Newfoundland Labrador Teleoncology Program (Teleoncology) Evaluation: Integration of Parts A and Part B Reports within the Evaluation Framework

Maria Mathews, PhD; Ann Ryan, MSc. Manager; T. Montgomery Keough, BSc; Sara Heath, BSc, Noni Chowdhury, BSc

Level 1, Room 1775
The Health Sciences Centre, 300 Prince Philip Drive
St. John’s, NL Canada  A1B 3V6
Tel: 709 777 8837  Fax: 709 777 8838
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Integration of Parts A and Part B Reports within the Evaluation Framework

Health Research Unit
Division of Community Health and Humanities
Faculty of Medicine, Memorial University of Newfoundland

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Evaluation Team:

Maria Mathews, PhD. Associate Professor Health Policy/Health Care Delivery
Division of Community Health & Humanities

Ann Ryan, MSc. Manager Health Research Unit, Division of Community Health & Humanities

T. Montgomery Keough, MSc. (Candidate), Health Researcher, Health Research Unit, Division of Community Health & Humanities

Sara Heath, MSc. (Candidate), Computer and Database Specialist, Health Research Unit, Division of Community Health & Humanities

Noni Chowdhury, BSc., Research Assistant, Health Research Unit, Division of Community Health & Humanities
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1. Introduction

Telehealth, telemedicine, or e-health is defined as “the use of information and communication to deliver health services, expertise and information over distance, geographic, time, social and cultural barriers.” (1)

Telehealth is beneficial in countries and regions where the traditional deliveries of health services are hindered by distance and lack of local specialist clinicians to provide quality care to those in need (2, 3). Telehealth increases the frequency of patient contact while reducing travel costs and time. It facilitates quick response from physicians and can facilitate at-home care. Telehealth also enhances productivity since physicians are able to provide more focused attention to the patients most in need of follow-ups, and receive test results much quicker. Studies also demonstrate a generally high satisfaction rate with users (3, 4).

Barriers to telemedicine implementation include technical challenges, the need for more education and training for patients and staff, preferences for direct person-person care, the need for program improvement and the need for additional staff time to provide telemedicine services (5). The absence of physical contact between the doctor and the patient, while sometimes problematic, can be largely overcome through the presence of a nurse at the patient’s site. However, some patients have reservations about nurses instead of doctors performing examinations, and some patients are reluctant to openly discuss sensitive health issues when someone else is present (6).

Telehealth technology is used by many different professionals for many purposes. Some direct telehealth providers are nurse practitioners, registered nurses, nursing assistants, speech pathologists and social workers. Other professionals who may use telehealth are oncologists and other specialists doing pre and post surgery assessments and treatment follow-ups (7) and include educators, administrators and patients.

Since early detection is the key to preventing cancer, oncology has become a frequent user of telehealth. Teleoncology can involve many applications such as teleconsultations, telediagnosis, telepathology and teleradiology (8).

Teleoncology, like all disciplines of telehealth, has clinical, educational, and administrative aspects. Clinically, the system can be used for diagnosis and for specialized treatments such as surgery (a doctor remotely operates the necessary equipment). A process called ultrarapid breast care process (URBC) has taken teleradiology a step further and reduced the time it takes for a woman to receive diagnosis and treatment plan from several weeks to a single day (8). More commonly the system is used for teleconsultations and telefollow-ups where the patient is able to discuss with one or a group of doctors about their condition before and after treatment. Telemedicine can also increase the opportunities of higher education and training to oncology care givers. Rural physicians are less isolated (7) and can learn new oncology techniques and methods of treatment by watching the treatments broadcasted from the urban sites, or by attending online training seminars held for such purposes, receiving CME credits at the same time (7). It also makes it possible for several specialists to discuss a matter without the extra time and cost of travel (7).
The Newfoundland and Labrador Teleoncology Program (NLTOP) was initiated in early 2003 to enhance the current delivery of services of the Newfoundland Cancer Treatment Research Foundation (NCTRF), utilizing the telehealth expertise found within the Faculty of Medicine of Memorial University of Newfoundland, to deliver and support province wide health treatment, management and educational services. It was developed to address service gaps such as the need for more consultation, better referral process, clarity about guidelines, standards and policies, education, and access to other support services, particularly among rural health care providers who deliver cancer services such as chemotherapy and follow-up medical visits for people of their regions (9).

A mid-term overview report was completed by the project team and submitted in December 2005 as the first part of the evaluation process (NLTOP, MTR Final, December 2005; ref 9). The Health Research Unit (HRU), Division of Community Health and Humanities, Faculty of Medicine, was contracted to complete the second part of the evaluation process - the formal project evaluation.

The formal project evaluation was divided into two parts which were completed and submitted separately:

- Part A: a compilation and analysis of existing data (see Appendix A)
- Part B: interviews with 12 health care professionals who have used the Teleoncology system, analysis of the themes which emerge from these interviews (see Appendix B).

As agreed between the NLTOP team and the HRU, this report will summarize the findings in Parts A and B under three of the four indicators developed in the document “Newfoundland and Labrador Teleoncology Framework, Part 1: Evaluation Framework and Instruments” developed by/with Judy Roberts & Associates / Associés Inc. Newport Bay Consulting Services June 28, 2005 (10).
2. Methodology

Quantitative data (Part A)

The patient satisfaction survey (see Appendix 1 of the Part A report), program bookings and participation logs (see Appendix 2 of the Part A report) were recorded by NLTOP staff in Microsoft Excel. The Excel file was submitted to the HRU and imported into SPSS, entries cleaned extensively for consistency, and variables modified for a clearer analysis.

Qualitative data (Part A)

Comments and messages to NLTOP staff and answers to the patient satisfaction survey’s open-ended questions were entered in WORD, analyzed for themes and grouped into theme categories.

Qualitative data (Part B)

There were 12 Key Informant interviews conducted with users and staff of the Teleoncology Program – 10 key informants answered the clinical application questions and 8 answered the educational application questions; 6 completed both the educational and the clinical in the same interview.

Qualitative and quantitative data will be reported under the three indicators: Quality, Access and Acceptability. The original evaluation framework divided the Teleoncology Program into two applications: clinical applications and continuing education applications. However, due to the similarities of the presenting themes from the analysis, this report will combine the results for both applications.

Each of the indicators and their sub-indicators are listed in the following report in italics, followed by the data addressing the issue.
3. Results

3.1 Quality

3.1.1 Quality of Telehealth Encounter

Definition: Those relative characteristics that influence the user’s telehealth experience. Rationale: Increased quality of the telehealth encounter that meets or exceeds the user’s expectations demonstrates effectiveness of telehealth. “User” is relative and may refer to any consumer (provider, patient, citizen, etc).

A number of items from the Patient/Family Member Satisfaction Survey related to the quality of the telehealth encounter. For each item, respondents were asked to rate a series of statements regarding their experience using the Telehealth system as “strongly agree”, “agree”, “neutral”, “disagree”, or “strongly disagree” (Table 3.1.1).

Most respondents “agreed” or “strongly agreed” with all the positive statements, particularly with two of the statements “I felt comfortable with the purpose of the staff attending the session” and “There was enough time to ask questions” (94% and 92.5% respectively, “strongly agree” plus “agree”).

Though experiences seem to be mostly positive, the one statement that had more negative responses than the others was: “The videoconference equipment did not inconvenience me”. This statement rated 9% “disagree” and 3% “strongly disagree”. The messages to NLTOP and key informant interviews found similar positive experiences with the telehealth encounter. However, they also identified key sources of dissatisfaction that may have tarnished the general impression of telehealth for some users; specifically: scheduling (appointment times and location), miscommunication of appointment times and cancellations, and equipment problems. In addition, lack of confidence without a physician’s ‘hands on’ examination of the patient, even though a nurse is present to do some examinations, and the hurried nature of consultations also were reported to diminish the overall positive impression of the encounter.
<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree # (%)</th>
<th>Agree # (%)</th>
<th>Neutral # (%)</th>
<th>Disagree # (%)</th>
<th>Strongly Disagree # (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The appointment was well organized</td>
<td>32 (47.8)</td>
<td>32 (47.8)</td>
<td>1 (1.5)</td>
<td>1 (1.5)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I was provided with satisfactory explanation of what to expect from the session</td>
<td>29 (43.3)</td>
<td>29 (43.3)</td>
<td>4 (6.0)</td>
<td>4 (6.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I felt comfortable with the use of the video equipment</td>
<td>26 (38.8)</td>
<td>33 (49.3)</td>
<td>2 (3.0)</td>
<td>2 (3.0)</td>
<td>4 (6.0)</td>
</tr>
<tr>
<td>I felt comfortable with the purpose of the staff attending the session</td>
<td>36 (53.7)</td>
<td>27 (40.3)</td>
<td>1 (1.5)</td>
<td>2 (3.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I felt supported during the session</td>
<td>33 (49.3)</td>
<td>29 (43.3)</td>
<td>2 (3.0)</td>
<td>2 (3.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I was able to present all the same information as I would have been able to in person</td>
<td>31 (46.3)</td>
<td>29 (43.3)</td>
<td>2 (3.0)</td>
<td>3 (4.5)</td>
<td>2 (3.0)</td>
</tr>
<tr>
<td>I was able to communicate with the health care professional at the other site</td>
<td>31 (46.3)</td>
<td>29 (43.3)</td>
<td>2 (3.0)</td>
<td>3 (4.5)</td>
<td>2 (3.0)</td>
</tr>
<tr>
<td>There was enough time to ask questions</td>
<td>34 (50.7)</td>
<td>28 (41.8)</td>
<td>2 (3.0)</td>
<td>2 (3.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>The technology allowed me to express my concerns (1; 1.5% unspecified)</td>
<td>30 (44.8)</td>
<td>30 (44.8)</td>
<td>1 (1.5)</td>
<td>4 (6.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>The videoconference equipment did not inconvenience me (1; 1.5% unspecified)</td>
<td>30 (44.8)</td>
<td>28 (41.8)</td>
<td>0 (0)</td>
<td>6 (9.0)</td>
<td>2 (3.0)</td>
</tr>
</tbody>
</table>
3.1.2 Quality of Telehealth Integration

Definition: The degree to which telehealth is seamlessly integrated within the existing healthcare system/CE system.

Data specific to the outcomes highlighted in the evaluation framework for this indicator were not collected as part of the project. However, data from the key informant interviews illustrate how telehealth contributes to seamless care. For example, patient information, such as X-rays and lab results, are available online, an advantage over a conventional clinic where the information has to be retrieved manually. Lab results via computer provide more immediate information to patients and providers, answering patients’ concerns and allowing for prompt medical decisions without the inconvenience, cost and time of traveling. Moreover, communication between patients and health professionals is more immediate and accurate in the Teleoncology Program. In a conventional setting, the patient travels to see his/her oncologist, and the family doctor eventually receives an official report by mail or learns the results from the patient’s interpretation. But in the Teleoncology Program the nurse acts as an immediate bridge between specialist and family physician, so the physician can make the decisions and the nurse can coordinate follow-up.

3.1.3 Quality of Technology Performance

Definition: The performance of the technology used during any telehealth activity.

As the Patient/Family Member Satisfaction Survey (Table 3.1.1, Quality of Telehealth Encounter) shows, though satisfaction levels were excellent for most statements, the statement with the most negative review concerned the equipment. The concern is reiterated by several Key Informants and in email comments recorded by the teleoncology staff. The availability of good functioning equipment is sometimes a problem and diagnostic and other information is not always available when needed. In some centres patients must use a non-clinical site (such as local college) where the patient may not be as comfortable and lab results etc. are not available.

Professional and patient users also report connection and other problems with the system. These include: delayed audio; low volume; poor image quality; and the inability to control the camera for skin examinations. Interactivity and quality of session is sometimes limited because of the audio and/or video delay. Many felt that the technical issues with the system were its greatest drawback. When problems occur in St. John’s where dedicated technical personnel were available, the problem was less acute, but in remote areas it caused much more difficulty.

| Table 3.1.4: Satisfaction items from the Patient/Family Member Satisfaction Survey |
|---------------------------------|-----------------|--------------|--|----------------|
| Statement                        | Strongly Agree # (%) | Agree # (%) | Neutral # (%) | Disagree # (%) | Strongly Disagree # (%) |
| I was satisfied with the session (1; 1.5% unspecified) | 33 (49.3) | 28 (41.8) | 0 (0) | 4 (6.0) | 1 (1.5) |
| I would use telehealth services again (1; 1.5% unspecified) | 33 (49.3) | 24 (35.8) | 3 (4.5) | 2 (3.0) | 4 (6.0) |
| I would recommend the use of telehealth services (1; 1.5% unspecified) | 31 (46.3) | 26 (38.8) | 3 (4.5) | 2 (3.0) | 4 (6.0) |
3.1.4 Quality: User Satisfaction

Definition: The degree to which the users’ needs were met through the telehealth experience.

Respondents of the Patient/Family Member Satisfaction Survey reported a high level of overall satisfaction with their telehealth encounter (Table 3.1.4). Moreover, when comparing the video-conference visit with an in-person visit, 61% of respondents felt it was the same as meeting in-person (Figure 3.1.4), while 30% thought it was not as good as in person and 3% did not feel it was acceptable.

The messages to NLTOP and key informant interviews reiterate this general satisfaction with telehealth services, which informants suggest stem to a great degree from the savings in travel related costs and time for both patients and providers as well as the general convenience the service provides.

Figure 3.2.1A: Number of Sites Connected, by Activity
Figure 3.2.1B: Purpose of active session

- Education: 64 (26.4%)
- Administration: 32 (5.2%)
- Not specified: 2 (0.3%)

Figure 3.2.1C: Discipline Requesting use

- Radiation Oncology: 332 (53.5%)
- Medical Oncology: 10 (34%)
- Administration: 42 (6.8%)
- Pharmacy: 27 (4.3%)
- Nurse: 7 (1.1%)
- Physician: 1 (0.2%)
- Pain/Symptom Management: 1 (0.2%)
### 3.2 Access

#### 3.2.1 Utilization – Telehealth Services, Access and Acceptability

*Definition: For a given user population, the number of telehealth sessions occurring per month.*

As shown in Figure 2, data from program bookings show that the number of sites connected for teleoncology clinical sessions increased over the time period shown, indicating a gradual increase in acceptability with users (excluding the expected decrease during the Christmas season of 2005). Educational/administrative sites connected remained stable at around 10 per month. Participation logs show that a large proportion of these sessions involve radiation and medical oncologists (Figure 3.2.1A).

The purpose of the booked sessions is given in Figure 3.2.1B; follow-up consult was the most common purpose (365; 58.8%) followed by educational sessions (153; 24.6%).

Radiation oncology and medical oncology services had the greatest demand during the period under study, with 53.5% and 34% of the total services requested, respectively (Figure 3.2.1C).

#### 3.2.2 Availability – Telehealth Service

*Definition: For a given user population: the ability to gain access to the required telehealth technology. (The ability of a user to access telehealth is paramount to the success of telehealth as a whole. If the telehealth services are not available when needed, then the uptake of telehealth will not occur).*

Although key informant interviews and messages to NLTOP found that there is general satisfaction with telehealth services, they also revealed concerns with the availability of staff and equipment needed that limited the use of these services. Access is limited to potential users because the system is not available everywhere in the province. In addition, some patients who may want to use the service cannot have access because their oncologist does not utilize the system. In addition, a nurse is required for patient support during clinical telehealth sessions. Sometimes this is a problem, particularly if the nurse is part time with the Teleoncology Program or has to accompany a patient to another site outside the hospital:

> “There is no way they can guarantee that a nurse can be available for the consult/follow-up with a patient, Not even on the day of the video ... for patient support to be guaranteed, it would be best to book the patient at another location. Not ideal, especially during the winter, but better than running a great risk that the patient will only be accompanied by a family member or worse, alone.” - Sept 2006

Likewise, there was a call for a greater degree of technical support in the linked areas to help isolate and resolve technical problems.
As mentioned before, the availability of good functioning equipment is sometimes a problem and diagnostic and other information is not always available when needed. Messages to NLTOP also revealed that sometimes equipment was unavailable at the time of booking due to increased volume of bookings and that the lack of appropriate equipment limited the type of examinations that could be done with existing technical resources (e.g. “Would be nice to have those accessory cameras that can give high-res detail on skin lesions”). As discussed above, patients in some centres must use a non-clinical site (such as local college) where the patient may not be as comfortable and lab results etc. are not as readily available.

3.2.3 Uptake – Capacity

Definition: The ability to perform or produce telehealth activities to meet the required demand.

As noted above, the use of teleoncology clinical services can sometime be limited by the availability of staff and equipment. Messages to NLTOP also revealed that sometimes equipment was unavailable at the time of booking due to increased volume of bookings. Likewise, an oncologists unwilling to use the service or the lack of availability of nursing staff may also limit the use of the service when it is requested by patients, care providers or both.

For educational sessions, the inability to meet confidentiality standards in education sessions such as Rounds, where several remote sites are simultaneously linked to discuss particular cases, can be at risk of breaching confidentiality. Possible breaches happen when a site link remains active even though there are no participants at the site room.

According to several key informants, despite the interest in professional development and the availability of various web-based educational programs, many of their colleagues do not realize that video/teleconferencing is a viable option for their educational sessions.

3.2.4 Utilization – Health Care Service, Access and Acceptability

Definition: For a given user population, the number of traditional health care services occurring per month (This indicator will provide information as the base line comparator for the telehealth interventions).

Data specific to this indicator was not collected as part of this project. It should be noted, however, that tele-oncology services often replaced visits that required the patient, the care provider or both parties to travel.
3.3 Acceptability

3.3.1 Knowledge Transfer – Patient and Health Provider

*Definition: The effective sharing of ideas, knowledge or experience between a health care provider(s) and their patient(s). The knowledge can be either tangible or intangible.*

Responses to the Patient/Family Member Satisfaction Survey identified general satisfaction with communication between providers and patients (Table 3.1.1). For example, almost 90% of respondents agreed or strongly agreed that they were able to present all the same information as in an in-person visit, that they were able to communicate with the health care professional at the other site, that there was enough time to ask questions and that the technology allowed them to express their concerns.

From the health care providers perspective (gathered from messages to NLTOP and key informant interviews), the Teleoncology Program often facilitated communication by providing patient information, such as X-rays and lab results, in a more timely manner.

From the educational perspective, a strength of the program is the ability for health professionals at distant sites to meet colleagues in St. John’s on a regular basis and to feel part of a team. Also, accessing and learning about new advancements in training is considered a great opportunity for those in rural and remote areas.

3.3.2 Expectations – Telehealth Users, Acceptability and Access

*Definition: The expectations of users about how products and services will meet their needs and requirements.*

Responses to the Patient/Family Member Satisfaction Survey (see Table 3.1.1) indicate that overall, expectations for the services provided by the Teleoncology Program were met. For example, while having more than one family member accompany the patient to a distantly located physician may not be affordable for most patients, the Teleoncology Program allows several family members into the consult sessions. This makes for better patient support and the patient and family feel a greater sense of autonomy in, and contribution to, their own health care.

Other clinical expectations such as visual cues play an important role in patient treatment and assessment, and having a visual medium for consult sessions is an advantage. This can be particularly true with interaction with family members. The example given was: a patient replied to the physician that they had not been sick after the last chemo session, but the spouse’s reaction indicated the opposite was true.

The need for coordinated sessions so that patients always have a nurse present for support and assessment was cited as a potential problem, particularly since one or two negative experiences
can impact the patient’s willingness to use the system again.

The Teleoncology Program makes it quicker and easier for the patient to obtain an appointment with a physician. Through the program patients also have increased access to specialized care, particularly patients living in isolated and remote areas of the province.

As highlighted in the key informant interview, a noted strength of the program from the educational perspective is the ability for health professionals at distant sites to meet colleagues in St. John’s on a regular basis and to feel part of a team. Also, accessing and learning about new advancements in training is considered a great opportunity for those in rural and remote areas.

With scheduling educational sessions, times offered are not always convenient for educational providers and for participants, though it might be argued that this is true for most health professional educational training sessions.

A remotely provided educational session can be challenging for the educator. Because participants are not present in the same room as the presenter, the presenter has to work harder to engage the participants, to keep the sessions dynamic and interactive. Conversely, the telehealth educational sessions are more effort for the participants to stay focused and learn to speak up and ask questions.

### 3.3.3 Uptake – Rate of Change in Utilization, Access and Acceptability

*Definition: For a given user population, the percentage change in utilization of telehealth services month over month.*

As Figure 3.2.1A demonstrates, the rate of uptake of the clinical services provided by the Teleoncology Program increased since 2004. The average number of clinical sessions per month during the second year of the program is roughly double the monthly average of the first year of the program. However, educational/administrative use remained relatively steady over the same time period at roughly 10 sessions per month.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Total</th>
<th>Clinical</th>
<th>Administrative /Education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Patients</td>
<td>374</td>
<td>11.2</td>
<td>374</td>
</tr>
<tr>
<td>Dieticians</td>
<td>2</td>
<td>0.1</td>
<td>0</td>
</tr>
<tr>
<td>Physicians</td>
<td>1378</td>
<td>41.2</td>
<td>398</td>
</tr>
<tr>
<td>Social Workers</td>
<td>12</td>
<td>0.4</td>
<td>3</td>
</tr>
<tr>
<td>Nurses</td>
<td>646</td>
<td>19.3</td>
<td>375</td>
</tr>
<tr>
<td>Family/Friends</td>
<td>240</td>
<td>7.2</td>
<td>240</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>311</td>
<td>9.3</td>
<td>0</td>
</tr>
<tr>
<td>Other Disciplines</td>
<td>98</td>
<td>2.9</td>
<td>0</td>
</tr>
<tr>
<td>Stakeholders/Evaluators/Administration</td>
<td>144</td>
<td>4.2</td>
<td>0</td>
</tr>
<tr>
<td>Other participants</td>
<td>143</td>
<td>4.3</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3345</td>
<td>100%</td>
<td>1425</td>
</tr>
</tbody>
</table>
3.3.4 Uptake – Adoption of Telehealth, Access and Acceptability

Definition: The number of groups or individuals using the telehealth applications (Assessing uptake will provide some evidence needed to sustain funding and research in telehealth).

Taking into account only active clinical sessions (canceled sessions excluded), data from participation logs show that users of teleoncology services include a variety of individuals and professions (Table 3.3.4), including patients and family members, pharmacists, social workers, nurses, physicians, administrators and dietitians. However, physician participation was greater than all the others, both in clinical and in educational/administrative applications. Generally, participation in the educational/administrative applications was broader. It should be noted that participants (particularly the health professionals) are likely to have attended more than one session.

Again, as mentioned before, new-user access to clinical teleoncology services is limited because the system is not available everywhere in the province. In addition, some patients who may want to use the service cannot have access because their oncologist does not utilize the system.

During the period studied the Central region of the province used the clinical applications of the Teleoncology Program more than the other regions. Both Western and Grenfell/Labrador utilized the educational/administrative applications more than clinical (Figure 3.3.4).
4. Discussion

This report summarizes the findings of two previous studies (Appendix A and B) of the Teleoncology Program, using the broad categories as developed for the Evaluation Framework (6). Specifically, we mapped the findings from these studies to three of the broad indicators identified in the framework: Quality, Access and Availability. For each category, we identified and summarized the data applicable to each of the sub-indicators.

For each of the indicators and sub-indicators considered, we found generally positive support for the Teleoncology Program. We found that the use of teleoncology has steadily grown since the program was initiated and that these services were used across the province. This program is generally viewed as cost saving (in terms of travel and time and expense), convenient, satisfactory to both patients and health care providers and, in some cases, facilitating more timely care. In terms of education, the Teleoncology Program was again noted for its ability to offer continuing education across the province with the added benefit of increasing networking opportunities and a feeling of connectivity among rural health professionals.

Within each of these indicators, we also noted weaknesses of the Teleoncology Program, specifically the need for dedicated staff throughout the province, the need for ongoing upgrading and investment in technology, the need to protect confidentiality and the need to improve communication and scheduling. Specific examples to illustrate these weaknesses are given in the individual reports which also contain detailed recommendations to address these shortcomings.

Although this report was intended to only discuss three of the four evaluation indicators, it is important to highlight findings applicable to the ‘Cost’ category. Messages to NLTOP and key informant interviews highlighted data for the “Transportation – Time and Distance” sub-indicators which refer to “the cost of resources required to transport something [or someone] from one location to another”. Most users felt the biggest strength of the program was its savings in costs and time traveled to provide/receive care. Some physicians do monthly site visits, which can be costly both in terms of finances and time, but with the Teleoncology Program the cost incurred is reduced to the patient and to the physician. This is particularly relevant for patients traveling from Labrador, often at great personal cost, not only for transportation but also accommodations. Moreover, accommodation costs are also likely to increase if adverse weather conditions influence the patient’s decision to arrive early to ensure they are available for their appointment. These savings, in cost and time, relieve already heavily burdened cancer patients.

The objective of this report was to present the results of the Teleoncology Program review using the evaluation framework developed by Judy Roberts and Associates. The framework is organized into four broad indicators, each with a number of sub-indicators. Applying the framework to the review results revealed a number of strengths and weaknesses of the evaluation and points to recommendations to refine the framework for future evaluations. The four broad indicators attempt to provide a robust and multi-dimensional evaluation. However, without specific definitions, it is difficult to understand the meanings of the broad indicators, particularly when the sub-indicators appear to overlap with each other. Specific definitions of the broad
categories, as well as the sub-indicators, are needed to ensure that the framework is interpreted consistently. With few exceptions, process and outcome measures for each of the sub-indicators have not been specified. This omission contributes to the confusion regarding the meaning of each of the indicators and detracts from the comparability of different Teleoncology Program reviews as each will use its own set of outcome and process measures. These measures should be feasible and available through routinely collected data or specified for primary data collection tools (i.e. use a widely adopted satisfaction question to assess patients satisfaction).
5. Conclusion & Recommendations

This evaluation found, in general, widespread support and satisfaction with the use of telehealth services to deliver oncology services. The Teleoncology Program was found to be acceptable to both patients and care providers in the delivery of clinical services, as well as a substantial resource for continued education programs, particularly to health professionals practicing in rural and remote areas of the province.

Other evaluations and studies of telehealth programs have found similar strengths and weaknesses to those found in this evaluation of the Newfoundland and Labrador Teleoncology Program. For example, using similar data collection strategies used in this report, Whitten et al. (12, 13, 14) report evaluations of the telehealth programs in the Marquette General Health System and Michigan’s Upper Peninsula. They found high overall user-satisfaction with the telehealth experience (though physicians were slightly less enthusiastic than patients); agreement that telehealth limits privacy; the need for increased marketing and implementation strategies; inadequate local staff support; lack of local technical expertise; and the need for better scheduling and coordination of telehealth sessions.

Users and participants in this evaluation highlighted means to overcome these problems and strengthen the Newfoundland and Labrador Teleoncology Program. These include:

- **Upgrade equipment.** Many of the technical problems encountered may be resolved by upgrading the equipment. Specific suggestions to improve equipment included a better bandwidth and more compatible equipment at all the sites, or using equipment already available through the regional boards and not bridge through TETRA. To improve the screen size issue it was suggested that two separate screens be utilized, either 2 LCD screens or a projector for the presenter and an LCD screen for the slide; the audio issue may be resolved by requiring everyone to wear a microphone, or by having one microphone that everyone has to use to ask questions.

- **Dedicate more human resources.** There was a suggestion for a master schedule for each teleoncology clinic which would allow for appropriate dedicated personnel for patient support. Also, having a greater degree of technical support in the linked areas will help isolate and resolve technical problems.

- **Improve scheduling.** Scheduling sessions more than 5 minutes apart would improve on the prevailing feeling of rushing through appointments. Also, for northern communities there is a greater chance of patients being delayed due to weather and everyone would benefit by scheduling appointments for later in the day. Also, schedulers should be cognizant of the 30 minute time zone difference between the island portion of the province and most of Labrador.

For educational sessions, using local site coordinator was suggested as an ideal way to improve scheduling issues, make room bookings, and ensure that participants attend the sessions. These site coordinators would report to an overall coordinator.
• **Promote telehealth services and educate potential users.** The Teleoncology Program should actively promote their service to highlight the importance and convenience of the program with patients and with health care providers, both clinically and educationally. Program demonstrations were mentioned as a successful promotional method used by other provinces.
6. REFERENCES


7. APPENDICES
APPENDIX A:

PART A REPORT
Teleoncology Program Evaluation
Part A
Review and Analysis of Existing Data

Prepared by:
Health Research Unit
Division of Community Health and Humanities

February 2007
Evaluation Team:

Maria Mathews, PhD. Associate Professor Health Policy/Health Care Delivery Division of Community Health & Humanities

Ann Ryan, MSc. Manager Health Research Unit, Division of Community Health & Humanities

T. Montgomery Keough, MSc. (Candidate), Health Researcher, Health Research Unit, Division of Community Health & Humanities

Sara Heath, MSc. (Candidate), Computer and Database Specialist, Health Research Unit, Division of Community Health & Humanities
Introduction

The Newfoundland and Labrador Teleoncology Program (NLTOP) was initiated to enhance the current delivery of services of the former Newfoundland Cancer Treatment Research Foundation (NCTRF; now part of the Eastern Regional Integrated Health Authority), utilizing the telehealth expertise found within the e-Health Research Unit (formerly associated with TETRA) of Memorial University of Newfoundland, to deliver and support province wide cancer treatment, management and educational services. It was developed to address service gaps such as the need for more consultation, better referral process, clarity about guidelines, standards and policies, education, and access to other support services, particularly among rural health care providers who deliver cancer services such as chemotherapy and follow-up medical visits for people of their regions.

A mid-term overview report was completed by the project team and submitted in December 2005 as the first part of the evaluation process (Dwyer, 2005, NLTOP, Mid Term Report Final). The Health Research Unit (HRU), Division of Community Health and Humanities, Faculty of Medicine, was contracted to complete the second part of the evaluation process - the formal project evaluation.

This evaluation is divided into two parts:
   - Part A: a compilation and analysis of existing data
   - Part B: interviews with 15 health care professionals who have used the Teleoncology system, analysis of the themes which emerge from these interviews; and a summary report integrating the results of Part A with the results of Part B.

This report will deal only with Part A.
Methodology

To present and analyze the existing data for Part A, the data were divided into quantitative and qualitative sections.

Quantitative data: The patient satisfaction survey, program bookings and participation logs were recorded by NLTOP staff in Excel. The Excel file was submitted to the HRU and imported into SPSS, entries cleaned extensively for consistency, and variables modified for a clearer analysis.

Qualitative data: Comments and messages to NLTOP staff and answers to the patient satisfaction survey’s open-ended questions were entered in WORD, analyzed for themes and grouped into theme categories.
Results

Quantitative

Sources:
1) Patient satisfaction survey
2) NLTOP booking requests
3) NLTOP participation logs

Patient Satisfaction Survey

The patient satisfaction survey questions are presented in Appendix 1. There were 67 completed surveys submitted between April 2005 and September 2006. Of these 67 responses (see Figure 1) there were 39 males and 26 females (2 non-responses to this question).

Figure 1: Gender
The age breakdown of patients is given in Figure 2. Most patients were in the older age groups with 66% of respondents 61 years and older (6 non-responses).

**Figure 2: Age**

![Age Breakdown Chart](chart_url)

The majority of the completed surveys came from patients in the Central Regional Integrated Health Authority (see Figure 3), with most utilizing the Grand Falls/Windsor or Gander sites.

**Figure 3: Respondents by Regional Health Authority Region**

![Regional Respondents Chart](chart_url)
Forty-six percent (46%) of the surveys were completed by the patient and 17.9% were completed by a relative or friend of the patient (Figure 4). The respondent’s relationship to the patient was not specified by 36%.

**Figure 4: Respondent's Relationship to Patient**

When asked “Was this your first video conference?” 84% of respondents replied “Yes” (Figure 5).

**Figure 5: First Video Conference**
Respondents were asked to rate a series of statements regarding their experience using the Telehealth system as “strongly agree”, “agree”, “neutral”, “disagree”, or “strongly disagree” (Table 1).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree # (%)</th>
<th>Agree # (%)</th>
<th>Neutral # (%)</th>
<th>Disagree # (%)</th>
<th>Strongly Disagree # (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The appointment was well organized</td>
<td>32 (47.8)</td>
<td>32 (47.8)</td>
<td>1 (1.5)</td>
<td>1 (1.5)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I was provided with satisfactory explanation of what to expect from the</td>
<td>29 (43.3)</td>
<td>29 (43.3)</td>
<td>4 (6.0)</td>
<td>4 (6.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>session</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt comfortable with the use of the video equipment</td>
<td>26 (38.8)</td>
<td>33 (49.3)</td>
<td>2 (3.0)</td>
<td>2 (3.0)</td>
<td>4 (6.0)</td>
</tr>
<tr>
<td>I felt comfortable with the purpose of the staff attending the session</td>
<td>36 (53.7)</td>
<td>27 (40.3)</td>
<td>1 (1.5)</td>
<td>2 (3.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I felt supported during the session</td>
<td>33 (49.3)</td>
<td>29 (43.3)</td>
<td>2 (3.0)</td>
<td>2 (3.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I was able to present all the same information as I would have been able to in person</td>
<td>31 (46.3)</td>
<td>29 (43.3)</td>
<td>2 (3.0)</td>
<td>3 (4.5)</td>
<td>2 (3.0)</td>
</tr>
<tr>
<td>I was able to communicate with the health care professional at the other site</td>
<td>31 (46.3)</td>
<td>29 (43.3)</td>
<td>2 (3.0)</td>
<td>3 (4.5)</td>
<td>2 (3.0)</td>
</tr>
<tr>
<td>There was enough time to ask questions</td>
<td>34 (50.7)</td>
<td>28 (41.8)</td>
<td>2 (3.0)</td>
<td>2 (3.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>The technology allowed me to express my concerns (1; 1.5% unspecified)</td>
<td>30 (44.8)</td>
<td>30 (44.8)</td>
<td>1 (1.5)</td>
<td>4 (6.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>The videoconference equipment did not inconvenience me (1; 1.5% unspecified)</td>
<td>30 (44.8)</td>
<td>28 (41.8)</td>
<td>0 (0)</td>
<td>6 (9.0)</td>
<td>2 (3.0)</td>
</tr>
<tr>
<td>I was satisfied with the session (1; 1.5% unspecified)</td>
<td>33 (49.3)</td>
<td>28 (41.8)</td>
<td>0 (0)</td>
<td>4 (6.0)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I would use telehealth services again (1; 1.5% unspecified)</td>
<td>33 (49.3)</td>
<td>24 (35.8)</td>
<td>3 (4.5)</td>
<td>2 (3.0)</td>
<td>4 (6.0)</td>
</tr>
<tr>
<td>I would recommend the use of telehealth services (1; 1.5% unspecified)</td>
<td>31 (46.3)</td>
<td>26 (38.8)</td>
<td>3 (4.5)</td>
<td>2 (3.0)</td>
<td>4 (6.0)</td>
</tr>
</tbody>
</table>

Most respondents “agreed” or “strongly agreed” with all the positive statements, particularly with two of the statements “I felt comfortable with the purpose of the staff attending the session” and “There was enough time to ask questions” (54% and 51% respectively “strongly agree”).

Though experiences seem to be mostly positive, the one statement that had more negative responses than the others was: “The videoconference equipment did not inconvenience me”. This statement rated 9% “disagree” and 3% “strongly disagree”.
Comparing the video-conference visit with an in-person visit, 61% of respondents felt it was the same as meeting in-person (Figure 6), while 30% thought it was not as good as in person and 3% did not feel it was acceptable.

**Figure 6: How does video-conferencing compare to in-person visits?**

- Not specified: 2 (3.0%)
- Not acceptable: 2 (3.0%)
- Not as good as in-person: 10 (29.9%)
- Same as in-person: 41 (61.1%)
- Much better: 2 (3.0%)

When asked what they would do if telehealth were not available to them (Figure 7), 48% chose “travel to see a health care professional in person” and 40% chose “wait to see a health professional at a traveling clinic”.

**Figure 7: If telehealth were not available would you...**

- Unspecified: 6 (9.0%)
- Travel or wait: 2 (3.0%)
- Wait for a travelling health clinic: 27 (40.2%)
- Travel to see in person: 32 (47.8%)
For an in-person consult most people would have to travel over 100 km (Figure 8), with 42% claiming between 101-500 km journey and 22% claiming greater than 500 km journey.

Figure 8: How far would you have to travel if telehealth were not available?
NLTOP booking requests

There were a total of 621 telehealth sessions booked from September 2004 to August 2006 (see Appendix 2 for Booking Request form). While educational/administrative sessions per month remain consistent, clinical sessions have generally been on the increase.

**Figure 9: Number of Sites Connected, by Activity**

The main disciplines requesting these sessions are given in Figure 10. Medical oncology and radiation oncology had the greatest percent of bookings.

**Figure 10: Discipline Requesting use**
The length of the booked sessions was broken down into less than fifteen minutes, between 15-29 minutes, 30-59 minutes and greater than 60 minutes (see Figure 11). The number and percent of each were similar (20-25%), with slightly more sessions of 60 minutes or more (30%).

**Figure 11: Length of Active Session**

The purpose of the booked sessions is given in Figure 12; follow-up consult was the most common purpose (365; 58.8%) followed by educational sessions (153; 24.6%).

**Figure 12: Purpose of active session**
Table 2 is a breakdown of the participants/users in all active sessions. It should be noted that participants (particularly the health professionals) are likely to have attended more than one session. Overall, there were a greater number of physician participants (1378; 41.2%) followed by nurses (646; 19.3%) and patients (374; 11.2%). Clinical use shows a breakdown of 28% physicians and 26% nurses and patients, followed by 17% family and friends. For administrative and educational sessions, physicians were also more likely to be participants (51%), but pharmacists ranked second (16.2%), followed by nurses (14.1%).

### Table 2: Participants of Active Teleoncology Sessions

<table>
<thead>
<tr>
<th>Participants</th>
<th>Total</th>
<th>Clinical</th>
<th>Administrative /Education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Patients</td>
<td>374</td>
<td>11.2</td>
<td>374</td>
</tr>
<tr>
<td>Dieticians</td>
<td>2</td>
<td>0.1</td>
<td>0</td>
</tr>
<tr>
<td>Physicians</td>
<td>1378</td>
<td>41.2</td>
<td>398</td>
</tr>
<tr>
<td>Social Workers</td>
<td>12</td>
<td>0.4</td>
<td>3</td>
</tr>
<tr>
<td>Nurses</td>
<td>646</td>
<td>19.3</td>
<td>375</td>
</tr>
<tr>
<td>Family/Friends</td>
<td>240</td>
<td>7.2</td>
<td>240</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>311</td>
<td>9.3</td>
<td>0</td>
</tr>
<tr>
<td>Other Disciplines</td>
<td>98</td>
<td>2.9</td>
<td>0</td>
</tr>
<tr>
<td>Stakeholders/Evaluators/Administration</td>
<td>144</td>
<td>4.2</td>
<td>0</td>
</tr>
<tr>
<td>Other participants</td>
<td>143</td>
<td>4.3</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3345</strong></td>
<td><strong>100%</strong></td>
<td><strong>1425</strong></td>
</tr>
</tbody>
</table>
Figure 13 shows the breakdown of activity (clinical or educational/administrative) by region. Central RIHA used the teleoncology service mostly for clinical purposes (87% of active bookings) while the breakdown for the other RIHA’s was approximately a 60/40 split between clinical and educational/administrative. The ‘Other’ category involved out of province connections, which were mostly (94%) educational/administrative.

**Figure 13: Regional Breakdown of Active Site Activity**

<table>
<thead>
<tr>
<th>Region</th>
<th>Clinical</th>
<th>Educational/Administrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>44 (94%)</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>Gren/Lab RIHA</td>
<td>3 (12%)</td>
<td>63 (88%)</td>
</tr>
<tr>
<td>Western RIHA</td>
<td>2 (4%)</td>
<td>24 (96%)</td>
</tr>
<tr>
<td>Central RIHA</td>
<td>276 (87%)</td>
<td>42 (13%)</td>
</tr>
<tr>
<td>Eastern RIHA</td>
<td>387 (67%)</td>
<td>192 (33%)</td>
</tr>
<tr>
<td>Total</td>
<td>753 (64%)</td>
<td>415 (36%)</td>
</tr>
</tbody>
</table>

Legend: 
- Admin/Ed 
- Clinical
Cancellations or ‘no shows’ for booked sessions are shown in Figure 14. Within each region most cancellations were for educational/administrative sessions. The Western region had a greater proportion (88%) of educational/administrative cancelled sessions than the other regions.

**Figure 14: Regional Breakdown of Cancelled Bookings**

<table>
<thead>
<tr>
<th>Region</th>
<th>Admin/Ed</th>
<th>Clinical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gren/Lab RIHA</td>
<td>18 (32%)</td>
<td>38 (68%)</td>
</tr>
<tr>
<td>Western RIHA</td>
<td>4 (12%)</td>
<td>30 (88%)</td>
</tr>
<tr>
<td>Central RIHA</td>
<td>16 (36%)</td>
<td>28 (64%)</td>
</tr>
<tr>
<td>Eastern RIHA</td>
<td>43 (41%)</td>
<td>63 (59%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>45 (41%)</td>
<td>64 (59%)</td>
</tr>
</tbody>
</table>

0%  20%  40%  60%  80%  100%

- **Admin/Ed**
- **Clinical**
Qualitative data came from two sources:

1) Recorded comments/messages to NLTOP staff
2) Open-ended question responses from patient satisfaction surveys

Recorded comments/messages to NLTOP staff

The comments to NLTOP staff and their replies were recorded from February 2005 to August 2006 and submitted for analysis. They reflect ongoing issues during that time period.

The comments were grouped into the following categories:

- Bookings/scheduling/location
- Equipment availability including training and usage, quality and technical issues
- Staff availability
- Network and connectivity
- Patient care and confidentiality

Bookings/scheduling/location

There were problems with booking procedures and communication between users and providers.

“There was a breakdown in communication and there were changes to site locations for a patient, however, not coordinated/scheduled through me as is required.” – February 2006

“The mix up in patients at the beginning of the session: Nurses and male patient were waiting for a doctor within their region to call in on an emergency with this patient. They had not checked with video coordinator at Labrador Health Centre to make certain that the equipment wasn’t already booked for another patient (which in this case, it was booked).” – May 2006

Communication is important for scheduling and cancellation notice, particularly with remote sites. Scheduling difficulties resulted from a number of causes including time zone differences between the island and Labrador.

“The confirmations from participants are coming much too slow.” – February 2006

“... the main problem is the peripheral sites and scheduling. They need to be more flexible, especially if given plenty of notice (months) to plan” – June 2006

“Nurse cancelled session last week but doctor and teleoncology were not informed of this cancellation.”

“... and you ever had to send a request directly to a coastal site they may not pick up the time difference and this may cause problems with bookings.” – March 2006
The location of the booked telehealth session was often an issue. Connected locations were not always available, and appropriate space for patient/user comfort and confidentiality were also an issue.

“St. Clare’s does not have the right conference room hooked up for thoracic rounds.” - January 2006

“The Staff lounge is not an option when the video is a confidential patient consult.” - January 2006

**Equipment availability including training and usage, quality and technical issues**

Sometimes equipment was unavailable at the time of booking due to increased volume of bookings or lack of appropriate equipment.

“I faxed a booking slip for Friday @ 8:30 for Corner Brook, for nursing rounds but the equipment is not available then so I will cancel it. I will hook them up by audio instead.” - January 2006

“Without the proper equipment and required hook-ups, presenting PACs images and other electronic files are poorly presented by having to ‘zoom in’ on projected images.” - March 2006

“Would be nice to have those accessory cameras that can give high-res detail on skin lesions.” – November 2005

The need for training and orientation in the proper use the video and audio equipment was essential for the efficient operation of the session.

“I feel that Dr. X would have benefited from a similar orientation and would not have had the horrific experience he had. We are going to make it a policy that first time users of this service should have some sort of orientation prior to use.” - September 2005

“Much better, except that I am not very good at operating the remote. I need a lesson again next time.” – April 2005

Common issues with quality of telehealth video equipment were: unclear images, and freezing and tiling of the images; common issues with the quality of the audio connections included background noise, freezing and delays. These problems were more common without point-to-point connections.

“Clarenville was very bad. Complete freezing for up to 6-7 seconds. We did reboot but it was not helpful. Gander was not as bad video wise but there was an audio delay much the same as the delays experienced in the past with Gander.” - December 2005

“Dr. X was not happy with the delay in audio. It’s about five seconds. There was again some freezing in all sites and lightning bolts.” - January 2006

“Everything seemed fine to me until Port aux Basques was connected. From then on I found a lot of freezing taking place.” – Aug 2006
“The picture and sound from St. Clare's were poor considering we were point to point. There was tiling and a vibration on sound…” - April 2006

There were also some technical issues with other equipment such as connections to media carts and transmitting images from microscopes and the use of the remote camera.

“... We've got some technical issues at St. Clare’s that need to be worked out, specifically the microscope. Until we can hook that up to the screen and project good images to the other sites it's not going to work for Corner Brook.” - May 2006

“This morning we tried to connect up the cancer clinic media cart for Dr. X because he has an all-day patient clinic with Gander by video. It just wouldn’t work. This happened the last time we tried a few weeks ago. The VGA connector is really bad…” - November 2005

“Biggest technical handicap now is the inability to control remote camera.” – November 2005

Staff availability
The availability of a nurse is required for patient support during clinical telehealth sessions. Sometimes this was a problem, particularly if the nurse had to accompany a patient to another site outside the hospital.

“There is no way they can guarantee that a nurse can be available for the consult/follow-up with a patient, Not even on the day of the video ... for patient support to be guaranteed, it would be best to book the patient at another location. Not ideal, especially during the winter, but better than running a great risk that the patient will only be accompanied by a family member or worse, alone.” - Sept 2006

“... Not nice having to ask nurses who are on duty to leave the hospital for sessions.” - February 2006 {referring to use of the CNA instead of the hospital for video}

“There is no Nursing staff available to support the patient if we were to relocate to the community college.” – February 2006

Network and connectivity
Point-to-point connections for teleheath sessions were best for quality and security but were not always available.

“Unfortunately we cannot make a point-to-point connection with St. Clare’s once we go through TETRA to bridge the connection to Port aux Basques. This is why we always connect with St. Clare’s first.” - March 2006

“Goose Bay and St. Anthony are trying to establish a direct link to the cancer centre for patient consultations and have so far been unsuccessful. We have reconfigured the units as directed only to have no connection established, however we cannot help with network questions etc. Successful connection can occur through TETRA, however for sustainability purposes they would like to establish direct connect.” - July 2005
Patient satisfaction and care and confidentiality
Many clinical users were pleased with the availability of the teleoncology service for the convenience it offers to them and their patients. In some instances the service was instrumental in persuading the patient to seek essential treatment.

“The video conference went really well the morning. The picture quality was excellent. I spoke to the patient afterwards and she was also pleased.” - December 2005

“...Despite this the patient was pleased to be able to see her doctor this way and wants to do it again.” - January 2006

“...It's been a great tool so far, and has saved a lot of patients (And me!) time and expense while increasing patients' accessibility to oncology services. ...” - March 2006

“...patient, from at least, a thousand kilometres away, was not willing to consider any kind of treatment. Because of travel issues he was not sure of the degree of benefit from treatment. After the 45-minute discussion with him over the video conference, he appreciated the pros and cons of not going for treatment. He used that information to make up his mind for treatment and not only presented to cancer clinic later but also has completed (treatment) with current complete remission status.”

Clear procedures are needed to ensure confidentiality of patients and patient related material. This is a particular issue when connections are made automatically and not operator assisted. Also, holding a connection open when there are no attendants at the connected site has the potential for a breach of confidentiality.

“...re confidentiality, I will be changing the setting on her system so that someone in the room has to answer the call... no one will be able to connect direct automatically. It would be a serious breach, and grounds for dismissal, if someone where to do an unscheduled connect which we are now capable of doing.” - March 2006

“Because Rounds involve specific patient information, confidentiality would be compromised if we remain connected to an unattended room, so St. Clare's was disconnected.” - March 2006

Open-ended question responses from patient satisfaction surveys:

Some patient comments mention the same technical difficulties discussed in the previous section: audio delays, video freezing and unclear images.

“Unable to communicate well due to freezing and delayed audio.”

“Video was not clear. Screen often turned black/blank; faces were blurry.”

Comments from patients, and relatives who accompanied the patient, were mostly positive. People were appreciative of the fact that they did not have to incur the cost, inconvenience, and discomfort of travel to see their doctor.

“Instead of a 4.5 hour drive, I was able to have the convenience of having a visit with my doctor and be home with my family...”
“Benefit was – it saved me a lot of money for air travel costs, etc. also for accommodations, food and taxi fares.”

“Benefit of not having to travel with a very sick person. Benefit of arranging future plans.”

“...conference at Gander was very acceptable and comfortable for me. Making a trip to St. John’s would be very painful because of my severe back problem.”

“Did not have to travel and was able to receive results of last x-ray and CT scan. Good advice from doctor...”

Though most replies were positive, several stated that while they enjoyed the benefits of the teleoncology session, they would still prefer a face to face meeting with their doctor. “If there was a serious concern about more cancer I would probably want to see the doctor in person.”

“We understand the busy schedules but we would still like to see our doctor every now and then. It feels more comfortable to talk directly and laugh with our doctor.”

“I would rather talk to the doctor in person.”

This was particularly the case with patients who are hard of hearing. “For my Dad it isn’t as good as in person. He is hard of hearing and finds it difficult to communicate in this way.”

“Seems like it was not easy to hear each other at times.”
Discussion

This Part A report of the evaluation of the Newfoundland and Labrador Teleoncology Program examines data collected from September 2004 to August 2006. This included data from a patient satisfaction survey, administrative data involving program bookings and participation logs, and comments and messages between NLTOP staff and users. These data provide a snapshot of the progress to date and were used to inform the questions for the qualitative interviews which will be analyzed and reported in PART B.

The Teleoncology service to date is used for clinical, administrative and educational purposes. Bookings for clinical sessions have been increasing over the study period, most often for follow-up patient care. Participants in the clinical sessions included patients, family/friends, physicians, nurses and social workers. Participation in administrative and educational sessions was broader and included physicians, pharmacists, nurses, social workers and administrators and other stakeholders.

Regionally, a large percentage of the patient satisfaction surveys were completed by participants from the Central RIHA; the Central region also had the greatest percent of clinical bookings; the Western region had the largest percent of cancelled administrative/education sessions.

Overall, patient and provider reaction to the Teleoncology service was quite favourable. Both said that (1) it saved travel time and money, (2) was for the most part an effective and efficient way to offer services, and (3) instrumental in improving accessibility of centralized cancer services.

However, these data also identify key areas for improvement:
- Ongoing technical and communication issues. Interim strategies (such as connection order) were developed to address some issues, but others remain.
- Scheduling can be particularly problematic. This requires four aspects to progress smoothly: (1) clear communication, (2) confirmation of staff, (3) site and (4) equipment availability.
- Ethical issues may emerge. There is a need for guidelines to ensure ethical practice (such as unlinking “empty” sites/rooms)
- Data identified particular patient groups for whom the Teleoncology service may not be appropriate, specifically hearing impaired and patients with poor prognosis. Face to face meetings were still favoured for these groups and arrangements may need to be made to accommodate their needs.
- Training of providers is essential for smooth, efficient service, particularly for new users (providers)
- There is a need to identify the reason for the high rates of cancellations for educational/administrative sessions.

Limitations:
- Though administrative data show that there were 374 patients participating in the Teleoncology service in the time period studied, only 67 completed the patient
satisfaction survey for a response rate of 18% (Trish: this assumes that there were no repeat patients??). A greater response rate may have identified other patient issues.

- The patient satisfaction survey might have been biased by the over representation of Central RIHA participants.
- The qualitative components of this report were for the most part opportunistic. PART B will allow for more systematic data collection of the strengths and weaknesses of the Teleoncology Program.

Overall, this data indicates that reactions to the Teleoncology Program are positive, though there are still some key issues that need to be addressed.
References

Appendix 1
Newfoundland and Labrador Teleoncology Program
Patient/Family Member Satisfaction Survey

It is envisioned that the Newfoundland and Labrador Teleoncology Program, utilizing Telehealth, will supplement, enhance, and support cancer services delivery by addressing patient and provider needs in rural Newfoundland and Labrador.

Telehealth is defined as the use of communications and information technology to deliver health and health care services and information over large and small distances.

Your impressions are very important, but you are not obligated to respond to this request for feedback. Information collected will be used by the Dr. H. Bliss Murphy Cancer Centre and the e-Health Research Unit, MUN to monitor and evaluate the Newfoundland and Labrador Teleoncology Program. All responses, given on this form, will be kept confidential.

Section 1
Date _________________ LOCATION __________________ AGE

GENDER Female Male

Relationship to patient: _________________
Was this your first video conference? Yes No
Section 2
Please check the box that best indicates how much you agree or disagree with each statement below regarding your experience using the Telehealth Service.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<tbody>
<tr>
<td>Appointment was well organized.</td>
<td></td>
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<tr>
<td>I was provided with a satisfactory explanation of what to expect before the session began.</td>
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<tr>
<td>I felt comfortable with the use of the videoconference system.</td>
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<tr>
<td>I felt comfortable with the purpose of the staff in the room with me.</td>
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<tr>
<td>I felt supported.</td>
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<tr>
<td>I was able to present the same information I would have presented in person.</td>
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<tr>
<td>I was able to communicate with the health care professional at the other site.</td>
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<tr>
<td>There was enough time to ask questions.</td>
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<td>The technology allowed me to express my concerns.</td>
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<tr>
<td>The videoconference equipment did not inconvenience me in any way.</td>
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<tr>
<td>I was satisfied with the session.</td>
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<tr>
<td>I would use the telehealth service again.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>I would recommend the use of Telehealth to a family member and/or friends.</td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>
Section 3
3.1 How do you think your visit using video-conference compares to a visit done in-person?
   Much better
   A bit better
   Same as in-person
   Not as good as in-person
   Not acceptable

3.2 If telehealth were not available would you have:
   travelled to see the health care professional in person?
   waited to see the health care professional at a travelling clinic?
   not seen the health care professional at all
   other?

3.3 About how far would you have to travel for your consult if the Telehealth was not available?
   0-50 kilometers   101-200 kilometers   501-1000 kilometers
   51-100 kilometers   200-500 kilometers   > 1001 kilometers

3.4 Would you recommend any changes to improve the Telehealth Service?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

3.5 Please comment on any benefits or disadvantages for you in having today’s telehealth
   session.
   (Feel free to use the back of the page.)
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
Thank you for taking the time to complete this questionnaire!

Please return to local Site Staff
or
P. Dwyer RN, MSc
e-Health Research Unit
Faculty of Medicine
300 Prince Philip Drive
St. John’s, NL
A1B 3V6
Fax #: 709-777-8838
************************************************************************
For evaluation purposes, would you be willing to be contacted for an interview regarding your experiences with the Telehealth session? Yes ___  No ___

If Yes, please complete this portion of the evaluation form and return to the address given above.
Thank you!

Name: __________________________ email: __________________________
Phone #: _________________________ Relationship to patient: ________________
Postal Address: ____________________
Appendix 2
**Teleoncology Booking Request form**

**Date of Request:** _________________  
**Office Use Only:** ID __________

**Booking Information**
- **Conference Date:** _________________  
  - Audio  
  - Video  
  - Booked Time: _____ to _______  
  - Start  
  - Finish
- **Requested By:** ____________________  
  - Title/Discipline: ____________________
- **Organization:** ____________________  
  - Contact Tel Number: ____________________

**Conference Type** (Please check the appropriate box)
- Clinical: Consult  
  - Assessment  
  - Follow Up  
  - Support  
- Education  
  - Administration  
  - Title/purpose: ____________________
- Other (Specify):

**Conference Site(s) Information** (use separate paper if additional space is needed)

<table>
<thead>
<tr>
<th>Video Conference Location</th>
<th>Community</th>
<th># of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

**Equipment Required at Presenting Site**
- PowerPoint  
- VCR  
- DVD  
- Other (Specify): ____________________

**CLINICAL SESSION**

**Patient Information**
- **OPIS #:** _________________  
- **Male**  
- **Female**  
- **Cancer:** ____________________  
- **MCP#** ____________________

**EDUCATION, ADMINISTRATION SESSION**

**Target Audience** (please provide, where possible, number expected to attend)
- **Patient**  
- **Physician**  
- **Nurse**  
- **Pharmacist**  
- **Social Worker**  
- **Dietician**  
- Other (Specify):

**Additional Comments:**

Please fax completed form to Alice Nolan @ 777-8838 for processing
APPENDIX B:

PART B REPORT
Teleoncology Program Evaluation
Part B
Key Informant Interviews

Prepared by:
Health Research Unit
Division of Community Health and Humanities

June 2007
Evaluation Team:

**Maria Mathews, PhD.** Associate Professor Health Policy/Health Care Delivery
Division of Community Health & Humanities

**Ann Ryan, MSc.** Manager Health Research Unit, Division of Community Health & Humanities

**T. Montgomery Keough, MSc. (Candidate),** Health Researcher, Health Research Unit, Division of Community Health & Humanities

**Sara Heath, MSc. (Candidate),** Computer and Database Specialist, Health Research Unit, Division of Community Health & Humanities
Introduction

The Newfoundland and Labrador Teleoncology Program (NLTOP) was initiated to enhance the current delivery of services of the former Newfoundland Cancer Treatment Research Foundation (NCTRF; now part of the Eastern Regional Integrated Health Authority). It utilizes the telehealth expertise found within the e-Health Research Unit (formerly associated with TETRA) of Memorial University of Newfoundland, to deliver and support province wide cancer treatment, management and educational services. It was developed to address service gaps such as the need for more consultation, better referral process, clarity about guidelines, standards and policies, education, and access to other support services, particularly among rural health care providers who deliver cancer services such as chemotherapy and follow-up medical visits for people of their regions.

A mid-term overview report was completed by the project team and submitted in December 2005 as the first part of the evaluation process (Dwyer, 2005, NLTOP, Mid Term Report Final). The Health Research Unit (HRU), Division of Community Health and Humanities, Faculty of Medicine, was contracted to complete the second part of the evaluation process - the formal project evaluation.

This evaluation is divided into two parts:

- Part A: a compilation and analysis of existing data: “Teleoncology Program Evaluation Part A: Review and Analysis of Existing Data”
- Part B: interviews with 12 health care professionals who have used the Teleoncology system, analysis of the themes which emerge from these interviews

There will also be a summary report integrating the results of Part A with the results of Part B.

This report will deal only with Part B.
Methodology

Guideline questions for the Key Informant Interviews were developed in consultation with Teleoncology staff and administration. Separate questions were developed for clinical and educational applications (see Appendices 1 and 2). Questions covered include: the perceived strengths and weaknesses of the program from the health professionals’ and the patients’ perspective; training for, and comfort with, the technological aspects of the system; barriers to use and suggested ways to overcome barriers; advantages to use; whether users’ concerns/problems were addressed; what other cancer services and other disciplines in general would benefit from use of telehealth programs.

Teleoncology staff contacted 15 individuals who had previous experience using the Teleoncology system in a clinical and/or educational capacity, for their permission to be contacted by the Health Research Unit (HRU) for a Key Informant Interview. Names and email addresses of the consenting participants were submitted to the HRU. An HRU interviewer made e-mail or telephone contact and established a convenient time to complete the interview. Reminder emails were sent to interested participants twice by the HRU staff and once by staff with the Teleoncology Program.

A total of 12 interviews were completed; nine telephone interviews and three face-to-face. Of these 12, 10 Key Informants answered the clinical questions and 8 answered the educational questions; 6 completed both the educational and the clinical in the same interview.

The interviewer made extensive notes of the answers given by each participant. All participant answers were compiled for each question and summarized in point form and analyzed for themes. Due to similarities in presenting themes, the Clinical and Educational interviews are combined in the following Results section under the broad themes of strengths, weaknesses, and suggestions. The specific answers (presented in individual categories) for each question are summarized in Appendix 3.
Results:

Though there were weaknesses as well as strengths to the system. Key Informants were unanimous in their overall support for the Teleoncology Program. The results are presented under the broad categories of Strengths and Weaknesses/Barriers and ends with some suggestions from the Key Informants as to how to improve the system.

Strengths

Cost and time savings
Most felt the biggest strength of the program was its savings in costs and time traveled to provide/receive care. Some physicians do monthly site visits, which can be costly both in terms of finances and time, but with the Teleoncology Program the cost incurred is reduced to the patient and to the physician. This is particularly relevant for patients traveling from Labrador at great personal cost, not only for transportation but also accommodations. Accommodation costs are also likely to increase if adverse weather conditions influence the patient’s decision to arrive early to ensure they are available for their appointment. These savings, in cost and time, relieve already heavily burdened cancer patients.

Networking opportunities
A big strength of the program from the educational perspective is the ability for health professionals at distant sites to meet colleagues in St. John’s on a regular basis and to feel part of a team. Also, accessing and learning about new advancements in training is considered a great opportunity for those in rural and remote areas.

Better communication and continuity of care for patients
Patient information, such as X-rays and lab results, are available online, an advantage over a conventional clinic where the information has to be retrieved manually. Lab results via computer provide more immediate information to patients and providers, answering patients’ concerns and allowing for prompt medical decisions without the inconvenience, cost and time of traveling.

Communication between patients and health professionals is more immediate and accurate in the Teleoncology Program. In a conventional setting, the patient travels to see his/her oncologist, and the family doctor eventually receives an official report by mail or learns the results from the patient’s interpretation. But in the Teleoncology Program the nurse acts as an immediate bridge between specialist and family physician, so the physician can make the decisions and the nurse can coordinate follow-up.

While having more than one family member accompany the patient to a distantly located physician may not be affordable for most patients, the Teleoncology Program allows several family members into the consult sessions. This makes for better patient support and the patient feels a greater sense of autonomy in, and contribution to, their own health care.
Access to care/specialists/knowledge/skills
The Teleoncology Program makes it quicker and easier for the patient to obtain an appointment with a physician. Through the program patients also have increased access to specialized care, particularly patients living in isolated and remote areas of the province.

Health care providers in rural and remote areas are able to access knowledge and improve their skills through the Teleoncology educational sessions, not only through the content of the sessions but also through their interaction with colleagues in the larger centres. It encourages providers to keep abreast of the newest information in their field and to share information among interdisciplinary teams.

Visual component
Visual cues play an important role in patient treatment and assessment, and having a visual medium for consult sessions is an advantage. This can be particularly true with interaction with family members. The example given was: a patient replied to the physician that they had not been sick after the last chemo session, but the spouse’s reaction indicated the opposite was true.

Weaknesses/Barriers

Remote patient assessment limitations
Making patient assessments remotely has several limitations, including: lack of confidence without a physician’s ‘hands on’ examination of the patient, even though a nurse is present to do some examinations; consultations are often hurried (5 minute time allotted not enough); there is often a time lag for new medication orders after the consultation; also, patients/clients will eventually have to travel at some point; and the Teleoncology Program may not be appropriate/suitable for some patients such as those with hearing impairments, poor cognitive abilities, and those in extremely poor health. Also, patients sometimes find the system too impersonal and intimidating.

Access to the system and the service
Access is limited to potential users because the system is not available everywhere in the province. In addition, some patients who may want to use the service cannot have access because their oncologist does not utilize the system.

Availability of equipment and information
Availability of good functioning equipment is sometimes a problem and diagnostic and other information is not always available when needed. In some centres patients must use a non-clinical site (such as local college) where the patient may not be as comfortable and lab results etc. are not available.

Quality of connection
Users (both professionals and patients) report connection and other problems with the system. These include: delayed audio (this was cited as a particular problem for Gander); low volume; poor image quality; and the inability to control the camera for skin examinations. Interactivity and quality of session is sometimes limited because of the audio and/or video delay. Many felt that the technical issues with the system were its greatest drawback. When problems occur in St.
John’s where dedicated technical personnel were available, the problem was less acute, but in remote areas it caused much more difficulty.

**Language barrier**
Some people within the Innu population are not comfortable with English, and on the other hand, some of the oncologists are difficult to understand as English may not be their first language. While these problems would also exist in a face to face clinical visit, they are exacerbated by the system technology.

**Scheduling**
Coordinating sessions so that patients always have a nurse present for support and assessment can sometime be a problem. And one or two negative experiences can impact the patient’s willingness to use the system again.

With scheduling educational sessions, times offered are not always convenient for educational providers and for participants, though it might be argued that this is true for most health professional educational training sessions.

**Lack of Awareness of Teleoncology as an educational option**
Though people are interested in professional development, many do not realize that video/teleconferencing is a viable option for educational sessions.

**Dedicated human resources**
When a patient (eg in Burin) needs a video conference with a physician in St. John’s, while the physician may be available, a problem sometimes arises when there is no one dedicated to providing program support at the patient’s site. For instance, nursing support may not be available for specified Teleoncology sessions if the nurse is part time with Teleoncology Program but also part time with OR and the Teleoncology session clashes with scheduled OR commitments.

**Increased work/effort**
A remotely provided educational session can be challenging for the educator. Because participants are not present in the same room as the presenter, the presenter has to work harder to engage the participants, to keep the sessions dynamic and interactive. Conversely, the telehealth educational sessions are more effort for the participants to stay focused and learn to speak up and ask questions.

**Confidentiality**
Education sessions such as Rounds, where several remote sites are simultaneously linked to discuss particular cases, can be at risk of breaching confidentiality. This happens when a site link remains active even though there are no participants at the site room.
Suggestions

Upgrade equipment
Participants felt that upgrading equipment would solve many of the technical problems they experienced. Upgrading to include better bandwidth and more compatible equipment at all the sites, or using equipment already available through the regional boards and not bridge through TETRA. To improve the screen size issue it was suggested that two separate screens be utilized, either 2 LCD screens or a projector for the presenter and an LCD screen for the slide; the audio issue may be resolved by requiring everyone to wear a microphone, or by having one microphone that everyone has to use to ask questions.

Dedicate more human resources
There was a suggestion for a master schedule for each telehealth clinic which would allow for appropriate dedicated personnel for patient support. Also, having a greater degree of technical support in the linked areas will help isolate and resolve technical problems.

Better scheduling
Scheduling sessions more than 5 minutes apart would improve on the prevailing feeling of rushing through appointments. Also, for northern communities there is a greater chance of patients being delayed due to weather and everyone would benefit by scheduling appointments for later in the day. The need for schedulers to be cognizant of time zone differences (NL time vs Atlantic time in most of Labrador) was also mentioned.

Scheduling educational sessions for health care providers is always a challenge, due to their different shifts and many obligations. Some respondents felt it was important to ensure that physicians attend these sessions, particularly when they confirm their intentions to attend. A local site coordinator was suggested as an ideal way to improve scheduling issues, make room bookings, and ensure that participants attend the sessions. These site coordinators would report to an overall coordinator.

Promotion and education
Respondents felt that the Teleoncology Program should actively promote their service to highlight the importance and convenience of the program with patients and with health care providers, both clinically and educationally. Program demonstrations were mentioned as a successful promotional method used by other provinces.

It was suggested that it would be useful to ask the oncologists who are already using the system to encourage other physicians by pointing out the savings in time, and travel and the convenience of having patient charts, lab results etc readily available. Also, patients should be made aware that not all visits or conditions require a physical assessment (eg follow up for breast cancer and prostate cancer).

Confidentiality
To overcome the confidentiality issue it was suggested to have an automatic shut down when no one is on site using the system.
Suggested expansion areas
Using the Teleoncology system for other support services for cancer patients was also suggested (e.g. nutrition, pain management and pharmacy). Respondents felt that practically all clinical areas would benefit from the greater communication and networking that telehealth provides.

Rounds for other disciplines are also an option (Radiology rounds to discuss difficult X-rays), as are other general educational opportunities and in-services (CME for nursing social work and physicians). Possible administrative uses include provincial wide meetings (AGMs) and consultations.

Video conferencing for educational opportunities that exist outside the province was suggested as another effective use for the system.
Discussion:

The Key Informant interviews show overwhelmingly positive support for the use of telehealth to provide oncology services and to facilitate continuing professional education. The use for telehealth for these purposes offers many benefits, not the least of which are savings in costs and time for travel for both providers and patients. In addition, telehealth promotes better quality care by increasing the timeliness of lab and diagnostic information, promoting continuity of care, and allowing greater family support for patients during care.

When used for educational purposes, telehealth permits greater participation from physicians in the province, particularly those in rural communities. These sessions also provide a valuable opportunity for care providers to network and consult with each other.

Providing oncology care and education via telehealth also poses barriers, many of which may be managed or improved with better coordination, ongoing investment in technical upgrades, and dedicated human resources. Developing and implementing policies and/or procedures to protect confidentiality will also address concerns raised by study participants.

Ongoing education is needed to ensure that all users of the technology are able to utilize it to its full potential, especially when technical upgrades or new policies and procedures are introduced. In this regard, dedicated personnel are seen as a vital resource for day to day support for program delivery by care providers.

There are some situations where tele-oncology may not be considered suitable. For example, for patients with hearing problems, language issues, patients with cognitive issues or those in extremely poor health, tele-oncology may not be suitable and more traditional forms of care will still need to be available.

Study participants said that telehealth services offered great potential for many fields both in the health system and outside of it. Many of the advantages realized for oncology could also be available to other medical programs that require travel for patients, providers, or both. This is particularly advantageous for certain types of visits, such as consultations or follow-up visits. It could also be used for multi-disciplinary team consultations and in-services. As the use of telehealth expands, particularly for other health care purposes, there may be opportunities to create dedicated positions in the outlying communities to coordinate and facilitate telehealth services.

Many people are unaware of the services offered through telehealth and how it may be used to enhance services in and outside the health system, for education and for administrative use. There is a need to publicize and promote the telehealth system and how care providers may make the most of these resources to deliver their programs and services.

The continued success of the tele-oncology program and the expansion of telehealth services to other health and educational programs may depend to a great degree on on-going investment and upgrading of the technical infrastructure. From the system perspective, costs of investment in telehealth technology may be offset, in the long term, by the saving in travel and time to
providers and patients alike. Future research and program evaluations should include an examination the cost-effectiveness of tele-oncology services in the province.

**Limitations**

Limitations of this study include:
- Not all care providers were interviewed;
- There may be some bias with those that volunteered to be interviewed as those with less positive experiences may not have been willing to participate;
- Patients were not interviewed and therefore we are accepting the care providers’ perspective on their patients’ views.

Conducting patient interviews was not within the scope of the study.

Despite these limitations, our findings triangulate with the quantitative portion of this study (Part A) that examined booking and patient survey data. It found similar strengths and weaknesses and helps establish the credibility of these findings.

**Conclusions**

There is overwhelming support for the use of telehealth to provide oncology services. Ongoing technical upgrades, education/training, and policies and procedures to address potential barriers will continue to build on the benefits the system has to offer. There are many other opportunities to use telehealth and it is expected that they will bring similar benefits to patients and providers alike in other disciplines.
Appendix 1
Teleoncology draft guideline questions: Clinical

1. From your perspective as a health care professional, what do you feel are the strengths of the Teleoncology Program for clinical use?
   Prompts: Scheduling, Times available, Access, Improved and expanded team, Increased compliance, Initiated treatment earlier, Prevented deterioration of condition, Avoided admission to hospital, Ability to interact with pt at a distance, Availability of reports, diagnostic images and lab reports during consult, Less isolation, Travel Patient or HCP, Other...

2. From your patient’s perspective, what do you feel are the strengths of the Teleoncology Program for clinical use?
   Prompts: Times available, Travel, Cost, Improved access to care in their community, Family able to participate, Improved team coordination, Facilitate Primary Nurse contact in local area, Pts comfort with technology, Other...

3. From your perspective as a health care professional, what do you feel are the weaknesses of the Teleoncology Program for clinical use?
   Prompts: Scheduling, Times available, Equipment available, Access to chart (x-rays, blood work etc), Improved and expanded team, Isolation increased or decreased, Travel, Other...

4. From your patient’s perspective, what do you feel are the weaknesses of the Teleoncology Program?
   Prompts: Times available, Travel, Cost, Family able to participate, Improved team coordination, Facilitate Primary Nurse contact in local area, Other...

5. Do you feel you received clear instructions and/or training in the video equipment use necessary before your first Teleoncology session? Why or why not?
   Prompt: What instructions did you receive? Did you know what to expect? Did you who to contact if you experienced technical problems? What more/different instruction would you like?)

6. Do you feel you were able to adequately provide care to your patients via telehealth?
   Prompts: same as face to face, able to present the same information I would have presented in person, comfortable with my ability to interact with the patient, was patient satisfied with the session, comfortable with the use of the videoconference system

Would you use the telehealth service again?
7. What do you feel are the greatest barriers to using Teleoncology in your clinical practice?
How do you think these can be overcome?

8. What do you feel are the greatest advantages to using Teleoncology in your clinical practice?

9. Do you feel your requests/suggestions/concerns for change/improvements have been addressed to your satisfaction?
Why or why not?

10. In what other cancer areas/disciplines/activities do you feel the system could be effectively utilized?
What other areas/disciplines in general do you feel would or could benefit from telehealth?

Any additional comments and observations?
Appendix 2
Teleoncology draft guideline questions: Educational

1. From your perspective as an educator, what do you feel are the strengths of using the Teleoncology Program (System?) for educational purposes? e.g. Rounds
   Prompts: Scheduling, Procedures, Times available, Extension to others, Quality of audio/video, Travel, Cost, Other...

2. From the perspective of those participating in educational sessions such as Rounds, what do you feel are the strengths of the Teleoncology Program (system?)?
   Prompts: Availability, Increased access, Quality of audio/video, Travel, Cost, Other...

3. From your perspective as an educator, what do you feel are the weaknesses of the Teleoncology Programs for educational purposes? e.g. Rounds
   Prompts: Scheduling, Procedures, Times available, Extension to others, Quality of audio/video, Travel, Cost, Other...

4. From the perspective of those participating in educational sessions such as Rounds, what do you feel are the weaknesses of the Teleoncology Program?
   Prompts: Scheduling, Times available, Quality of audio/video, Travel, Other...

5. Do you feel you received clear instructions in the use of video conferencing before your first Teleoncology education session?
   Prompt: What instructions did you receive? Did you know what to expect? Did you know who to contact if you experienced technical problems? What more/different instruction would you like?)

   Why or why not?

6. What do you feel are the greatest barriers to using Teleoncology for educational purposes?
   How do you think these can be overcome?

7. What do you feel are the greatest advantages to using Teleoncology for educational purposes?

8. Do you feel your requests/suggestions/concerns for change/improvements have been addressed to your satisfaction? Why or why not?

9. In what other areas/disciplines/activities do you feel the system could be effectively utilized?
Summary of Results

1. From your perspective as a health care professional, what do you feel are the strengths of the Teleoncology Program for clinical use/educational purposes?

Participants’ answers to this question fell into three categories:
- Travel cost and time savings for health care providers
- Better communication and continuity of care for patients.
- Networking opportunities with colleagues in the province

2. From your patient’s perspective, what do you feel are the strengths of the Teleoncology Program for clinical use?
   From the perspective of those participating in educational sessions such as Rounds, what do you feel are the strengths of the Teleoncology Program?

Participant answers fell into the following categories:
- Improved access to care/knowledge/skills
- Travel cost and time savings for patients
- Better patient support and sense of autonomy in their own health care.

3. From your perspective as a health care professional/educator, what do you feel are the weaknesses of the Teleoncology Program for clinical/educational use?

Categories of responses to this question include:
- Limitations to patient assessment when providers are not physically in the same room
- Access to the system/service not always available
- Availability of equipment and information
- Quality of connection between sites
- Increased work/effort for educators to create engaging presentations
- Maintaining confidentiality

4. From your patient’s perspective, what do you feel are the weaknesses of the Teleoncology Program?
   From the perspective of those participating in educational sessions such as Rounds, what do you feel are the weaknesses of the Teleoncology Program?

Categories of responses to this question include:
- Patients not feeling confident with lack of physical contact during assessments
- Language barriers
- Quality of connection
- Increased work/effort for participants of educational programs …
5. **Do you feel you received clear instructions and/or training in the video equipment use necessary before your first Teleoncology/educational session? Why or why not?**

All but one respondent felt they were given clear one-on-one instructions and training which helped increase their comfort level and decreased their level of frustration. Some felt that there should have been more detailed instructions in how to use the camera (zooming in on image). Others felt that even when problems occurred, Teleoncology personnel were easy to reach to solve the problem.

6. **Do you feel you were able to adequately provide care to your patients via telehealth?**

Most respondents felt that they were able to provide care through telehealth because of:
- Coordination of care was efficient and timely
- Visual component (being able to see patient is key for good assessments)

Some felt there were limitations to the care they could provide due to:
- Inappropriate for some patients who have language, cognitive or hearing problems.
- Technology intimidation factor (not all patients are comfortable talking to a screen).

6b. **Would you use the telehealth service again?**

All respondents would definitely use the service again. One respondent said that the service was instrumental in the retention and recruitment of nurses to the area.

7. **What do you feel are the greatest barriers to using Teleoncology in your clinical practice/for educational purposes?**

The barriers listed by respondents fell into the following categories:
- Technical problems (delayed audio, stuttering video)
- Oncologists not using system (therefore their patients have to travel)
- Scheduling (weather, time zones and participants’ schedules)
- Dedicated human resources to ensure a seamless session.
- Inappropriate for some patients (with hearing or cognitive problems)
- Hurried sessions (patients scheduled too close in time and feel pressured to conclude their visit quickly)
- Lack of awareness of teleoncology as an option (many care provides are not aware of the advantages and benefits of the program and how they could be utilized in their everyday work).

7b. **How do you think these can be overcome?**

Suggestions offered to solve/overcome problems and barriers include:
- Upgrade equipment to overcome technical difficulties
• Dedicate more human resources to have nursing and technical help available when needed
• Better scheduling for weather and time zone differences and less hurried sessions
• Promotion and education of benefits and advantages of program to other care providers

8. What do you feel are the greatest advantages to using Teleoncology in your clinical practice/for educational purposes?

For doctors the greatest advantages of the Teleoncology Program are:
• Reduced travel time for providers and participants of educational programs
• Ability to consult widely/improve skills/knowledge

For patients the greatest advantages include:
• Reduced travel time and cost for health care (physician and specialists visits)
• Easier access to doctors and specialists who are not normally available in the patient’s region of the province
• Continuity of care/support through availability of computerized reports and the nursing support to initiate/coordinate follow up

9. Do you feel your requests/suggestions/concerns for change/improvements have been addressed to your satisfaction? Why/Why not?

Generally respondents felt that concerns were addressed as best they could be, but not always as satisfactorily as they would like. Some issues, like regularly scheduled clinics and improvements in equipment and connectivity, have already been addressed by Tele-oncology staff. However, problems with the technology still exist. One respondent said that the interview itself would likely lead to improvements.

9b. Why or why not?

Respondents felt that someone was always available and eager to accommodate a request, and that some changes had already been made to improve the scheduling of clinics etc. However, problems with the technology still exist.

10. In what other cancer areas/disciplines/activities do you feel the system could be effectively utilized?

Some said that all cancer areas could benefit with a telehealth approach. Specific areas mentioned include:
• Pain Management control ('don't have palliative care in area that manages pain so it's great to be able to use the program for pain management' Key Informant comment, as noted by interviewer)
• Nutritional support
10b. *What other areas/disciplines in general do you feel would or could benefit from telehealth?*

Again, most respondents felt that all areas would benefit from the greater communication between family physician, specialists and patients that telehealth provides.

Specific areas mentioned include:

- Dermatology
- Thoracic surgery
- Urology
- ENT (with proper equipment)
- Radiology (which use this service already via PAX)
- OBGYN
- Maternal health
- Nephrology
- Enterostomal Therapy
- Pathology (because have a small number of pathologists across the province and could rely on each other opinions)
- Internal medicine
- Mental Health
- Child, Youth, & Family Services
- Elective Surgery (could be used for consultations)

Other areas outside the health care system:

- Child, Youth, & Family Services
- Bail hearings

Other areas suggested for educational/administrative purposes include:

- Other discipline Rounds
- CME
- Meetings
- General education