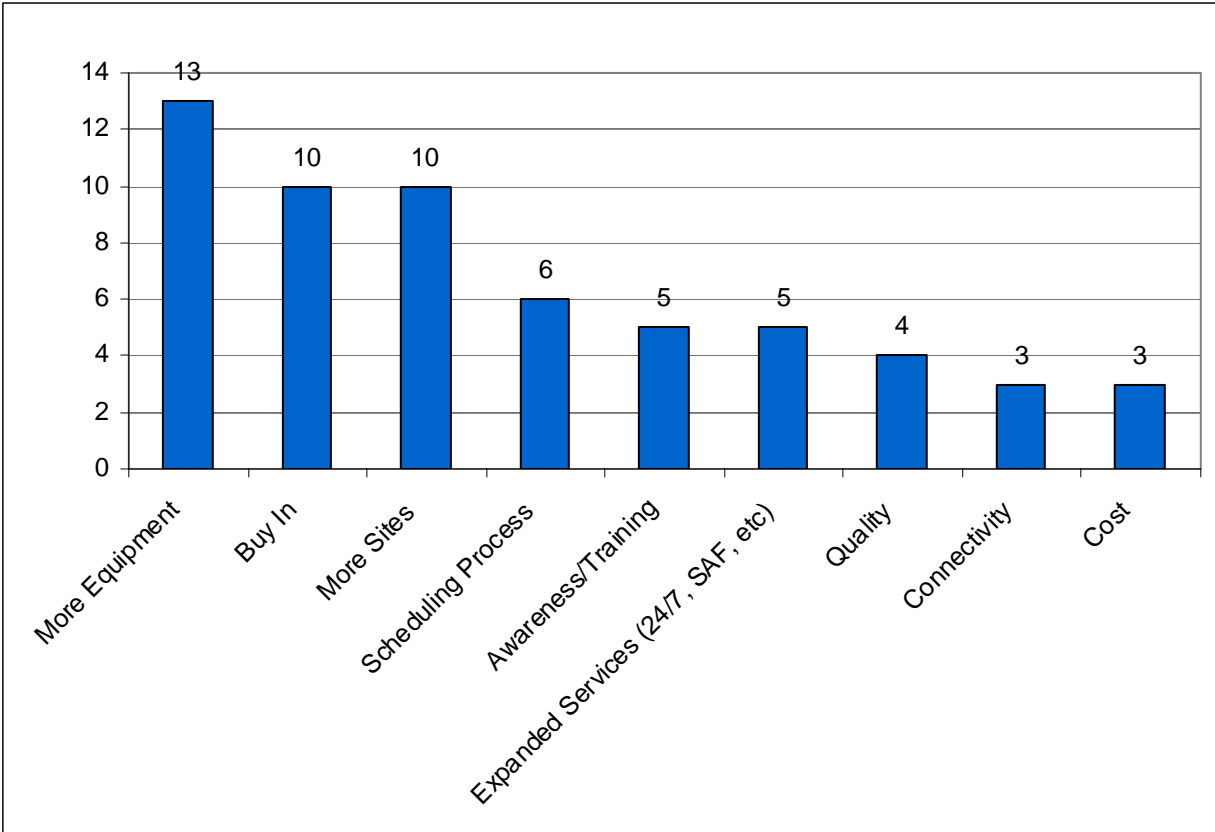
Comments that respondents made include the following:

- *[They] can transport a patient in their own community via ambulance to the local hospital to see a specialist on telehealth much more efficiently than travelling to Winnipeg.*
- *Connecting with team members 'face to face' on telehealth is much better than telephone meetings.*
- *Physicians can attend CME sessions through telehealth in their home community and still have enough time to see patients.*

At the same time, all respondents also identified factors that they perceived to be significant barriers to telehealth, including:

- Need to respond the growing demand for MBTelehealth services in many RHAs
 - The most common barrier (37%; n=13) was for sites to have more equipment so that multiple meetings, clinical consults and education sessions could take place at the same time from the same site;
 - 27% (n=10) of respondents indicated that more sites were required so that health care facilities in their regions could have telehealth sessions at their sites as well;
- Need to encourage adoption and integration of telehealth with clinical service delivery
 - 27% (n=10) of respondents indicated that buy-in was important to adopt the 'integration model' (providers using telehealth independently) for using telehealth;
- Need for enhanced level of service
 - 13% (n=5) indicated that MBTelehealth should expand its level of service into 24/7 operational capacity, and the use of store and forward technology and desktop telehealth services
 - 8% (n=3) of respondents indicated that connectivity needs to be expanded in the province including more PDN connectivity and broadband services for northern Manitoba
- Other operational improvement opportunities
 - 17% (n=6) reported that telehealth was difficult to schedule because of the many steps involved in scheduling telehealth;
 - 13% (n=5) indicated that awareness and training were barriers because some physicians and staff do not know how to operate equipment ;
 - 11% (n=4) that monitors could be bigger and that picture quality is sometimes poor
- Costs of implementation and operation;
 - 8% (n=3) respondents commented on the cost of telehealth as a barrier, particularly start up costs for new sites. One respondent also commented on the cost of connecting out of province.

The categories of identified barriers and the frequency with which they were reported are summarized below:



Inter-regional and intraregional communication and collaboration

Regional Health Authorities (RHA’s) are encouraged by MBTelehealth to use the service for administrative meetings in order to facilitate communication and collaboration within and between regions, overcoming barriers of distance.

Overall, regional administration survey responses indicate that there is a perception that MBTelehealth has provided increased opportunities for inter- and intra-regional collaboration. Eighty-three percent (83%, n=29) of respondents reported that use of MBTelehealth provided increased opportunities for inter and intra regional collaboration. Responses to questions about the impact of use of MBTelehealth for administrative meetings also highlight a perception among a majority of respondents that this has improved communication either “greatly” or “somewhat” within respondents’ regions (77% (n=27)) and between their regions and others (63% (n=22)). However, it is important to note that a relatively significant proportion of respondents (23% (n=8) for within region and 34% (n=12) for between regions indicated that this question “did not apply”. These results suggest that some are not using MBTelehealth for administrative communication purposes and/or do not perceive benefit from this use at this time.

RHA/facility staff education opportunities

Increasing staff education opportunities, particularly for those working in rural/remote settings is perceived to be a necessary, intermediate step in increasing patient access to quality, safe care and more specialized care in those settings.

Eighty-seven percent (87%) of regional administration respondents indicated that telehealth had improved access to education for their region (i.e. 63% (n=22) greatly improved and 24% (n=9) somewhat improved). Three (3) respondents (8%) responded “does not apply” but none answered “not at all”.

The results indicate that regional stakeholders perceive that telehealth has improved access to education in all 7 of the RHA’s and other programs responding to the survey.

CONCLUSIONS & RECOMMENDATIONS

Patient Service

The survey results indicate that almost all patient respondents were satisfied with their experience. A majority of patient respondents had also received an explanation of what to expect from a telehealth appointment. However, approximately 11% (n=19) of respondents indicated that they had not received or were unsure if they had received an explanation, indicating that there may be opportunities to work with healthcare providers and local site staff to further improve this aspect of service delivery.

Recommendation 1:

That MBTelehealth staff continue to work with providers and local site staff to develop training and solutions to ensure that patients are informed of what to expect during a telehealth appointment.

Access

The survey results suggest that many patient respondents perceive that telehealth improves access to health care services and may be the only way for some to receive some healthcare services. A majority of regional administrator respondents also indicated that MBTelehealth improved access to health care services for the patient population in their region. At the same time, a majority of these patients indicated that they would have traveled for their appointment if MBTelehealth was not available. Consequently, these findings support the premise that MBTelehealth increases ease of access and/or ability to access some services for some patients.

Future survey questions could be more specific to identify the type of travel, length of time, distance and effort (physical, emotional and financial) involved in travelling for healthcare services to quantify and qualify patient responses regarding access. It might also be useful to understand the proportion of patients for whom travel makes accessing care more difficult and inconvenient compared to proportion of patients who would be unable able to access care because of the direct (e.g. transportation and accommodation) and indirect (lost income) financial costs associated with travel.

The patient survey utilized in this study tried to capture the complexity of the concept and patient experience of access to healthcare services with separate questions intended to obtain patient perspectives on the interrelated but potentially distinct concepts of ease of access, equity of access and ability to access. Future evaluation efforts could benefit from work to further clarify and define these concepts in order to identify indicators and measures that might

further advance the understanding of the potential and actual realization of access net benefits resulting from telehealth services.

Recommendation 2:

That MBTelehealth further clarify and define access-related concepts in order to refine future survey questions and/or other evaluation data collection to provide a better understanding of MBTelehealths' impact on this net benefit.

Recommendation 3:

That MBTelehealth continue to work with Manitoba Health and RHA's to increase uptake by health care providers who do not currently see patients using MBTelehealth services.

Cost Avoidance

The survey results provide estimates that indicate MBTelehealth services result in avoiding financial costs in terms of i) "out of pocket" costs for individual patients and families related to travel for face-to-face healthcare appointments and ii) regional health authority expenses for regional and facility staff travel. Conservative estimates indicate that over three and a half million dollars were saved in out of pocket patient costs and RHA expenses combined. When compared to the overall operating budget of the MBTelehealth program of almost 2.5 million dollars annually there is a cost savings of over one million dollars. While many patients would bear the costs of travel to appointments if telehealth were not available, those patients in northern and remote regions who are eligible for travel assistance would cause more cost to be incurred by the travel support programs if telehealth were not available to them.

Recommendation 4:

That MBTelehealth continue to work with RHA's to add additional sites and/or site support to further benefit from cost avoidance through the use of the services.

Regional Administrator Perceptions of System Quality & System Usage

Overall, regional administrator responses appear to indicate both a generally high level of satisfaction with services and recognition of some benefits currently being realized. At the same time, all respondents also identified factors that they perceived to be significant barriers to telehealth. For example, in many RHA's the demand for MBT services is growing and having more equipment could better meet the needs of the region. Overall, regional administration survey responses indicate that there is a perception that MBTelehealth has provided increased opportunities for inter- and intra-regional collaboration and healthcare provider education. However, further exploration will be required to interpret and respond to the finding that more than one-quarter of regional administrator respondents reported that the question about increasing access to intra and inter-regional collaboration did not apply to them.

Recommendation 5:

That MBTelehealth review the list of factors that regional administrators identified as significant barriers in order to inform the development of service quality improvement initiatives, targeted site training, as well as inform future strategic planning.

Considerations for Future MBTelehealth Benefits Evaluation

Analysis of the survey responses has highlighted some considerations for future MBTelehealth Benefits Evaluation.

Firstly, it may be useful to develop a benefits results chain or logic model to understand the elements of the program processes and outcomes that connect to the intended Net Benefits. The development of this type of conceptual model involves clarifying and defining key elements of the model which in turn both highlights what you need to learn more about and supports the identification of useful measures and indicators (e.g. for which elements is it important to obtain stakeholder perspectives). The concept of access as a Net Benefit has already been noted as an example of where additional clarification and definition may be useful to future evaluation efforts.

Next, program development and improvement efforts could be supported through more in-depth investigation of aspects of patients' and RHAs' MBTelehealth experience, either through refinement of the survey tool and/or qualitative exploration in patient focus groups or interviews. For example, with the current patient survey results, it is not possible to know the type of appointments the patients were attending by telehealth or determine why some patients would or would not use the service again or recommend telehealth to family and friends. Additionally, further questions to ask about satisfaction with the telehealth appointment could include the reason why they were satisfied and what level of satisfaction they experienced. Comparison of in-person and telehealth patient experiences and satisfaction may also be a useful avenue for investigation. Whitten and Love (2005) cite studies that found no difference in satisfaction with overall care between in-person patients and telehealth patients.

Whitten and Love (2005) also indicate that many satisfaction surveys for telehealth fail to properly define satisfaction and do not create a construct for satisfaction. For example, in the current evaluation study, patients were asked to indicate whether they were satisfied with their "MBTelehealth appointment" without opportunity for further explanation of which aspects of their experience contributed to their satisfaction/dissatisfaction (e.g. clinicians' use of technology, access to clinical services etc.).

Finally, from a health service administration perspective, it would be useful to develop a more comprehensive picture of the costs of telehealth for clinical, education and administrative purposes relative to the costs for the same services delivered in person. This will require additional data collection on the part of regional health authorities, MBTelehealth and potentially patients in order to have sufficient data to conduct analysis of the full costs of telehealth appointments for all parties in comparison to the costs for the "in-person" alternative for that service or event.

REFERENCES

Whitten, P. & Love, Brad (2005). Patient and provider satisfaction with the use of telemedicine: Overview and rationale for cautious enthusiasm. *Journal of Postgraduate Medicine*, 51(4), 294-300.

APPENDIX A – PATIENT SURVEY



Patient Survey

MBT is doing a patient survey as part of our ongoing quality improvement activities. We are interested in hearing about your experiences with MBTelehealth and we would appreciate hearing from you. We may be including the summary results of this survey in a larger Benefits Evaluation Project funded by Canada Health Infoway however; your name and any personal information gathered from this survey will be kept confidential. This is a voluntary survey and you do not have to complete it. Your decision to participate or not participate will not impact your care in any way.

1. Did someone explain to you what to expect for your MBTelehealth appointment?

Yes No Unsure

2. Were you satisfied with your MBTelehealth appointment?

Yes No Unsure

3. Would you use MBTelehealth again?

Yes No Unsure

4. Would you recommend MBTelehealth to your family and friends?

Yes No Unsure

5. If MBTelehealth were not available, would you have traveled for this appointment?

Yes No Unsure

6. If you had to travel for your appointment, how much would you have spent on out of pocket costs in order to attend your appointment, taking into account travel time, gas, baby sitters, food/accommodation, missed work/employment and any missed work/employment for anyone accompanying you?

less than \$25 \$25 - \$50 \$50 - \$100 \$100 - \$150 \$150 - \$200 \$200 or more

7. Does MBTelehealth make it easier for you to access health care services?

Yes No Unsure

8. Do you feel some people would not receive health services that they need if MBTelehealth were not available?

Yes No Unsure

9. What community do you live in (optional)?

10. Any other general comments you wish to share with MBTelehealth.

When you are finished the survey, please put it in the envelope and return it to the person who gave it to you. You can mail the completed survey to MBTelehealth (address below).

If you have any questions, please contact the MBTelehealth Researcher, Jonathon Bahrychuk at 204-975-7756 or jbahrychuk@mbtelehealth.ca

THANK YOU FOR TAKING THE TIME TO FILL OUT THIS SURVEY!

APPENDIX B – REGIONAL ADMINISTRATION SURVEY



Regional Survey

Facility Name:

Regional Health Authority:

Current Role:

Number of Years in Current Role:

1. How many times have you participated in an MBTelehealth session in the past year?
 None Only once 2 – 5 Times 6-10 Times More than 10 Times

2. Are you satisfied with the MBTelehealth services?
 Not at all Somewhat Greatly

3. Do the MBTelehealth services in your region meet your needs? Yes No
Please explain:

4. Has MBTelehealth improved access to healthcare services for the patient population in your region?
 Not at all Somewhat Greatly Does not apply

5. If you have used MBTelehealth for educational purposes how has it improved access to education for your region?
 Not at all Somewhat Greatly Does not apply

6. If you have used MBTelehealth for administrative meetings how has it improved communication within your region?
 Not at all Somewhat Greatly Does not apply

7. If you have used MBTelehealth for administrative meetings how has it improved communication between your region and other regions?
 Not at all Somewhat Greatly Does not apply

8. Has the use of MBTelehealth provided increased opportunities for inter and intra regional collaboration?
 Yes No Unsure

9. Does the use of MBTelehealth result in cost savings related to regional and facility staff travel?

Yes No Unsure

10. Identify the amount of estimated travel cost savings for your RHA as a result of MBTelehealth.

less than \$500/year \$500 - \$1000/year \$1000 - \$2500/year \$2500 - \$5000/year

\$5000 or more/year

11. Please describe any other financial savings or efficiencies your region experiences by using telehealth.

12. What for you are the most significant benefits of telehealth? Please list three things.

13. What for you are the biggest barriers to telehealth? Please list three things.

THANK YOU FOR TAKING THE TIME TO FILL OUT THIS SURVEY!

Please email the completed survey to quality@mbtelehealth.ca or fax the survey to 204.975.7787

by November 12, 2010.