eReferral Evaluation Final Report

2015

The purpose of this report is to outline the progress of the eReferral Program implementation cross three early adopter groups and to provide program recommendations for the future.

September 1, 2014 to
September 30, 2015

EVALUATION SERVICES

RESEARCH PRIORITIES & IMPLEMENTATION

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Presently in Alberta most referrals to scheduled health services are done manually through faxing, phone calls or mail (Path to Care Business Case, 2013). Manual systems create problems such as redundancy of work, incomplete referrals, referrals with missing information, lost referrals, and missed appointments, all of which can create delays and have the potential to negatively impact a patient's health outcome. Alberta Health Services recognizes that existing problems with referral processes require immediate resolution and eReferral provides an innovative solution to the problem.

eReferral is Alberta Health Services' first paperless referral solution aimed at improving access to scheduled health services in Alberta. eReferral provides information to users on which reasons for referral providers see, what the wait times are and the referral requirements. eReferral leverages existing information in Alberta Netcare (patient information, diagnostic tests and laboratory results) to populate a referral form, while allowing for new or additional information to be added to the form. Forms that are "in progress" can be saved as a draft (important when a referral cannot be completed in one sitting) and checked for completeness before being sent to a service or provider. All referrals can be managed electronically and tracked in real time (eReferral Website, 2015).

The aim of eReferral is to improve and optimize access to scheduled health services by supporting the development and technological capability across Alberta Health Services (AHS). The purpose of this report is to evaluate eReferral's implementation: to determine what worked well, what could be improved, and to make recommendations for the continued implementation of eReferral.

The eReferral team modelled their implementation strategy around the Alberta Quality Matrix for Health (Health Quality Council of Alberta, 2005) with their goals being to:

1. Improve **efficiency** in scheduled health services by improving, standardizing, and automating business processes
2. Improve **accessibility** and reduce wait times for scheduled services
3. Increase stakeholder **acceptability** by improving awareness and clarity of patient's Path to Care
4. Improved care **appropriateness** through a standardized referral management process and increased adoption of clinical best practices
5. Key performance indicators will help identify access improvement opportunities and determine **effectiveness** of the program
6. Improve **safety** for patients by increasing transparency in the referral process

eReferral was implemented as a limited production rollout within Alberta Netcare for three early adopter groups including: lung cancer medical/radiation oncology, breast cancer medical/radiation oncology, and the hip and knee bone and joint replacement specialties. This evaluation captures data one year prior to the July 14, 2014 eReferral launch and one year after this date.

Evaluation Data

The evaluation data comprises 12 qualitative and quantitative data sources including: Program Metrics, Literature Reviews, Focus Groups, and Surveys.

eReferral Adoption

Key points on eReferral adoption:

- A total of 2078 eReferrals were processed in the first year since eReferral went live.
- On average 37 referrals were processed weekly during this time with a steady increase of the number of referrals and users month over month.
- The submission patterns show the majority of eReferrals were submitted by someone on behalf of a physician
- Most users who start using eReferral continue to use it.
- Prior years' submission patterns show that the majority of breast and lung cancer referrals are sent from surgeons with primary care physicians submitting the remainder.
- For hip and knee joint replacement referrals primary care physicians are primary referral sources with a high referring physician submitting ~ 1 referral per month.
- Breast cancer has shown the greatest adoption of eReferral with 40% of all referrals sent using the tool.
- The breast cancer sites where a Breast Health Clinic referred on behalf of the surgeon had the greatest eReferral uptake.
- Lung cancer and Hip & Knee show the least amount of adoption at 10% and 2% respectively.
- The largest adopters of eReferral for hip and knee sites were PCN referral hubs and large clinics.

Stakeholder feedback on eReferral adoption:

When asked why adoption wasn't higher, it was frequently mentioned by non-users that it was easier to send the referral by fax with less information then it was to use eReferral with its higher information requirements. The current eReferral forms require a certain amount of clinical knowledge to complete. Barriers identified by non-users included:

- eReferral creates more work because it is another system to use (64%),
- It isn't integrated with my current system (EMR) (59%), and
- Lack of familiarity with the system (50%).

Challenges of eReferral adoption:

Overall, eReferral adoption has been increasing but the program has faced contextual challenges that have prevented full uptake of the system. Challenges include: only having 3 early adopter groups, limited access to Netcare, low referral volumes in user groups, eReferral staff turnover, the referral requirements that were automated through eReferral had not been developed collaboratively by sending and receiving sites and were not widely adopted by referring sites prior to automation, and poor integration of eReferral in primary care EMRs. If these challenges are addressed, the program could see improvements in uptake.

Program Implementation across Early Adopter Groups:

A number of strategies and tools are in place to support uptake and success of the eReferral system. Currently, the approach taken by the eReferral team to engage and continue support to stakeholders is well received and effective as shown by survey and qualitative feedback. Continuing to monitor use of eReferral and capture feedback on implementation will serve to provide direction for the eReferral team to continue improvement of the system. Expanding to other services will help current groups observe the

potential effectiveness of the program. Until more groups are on eReferral, duplicate work exists for current users as they use multiple manual and electronic systems to manage referrals.

eReferral stakeholders expressed confidence in the potential success and aims of eReferral. The communication and training strategies have been very well-received by participants. There has been constructive feedback by stakeholders to continue engaging physicians and direct users of eReferral and to expand the system to more groups. The positive feedback on the communication style of the eReferral team is prominent suggesting the continuation of the newsletter and transparent approach to successes and delays of the program.

The users of eReferral stated that the benefits they are experiencing with automation include:

- "Providing wait times and if they are accepting referrals for available physicians/services",
- "Ability to track referral status", and
- "Knowing that the referral has been successfully submitted and received."

The non-users without experience using eReferral state that they would hope that an automated referral system would address the same benefits. Since the perceived and expected benefits of users and non-users respectively are aligned, it is important that non-users are able to understand that the system will deliver on these expectations if they are able to become adopters of eReferral.

The eReferral forms have mandatory fields that must be filled out for successful submission. Data from Alberta hip and knee referral audit has shown that an incomplete referral increases the patients wait by up to 6 weeks. There was an increase in the completeness of eReferrals compared to baseline when looking at administrative data in hip and knee groups in the evaluation per chart reviews. The number of AHS clinics/services aware of eReferral is significant and those using eReferral are eager to see the program succeed. The early stages of implementation in addition to contextual challenges need to be addressed before eReferral can see the success it aims for. The program is well on its way to meeting its desired goals. The successes that the program has seen so far can be attributed to the efforts and determination of the eReferral team and the commitment and dedication of the early adopter groups.

Overall, the eReferral team and stakeholders believe in the work that eReferral sets out to do. The team and stakeholders have set high standards for themselves and the organization and feel what they are doing is the right thing and this motivates their continued engagement. The strategy and approach to eReferral is one that is accepted by stakeholders but may need a shift in the areas of training alignment between Netcare Deployment and eReferral, increased investment in resources to integrate EMRs with eReferral, and improved consistent leadership sponsorship from the organization that can be sustained beyond the limited production roll out.

Although there were challenges throughout implementation, the teams were able to implement eReferral across early adopter groups and have maintained buy-in with these groups and optimism for the future. The eReferral team has voiced their lessons learned in implementation and look forward to continuing the work in the future. The team's flexibility and adaptability with their stakeholders, their transparent communication, and their attentiveness to stakeholder needs should be continued.

Conclusion:

eReferral has achieved success by increasing uptake and monthly volumes since it went live in July 2014. eReferral has driven the uptake of Netcare, but this remains to be a challenge for eReferral that some potential adopters choose not to use Netcare regularly. Automation has been well-received by early adopter groups with the main challenge for users being the lack of broader spread of eReferral beyond current clinical services and misalignment between eReferral and current clinical EMRs. Aligning EMRs is not an easy feat, but is necessary to realize eReferral's full potential. eReferral has brought awareness to the need for standard referral requirements and has begun working to streamline how referrals are processed provincially, but a plan is required to align EMRs with eReferral. This may take shape by including eReferral in the provincial clinical information system (CIS) planning or by aligning eReferral with the organizational IT strategy.

Furthermore, early adopter clinical areas should be supported to decide how they would like to continue to leverage eReferral. If supported by the organization to expand eReferral beyond the limited production roll out, eReferral should also consider revisiting their implementation strategy to scale out in a more rapid and cost efficient way.

Moving Forward:

eReferral was designed as a limited production roll out, not a pilot. This premise changed over the course of the project. To realize the benefits of eReferral, AHS needs to commit to leadership sponsorship; having clearly set champions who agree to support eReferral among the organization and its key partnerships. Additionally, funding must be secured for the maintenance and expansion of the eReferral program to ensure prevention of further attrition to the future strategic plan of eReferral. Moreover, organizational alignment of eReferral with the broad AHS IT strategy is imperative to enhance credibility of the system and its future with users, potential users and all invested stakeholders. Without these foundations in place, eReferral will not be able to scale out to more services or have a sufficient critical mass of referral types standardized and automated. If sponsorship, funding and IT alignment are not in place, the program as it was originally envisaged will not be realized.

GLOSSARY OF TERMS

AHS	Alberta Health Services
ARIA	Cancer Care Clinical Information System
CACC	Central Alberta Cancer Centre
CCI	Cross Cancer Institute
CIS	Clinical Information System
EMR	Electronic Medical Record
ES	Evaluation Services
GPCC	Grand Prairie Cancer Centre
HQCA	Health Quality Council of Alberta
IAT	Implementation Assessment Tool
JACC	Jack Ady Cancer Centre
LHIN	Local Health Integration Network
LPR	Limited Production Roll-out
MYCC	Margery E. Yuill Cancer Centre
MOA	Medical Office Assistant
PCNs	Primary Care Networks
PO	Physician Office
RLS	Reporting and Learning System
TBCC	Tom Baker Cancer Centre

GUIDING PRINCIPLES FOR EVALUATION

Through evaluation excellence, healthcare practitioners are guided to do their best work to improve practice and the delivery of healthcare services. Evaluation Services (ES) provides an internal model of evaluation to Alberta Health Services (AHS). While there are organizational benefits to having an internal evaluation service, this process can be compromised unless clearly defined guiding principles are understood. Those principles include a commitment to integrity, collaboration and ethical oversight.

Integrity

To reduce the risk of conflict of interest, Evaluation Services restricts evaluation services to health-related programs or projects that are governed by operations outside of their own Research portfolio. Doing so neutralizes potential power dynamics between the evaluator and primary stakeholders of the evaluation. While the interpretation of evaluation results by stakeholders is critical to providing context and a deeper understanding, ES will only report on what the data presents and will not entertain requests to exclude or adjust findings unless there is evidence that the request is valid. This helps to safeguard the integrity of the evaluation results.

ES's practice is governed by a professional code set by the Canadian Evaluation Society (2012), our own *Evaluation Services Standards of Practice* (2011), AHS's Code of Conduct (2013) and provincial legislations[1]. Evaluation Services will not engage in inappropriate requests that may violate those standards and the integrity and reputation of the evaluator and the evaluation.

Collaboration

We recognize that active stakeholder involvement in evaluation planning and decision-making is essential to success. Collaboration helps to ensure that: evaluation results are useful; decision-making is evidence informed; there is good stewardship of resources; and through stakeholder engagement, a culture of evaluation evolves within AHS.

Ethical Oversight

ES is committed to employing a systematic approach to ensuring the highest ethical standard for this evaluation. Evaluation Services is committed to providing sound methodology and ethical values and behaviour at all stages of the evaluation. Ethical issues will be identified and addressed as they arise. Ethical oversight is essential to reducing risk to human participants and by protecting the personal and health information collected and stored for evaluation purposes.

[1] Governing provincial legislations include: Health Information Act (HIA), Freedom of Information and Protection of Privacy (FOIP) and the Alberta Evidence Act (AEA)

eReferral Evaluation Final Report

INTRODUCTION

Presently in Alberta most referrals to scheduled health services are done manually through faxing, phone calls or mail (Path to Care Business Case, 2013). Manual systems create problems such as redundancy of work, incomplete referrals, referrals with missing information, lost referrals, and missed appointments, all of which can create delays and have the potential to negatively impact a patient's health outcome. Alberta Health Services recognizes that existing problems with referral processes require immediate resolution and eReferral provides an innovative solution to the problem.

eReferral is Alberta Health Services' first paperless referral solution aimed at improving access to scheduled health services in Alberta. eReferral provides information to users on which reasons for referral providers see, what the wait times are and the referral requirements. eReferral leverages existing information in Alberta Netcare (patient information, diagnostic tests and laboratory results) to populate a referral form, while allowing for new or additional information to be added to the form. Forms that are "in progress" can be saved as a draft (important when a referral cannot be completed in one sitting) and checked for completeness before being sent to a service or provider. All referrals can be managed electronically and tracked in real time (eReferral Website, 2015).

On July 14, 2014, eReferral went live with a Limited Production Roll-out (LPR) for three services: medical/radiation oncology for lung & breast cancer and hip and knee joint replacement. To ensure that eReferral is performing as intended and to provide an understanding of the successes, challenges and learnings of the early implementation of the program, eReferral leaders contracted Evaluation Services to conduct a thorough evaluation of the eReferral implementation.

The goals of the eReferral program evaluation are structured around the Health Quality Council of Alberta's (HQCA) Alberta Quality Matrix for Health Dimensions of Quality (2005)[2]. The goals of eReferral are to:

A. Improve **efficiency** in scheduled health services across Alberta by improving, standardizing and automating business processes;
B. Improve **accessibility** by reducing wait times for scheduled services across Alberta;
C. Increase stakeholder **acceptability** by creating transparency of the referral process to the stakeholder;
D. Improve care **appropriateness** across Alberta through a standardized referral management process that reduces the number of inappropriate referrals;
E. Ensure **effectiveness** of eReferral by examining Key Performance Indicators (KPI) that can identify access improvement opportunities;

[2] The HQCA Alberta quality Matrix for Health Dimensions of Quality were adopted in June 2005 by the Health Quality Network, an HQCA collaborative consisting of leading medical organizations and groups in Alberta: Alberta Cancer Board, Alberta College of Pharmacists, Alberta Health and Wellness, Alberta Medical Association, Alberta Mental Health Board, Aspen Regional Health, Calgary Health Region, Chinook Health Region, College & Association of Registered Nurses of Alberta, College of Physicians & Surgeons of Alberta, David Thompson Health Region, East Central Health, Federation of Regulated Health Professions, Health Quality Council of Alberta, Northern Lights Health Region, Palliser Health Region, and Peace Country Health.

F. Improve **safety** for patients by ensuring complete referrals that are appropriate for the service they are being sent to, and timely (tracked and never lost or forgotten) which in turn should be reflected in the volume of safety inquiries surrounding the referral process.

eReferral aims to improve and optimize access to scheduled health services by supporting the development of processes and technological capability across Alberta Health Services. The evaluation findings will help to understand if eReferral was of benefit to the organization and its consumers and will inform decisions around future implementations of eReferral as well as provincial choices around IT solutions. The evaluation term is July 1, 2014, to September 30, 2015.

EVALUATION METHODS

EVALUATION APPROACH:

The Evaluation Team approaches every evaluation project from a collaborative perspective. This means that the Evaluation Team works closely with the project stakeholders to develop the evaluation plan and approach right through to data collection, analysis, and reporting. For this reason, the Evaluation Team, the Executive Director and the Director of eReferral formed a working group. The working group involved key stakeholders including those from the early adopter groups, primary care, from the Alberta Netcare department, the community, and from the eReferral program itself. The eReferral evaluation working group met biweekly for one month and then moved to a monthly meeting schedule as the evaluation progressed and the need to meet subsided. The purpose of the working group was to provide advice and direction regarding the development and implementation of the eReferral evaluation. The working group reports to the Path to Care Steering Committee.

Alongside the eReferral team and working group, Evaluation Services developed a logic model and evaluation framework that guided the activities of the evaluation (Appendix A). The evaluation team took a mixed-methods approach to gathering data in order to gain a holistic vantage point of the implementation of eReferral. The methods of data collection included: surveys, telephone interviews, focus groups, program data collection, chart audits, and a literature search. The current report outlines the methods of data collection, the limitations to the evaluation, and the overall evaluation findings. All of the evaluation outcomes, questions, measures, and data sources correspond to the evaluation framework developed by Evaluation Services in collaboration with the eReferral working group and was approved by the eReferral steering committee.

DATA SOURCES AND METHODS OF COLLECTION:

For the purposes of the evaluation, “Pre-Implementation” data collection is defined as the time period from July 2013 - July 2014, and “Post-Implementation” is defined as July 2014 to July 2015, unless otherwise specified by the data source.

1. EREFERRAL REPORTS

The eReferral Reports provide weekly updates regarding eReferral program uptake at the participating breast and lung cancer, and hip and knee sites. Specifically, the number of eReferrals is monitored each week at various sites, as well as the number of new eReferral users according to site, specialty, physician, referral type, and date. As of July 30, 2015 have been over 2278 eReferrals since launching eReferral. Generally, there is an observed increase in the number of eReferrals each week, with an average of 12.1

new users per month. Data is collected and integrated in the eReferral Database each week. The majority of eReferrals come from breast cancer data with 1423 breast cancer eReferrals compared to 650 orthopedic eReferrals and 205 lung cancer eReferrals.

2. BREAST AND LUNG CANCER DASHBOARD DATA

The breast and lung cancer dashboard provides monthly information from the Cancer Control ARIA MO system on the total number of cancer referrals, eReferrals and the number of inappropriate cancer referrals (declined, redirected, turned away, sent back), and to examine the post "Go Live" impact on these dependent variables. Dashboard data was extracted from the first three quarters of 2014 and then monthly from July 2014 to July 2015.

3. HIP AND KNEE REFERRAL FORMS (CHART AUDITS)

The chart audits of the hip and knee referral form provided information on the total number of hip and knee patients and the number of inappropriate hip and knee referrals (declined, redirected, turned away, sent back). The chart audits were conducted by clinic staff at 8 sites from February 2012 to October 2013 for baseline. The post-implementation audits were conducted only at hip and knee sites in Calgary and Edmonton in September 2014 to April 2015 for post "Go Live" due to these sites receiving the bulk of the hip and knee joint replacement eReferrals.

4. EREFERRAL USER SURVEY

The eReferral User Survey was distributed to eReferral users through email and telephone for the purpose of collecting feedback on the current eReferral system. Questions included themes that focused on user insights on training and communication, opinions on efficiency and effectiveness, technical functioning, and the referral guidelines.

Distribution lists were obtained from stakeholders and included top referring physicians and/or clinic staff who use eReferral to process hip and knee referrals, and lung and breast cancer referrals. Within the surveyed population (N =143), 37 completed the survey for a response rate of 26%. Surveys targeting physician populations are often associated with low response rates (mid 20th to 40th percentile response) (Cunningham, Quan, Hemmelgarn, Noseworthy, Beck, Dixon, Samuel, Ghali, Sykes, Jette, & 2015). Survey response rates targeting physicians are also found to vary by specialty (Cunningham et al., 2015), as such, it is important to interpret evaluation findings in the context of the program's implementation rather than focus on strength of the numerical response rate. The survey was distributed to all users (physicians, medical office assistants, referral coordinators, etc.) because the bulk of eReferrals are processed by users on behalf of physicians. The survey was active over a two week period in May 2015 with weekly reminders.

Data was collected using Survey Select and analyzed using Microsoft Excel, a report of descriptive statistics was produced.

5. EREFERRAL RECEIVING SITES USER FOCUS GROUPS

An Evaluation lead and coordinator conducted two eReferral receiving sites user focus groups from May to July 2015. Stakeholders from Cancer Care and Hip and Knee sites participated in the one hour sessions.

The Cancer Care focus group consisted of four participants out of a possible 26 and the Hip and Knee focus group included four attendees out of a possible six participants. Including a variable sample of participants in the focus groups augmented the small sample size. These included those considered "key informants" because of their level of involvement with eReferral.

Discussions centered on referral experiences since the LPR of eReferral at respective sites, eReferral system navigation, and barriers and strategies to eReferral uptake. We were also interested in their insights and experiences regarding improvement opportunities, proposed recommendations, and opinions on the future of eReferral. Recordings were transcribed by evaluation team members and analyzed using NVivo 10 software to identify major themes. Analysis was then cross-referenced and verified by the project lead.

6. EREFERRAL NON-USER SURVEY

The eReferral Non-User Survey was distributed mid-June 2015 for two weeks with weekly reminders and was intended to gather feedback from physicians and/or clinic staff who were non-users of eReferral. The respondents had not adopted eReferral and were not a part of the Limited Production Rollout (LPR), but were aware of the product. The survey captured information regarding respondents' program/service referral processes and their experiences to better inform upcoming stages of eReferral development.

The initial distribution of the survey was active from June 9, 2015 to June 9, 2015 (9 a.m. - 6 p.m.), but the survey was then edited and updated with additional selection options and wording changes, this updated survey ran from June 9 – 24, 2015. In this report the initial survey will be referred to as "Legacy" and the edited survey will be referred to as "Updated".

Physicians, health care workers, clinic staff and management were contacted by either email or telephone and invited to complete the survey. There were a total of 56 respondents in the Legacy Non-User Survey and a total of 137 respondents in the Updated Non-User Survey. Analysis was conducted using Microsoft Excel.

7. EREFERRAL TEAM FOCUS GROUP

The purpose of the eReferral Team Focus Group was to gather team member experiences in the implementation of eReferral. In particular, the focus group intended to capture learnings, successes, challenges, improvement opportunities, program effectiveness, and program sustainability. The discussion also focused on leadership, governance, and plans and processes throughout the implementation of the eReferral system.

A coordinator from Evaluation Services (ES) in the presence of a lead evaluator conducted the focus group. Written consent was obtained prior to the start of both focus groups. The focus group duration was approximately 90 minutes in Edmonton and 120 minutes in Calgary. Data was collected at both sites a week apart in June of 2015. Recordings were transcribed verbatim and then analyzed using NVivo 10 software. Analysis was cross-referenced and verified by an evaluation lead. Eleven participants were included in the semi-structured open-ended discussion of eReferral team members from the Edmonton and Calgary zones. Eight individuals were invited to participate in the Calgary focus group, with seven participating (n = 7). Five participants were invited to the Edmonton focus group, with four participating (n = 4).

8. ALBERTA HEALTH SERVICES PATIENT SAFETY INQUIRY

The purpose of collecting previous patient safety reports is to capture the number of voluntarily reported incidents related to patient safety concerning referrals and appointments. Safety reports from July 2013 – July 2015 were examined and followed strict inclusion criteria for analysis. Reports had to be primarily related to making referrals or booking appointments, and had to involve the referral process within the province. With the inclusion criteria, a total of forty-six reports (*n* = 46) were identified; two of which were from the Hip and Knee pathway, with the remainder (44) from the Cancer Care pathway.

9. LITERATURE REVIEW

The evaluation included a literature review related to patient transparency, health care provider communication, and how use of electronic referral systems relates to patient experience. The purpose of the literature review is to understand what has been done in the area of electronic referral systems and how this impacts the patient experience and communication in their health journey. Articles were limited in time from the year 2000 – 2014 and were from primary sources (i.e. no secondary or grey literature was included in the review). No restrictions were placed geographically, but only articles written in English were considered for review.

Medline and Google Scholar databases were used and sixteen articles (*n* = 16) were retrieved fitting the criteria above. Key words used in the search included: eReferral, electronic referral, Continuity of Patient Care, Outcome Assessment (Health Care), Communication, Referral and Consolation, and Quality of Health Care.

10. PRE AND POST PATIENT SATISFACTION SURVEYS

The Pre and Post patient satisfaction surveys obtained a baseline and follow-up (pre-post comparison) of patient's level of satisfaction with their referral experience.

At baseline (Summer 2013) surveys were created and administered by the eReferral team before Evaluation Services was involved using paper forms across all the Hip and Knee and Breast and Lung Cancer sites. The sample size was *n* = 84 for the Cancer Care group and *n* = 154 for the Hip and Knee group.

At post-implementation (Winter 2014), surveys were created and distributed by Evaluation Services. The surveys were conducted over the phone or in-person. The surveys were analyzed using Microsoft Excel. The sample size was considerably smaller than baseline at *n* = 15 for the Hip and Knee group with a response rate of 53% (8/15) and *n* = 53 for the Cancer Care group with a response rate of 87% (53/61). The decrease in responses for the post implementation survey could be explained by timing of survey distribution (close to Christmas where many people take holidays) and/or that there was less support for data collection in the post implementation period compared to baseline.

11. IMPLEMENTATION ASSESSMENT TOOL (IAT)

The Implementation Assessment Tool was distributed to determine participant service or clinic readiness for the development of provincial referral guidelines. The survey was distributed to individuals within the province who are involved in the business or operational processes of their service or clinic. There were a

total of 17 IATs completed through an online survey tool. The questionnaire asked specific questions related to service details, leadership support, program staff engagement, and foundations for provincial scale. Surveys were administered as required. Most of the respondents represented the Calgary zone (6, 35%), followed by the Edmonton (5, 29%), South (3, 18%), North (2, 12%) and Central (1, 6%) zones. Results were analyzed using Microsoft Excel and summarized in a report. Findings from the IAT are limited for comparison purposes since the eReferral Team changed their strategy for implementing eReferral and therefore no other IATs were filled out or collected after the first set.

12. CANCER CONTROL ARIA MO DATABASE

The Cancer Control ARIA MO Database collected all relevant information regarding referral volumes across Breast and Lung Cancer sites in AHS. This data was used to provide program context and to compare eReferral usage against total referrals processed in the province. The data was collected through the Enterprise Business Intelligence Team and relayed to Evaluation Services as required. Cancer Care referrals and their statuses were monitored from the period of initial LPR in July 2014 to July 2015.

Data was extracted from the ARIA MO system and validated using data from Netcare eReferral. The LPR encompassed the breast and lung cancer tumour group referrals across all six cancer sites in the province – Cross Cancer Institute (CCI), Tom Baker Cancer Centre (TBCC), Grand Prairie Cancer Centre (GPCC), Central Alberta Cancer Centre (CACC), Margery E. Yuill Cancer Centre (MYCC), and Jack Ady Cancer Centre (JACC).

METHODOLOGICAL LIMITATIONS

With the introduction of any program or service, the evaluation faces the risk of variation in implementation across sites – non-standardized implementation (Rossi, Lipsey & Freeman, 2004). Although the eReferral system is standardized in theory and design, the evaluation must note that uncontrolled differences across sites can produce variation in implementation, and that this variation has the potential to impact the results and outcomes observed (Rossi, Lipsey & Freeman, 2004). Evaluators cannot account for differences in staff, and site procedural processes that could impact both the acceptance and implementation of the eReferral system. Moreover, there are organizational factors in the implementation of eReferral given the political and environmental context of Alberta and AHS that impact the financial and human (staff turnover, hiring freeze, short-staffed teams) resources available to implement eReferral.

QUANTITATIVE SOURCES

Cancer Control ARIA MO Database

One limitation in assessing the breast and lung cancer data is that comparisons in referral volume between eReferral and faxed and/or mailed referrals are not comparable between specialties. Some specialties, by nature, receive more referrals than others. Conversely, there may not have been enough referrals in volume at particular sites to determine the extent of inappropriate referrals in early adopter groups.

We cannot account for differences in site procedural processes, changes in staff, staff work environments/management styles that influence the number of inappropriate referrals processed at some sites.

There may not have been enough referrals in volume at particular sites to notice a difference in reducing referral errors. Due to the fact that the eReferral system is fairly new and in its infancy stage in terms of operational capacity and integration, it may produce more errors as staff learns to utilize the system and integrate it into their workflow. As such, any beneficial outcomes from the eReferral system may not be realized at this stage of evaluation.

Implementation Assessment Tool (IAT)

The IAT survey utilized convenience sampling for reasons of feasibility, thus, the survey results may not be representative of the opinions and viewpoints of the stakeholders across AHS. We should also keep in mind that business processes do not exist in isolation of other factors and influences. There are confounding variables (i.e. variation in zone leadership, support, and specific site processes) that affect business processes which the evaluation cannot control for, and can in turn influence the outcomes examined. It is important to keep this in mind before making any premature conclusions about the IAT data.

Hip and Knee Referral Forms (Chart Audits)

There may not have been enough referrals in volume at particular sites to determine the extent of inappropriate referrals in early adopter groups. We cannot account for differences in site procedural processes, changes in staff, staff work environments/management styles that influence the number of inappropriate referrals processed at some sites.

There may not have been enough referrals in volume at particular sites to notice a benefit to AHS and its consumers. The evaluation is limited to perceived benefit as reported by users and stakeholders as well as triangulation of other data sources on whether or not eReferral has benefited consumers and AHS. Due to the fact that the system is fairly new and in its infancy stage in terms of operational capacity and integration, it may take longer and require implementation at more sites to capture a notable difference. Moreover, because the program is innovative and implemented on a provincial scale, many barriers are being realized that once addressed, may prove to be a beneficial referral system. As such, any true beneficial outcomes from the eReferral system may not be realized at this stage of evaluation.

Lastly, the hip and knee data collected for comparison purposes from baseline to post-LPR cannot provide direct comparisons in the evaluation. There were differences in the method of data collection between baseline and post-LPR: both baseline and post-LPR utilized the same data collection form but the baseline form included additional questions, the data collection time periods were not the same length and poorly documented, baseline data collection occurred provincially while post-LPR data collection only occurred in Edmonton and Calgary. These differences in method limit the conclusions that can be drawn from this comparison.

Alberta Health Services Patient Safety Inquiry (Reporting and Learning System)

A major limitation of RLS is that the incidents are voluntarily reported which does not truly reflect the patient safety at a particular site. Rather, it may be a result of greater willingness (or lack thereof) at some sites to report patient incidents. As such, the evaluation cannot make any premature conclusions about the safety to patients at some sites and comparisons made should not be viewed as definitive. Another limitation that evaluators cannot control for are differences in both patient demography and personal views regarding patient safety across the province. Some sites will have a higher population of older adults, who are more prone to injury as patients and susceptible to iatrogenic illnesses in hospital. Sites

with higher populations of older adults may have higher incidents of patient safety reports, but this does not necessarily reflect a less safe service providing site. Furthermore, individuals have different views on whether or not incidents should be reported and may be more or less likely to report an incident. We do not know the distribution of both characteristics in the population and cannot account for such differences across sites.

Patient Satisfaction Survey

Results from the Patient Satisfaction Survey have low external validity in that respondent views are not necessarily applicable or representative to the entire population. Conclusions can only be drawn based on the group we sampled from. With surveys, biases may also arise within the sample itself with some individuals being more likely to respond than others, which can skew the results. It is difficult to truly measure satisfaction as we cannot account for differences in threshold of satisfaction among individual participants which can influence responses and overall results reported.

The post implementation patient satisfaction survey did not yield a robust enough sample to generalize to the broader population. This evidence should be used with caution.

eReferral User Survey

Due to a lack of available data, we relied on self-reported perceptions of efficiency rather than objectively defined measures of efficiency (such as wait time data). This limits any comparison of efficiency pre- and post-eReferral implementation and limits the conclusions that can be drawn about the causal impact of eReferral on the referral process. Selection bias in the surveyed population of users, as well as the small population size (N = 143, *n* = 37, response rate 26%) limit the validity and representativeness of the data source. The reader cannot assume that the sites selected for roll-out are generalizable to the population. Additionally, survey biases may arise within the sample itself with some individuals being more likely to respond than others, which can skew the results.

eReferral Non-users Survey

There are limitations evident in the distributions of the eReferral Non-user Survey. The survey was distributed prematurely and had a large proportion of first responders on the first day (83 respondents). Changes were made to the survey, altering its content slightly and then re-opened. As such, there are two slightly different sets of data collected (Legacy and Updated) depending on which survey is examined and the slight changes made in content. There was only one question added at the end in the Updated survey, from which evaluators do not have data on from the first 83 respondents.

Another limitation relates to confusion among some participants around the purpose of the survey and whether or not it applied to them to fill it out. Their understanding and intent will influence the way respondents answered the questions and may skew the results toward that understanding. Survey data is self-reported, which is prone to subjective respondent bias. This limits the generalizability of conclusions drawn from this sample.

QUALITATIVE SOURCES

eReferral Receiving Site User Focus Group

Self-reported data is prone to subjective respondent bias. The sample size of respondents in the focus group is low but the variation in participants ensures depth of the data collected. The results should be

considered in the context of the evaluation and are not necessarily applicable to other sites. Although the moderators created neutral open-ended questions, they are not immune to bias produced in tone for example, when asking and repeating the questions. Facilitator bias should also be considered for this reason. Focus groups that are conducted online are unable to use body language as an indicator of feedback limiting the moderator's perception of the session. Moreover, there is presence of respondent bias in the focus group in that one participant, or a select few, may respond more frequently than others. This introduces the possibility of skewing the results (and subsequent themes) to one, more vocal, opinion.

eReferral Team Focus Group

Stakeholders, by nature of their vested interest in the program implemented are not immune to bias in favor of the success of the program. Although the moderators created neutral open-ended questions, they are not immune to bias produced in tone for example, when asking and repeating the questions. Facilitator bias should also be considered. There is presence of respondent bias in focus group in that one participant or a select few may respond more frequently than others. This introduces the possibility of skewing the results (and subsequent themes) to one, more vocal, opinion.

Patient Acceptability Literature Review

Although literature searches are helpful in any investigation, they pose limitations in the scope and breadth of knowledge gained. It is limiting that the negative findings or unsuccessful programs are often not published such that others may learn from previous work. We are also limited to articles written in English. There may be work produced in other languages related to patients' referral experiences and awareness of care options that are applicable but inaccessible. Moreover, of the articles found and synthesized in the literature review, evaluators cannot account for differences in the health system and its organization that influence the results.

Due to a lack of available patient data, we are relying on research evidence from the literature to evaluate the impact of improved transparency for patient communication. However, research evidence is conducted in different contexts, which may limit the generalizability of that evidence to the context being evaluated.

PROGRAM CONTEXT

The following section provides contextual information for the implementation of eReferral. More specifically, types of users, access to Netcare, user roles and referral volumes will be examined more closely. The findings will be used to inform overall interpretation and recommendations derived from the evaluation.

Developing a consistent, automated referral process requires more than working with a software developer. First, the three areas that received referrals during the limited production rollout – medical and radiation oncology for breast and lung cancer and hip and knee joint replacement - were chosen because they had provincial referral guidelines and were supportive of the eReferral process. (Central Alberta Orthopedics declined to participate in eReferral during the LPR).

Secondly, prior to releasing the Request for Proposals (RFP) and following vendor selection, the eReferral team worked with clinicians, referral clerks, operations, Alberta Netcare, and Health Information Management (HIM) to define what the ideal referral system would be and this group of stakeholders formed the Clinical Design Working Group (working group). The working group agreed that the system needed to be: simple to use, simple to update, provide timely information (real time updates on referral status, wait times), personal (allow sending users to manage their referrals, see what care options exist) and designed so that patients could see their referral information through the Patient Health Portal (MyHealth.Alberta.ca). The Clinical Design Working group met weekly for 3 months in person to design eReferral and hosted teleconferences with stakeholders across the province to gather feedback and suggestions. Once eReferral had been designed, the eReferral team worked with the receiving sites on standardizing their referral business processes and developing value-added reporting for clinics. The eReferral team communicated to stakeholders throughout the design and implementation and is continuing to work with stakeholders and the Clinical Design Working Group to improve both the design of eReferral and referral business processes that support it.

Seventeen sites were involved in the LPR: Six were Cancer sites and 11 were Hip and Knee Bone and Joint sites. Table 1 lists the sites by zone and location. The un-shaded sites are the Breast and Lung Cancer Centres and the blue-shaded sites are the Hip and Knee Joint Replacement Sites.

The different implementation dates of the Chinook Bone and Joint Clinic should be noted. The date of first referral is listed to show the staggered uptake and use of eReferral despite capacity to use the system. Some sites have not had the opportunity to use eReferral or faced training schedule conflicts and therefore have not been trained to use eReferral.

Table 1: eReferral Limited Production Roll-out Sites

Zone	Early Adopter Site	Location	Date of Go Live	Date of First Referral
North	Grande Prairie Cancer Centre (GPCC)	Grande Prairie	July 14, 2014	July 28, 2014
	Bonnyville Healthcare Centre	Bonnyville	July 14, 2014	-
	Westlock Healthcare Centre	Westlock	July 14, 2014	-
	Westlock Healthcare Centre (Dr. Jan Lategan)	Westlock	July 14, 2014	July 16, 2014
	Grande Prairie Bone and Joint Clinic	Grande Prairie	July 14, 2014	-
	Cold Lake Healthcare Centre	Cold Lake	July 14, 2014	-
Edmonton	Cross Cancer Institute (CCI)	Edmonton	July 14, 2014	July 15, 2014
	Edmonton Musculoskeletal (Edm MSK)	Edmonton	July 14, 2014	July 11, 2014

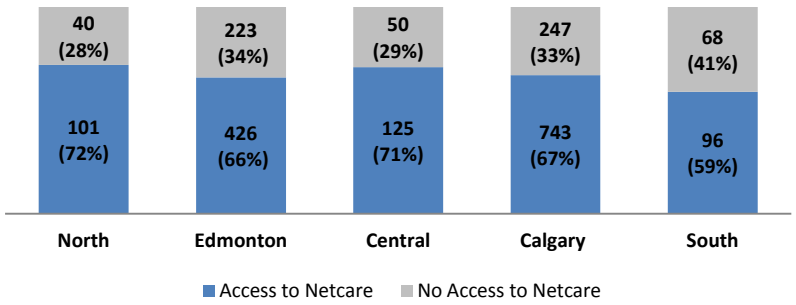
	Centre			
Central	Central Alberta Cancer Centre (CACC)	Red Deer	July 14, 2014	July 15, 2014
	Camrose Musculoskeletal Clinic (Dr. Kumar)	Camrose	July 14, 2014	-
Calgary	Tom Baker Cancer Centre (TBCC)	Calgary	July 14, 2014	July 15, 2014
	South Health Campus Bone and Joint Clinic	Calgary	July 14, 2014	July 17, 2014
	Alberta Hip and Knee Clinic	Calgary	July 14, 2014	July 21, 2014
South	Margery E. Yuill Cancer Centre (MEYCC)	Medicine Hat	July 14, 2014	Sept 25, 2014
	Jack Ady Cancer Centre (JACC)	Lethbridge	July 14, 2014	July 23, 2014
	Chinook Bone and Joint Clinic	Lethbridge	Feb 9, 2015	March 1, 2015
	Surgical Optimization Clinic	Medicine Hat	July 14, 2014	Sept 26, 2014

Broadly, there are two groups who can use eReferral: Senders (who create and send the referral) and Receivers (the services who receive and triage the referrals and see the patients). Senders and Receivers may be physicians or non-physicians. The sending group is very large and clinically includes nurse practitioners, physiotherapists, primary care physicians and specialty care.

eReferral focused primarily on rolling the system out to high-volume senders (in theory adoption is improved when the tool is utilized frequently); However, even a hip and knee high referring primary care provider would make only 1 referral per month[3]. Data from ARIA MO, showed that in 2014, 3986 breast cancer referrals were received by the cancer sites. These referrals were sent by 758 different physicians, with 582 physicians sending only 1 breast cancer referral. The majority of the breast cancer referrals (56%) were sent by 18 surgeons (each sending over 100). For lung cancer, in 2014, 2358 lung cancer referrals were received by the cancer sites. These referrals were sent by 761 different physicians with 545 sending 1 lung cancer referral in the year. Sixteen physicians (pulmonologists and thoracic surgeons) sent 33% of the lung cancer referrals (each sending over 30 per year). Low or no adoption of eReferral might be expected from those physicians who rarely send Hip/knee/breast and lung cancer referrals (primarily primary care). The evaluation data highlighted that surgeons and other specialists, on the other hand, are more likely to send hip, knee and breast or lung cancer referrals and therefore constituted the high volume sending group. Implications of this finding are explored in more detail later in this report.

Regardless of the user, access to Alberta Netcare Portal (Netcare) is a requirement to using eReferral. **Figure 1** demonstrates the number of physician offices who have access to Netcare (and ability to use eReferral) and the number that do not. At least half of physician offices in each zone have access to the Alberta Netcare Portal, with the North zone having the greatest percentage of physician offices on Netcare (72%) and South Zone the least (59%).

Figure 1: Number of AHS and non-AHS Physician Offices (Senders) with Alberta Netcare Portal by Zone



[3] Obtained from Hip and Knee Baseline Chart Audits

On average across Alberta, 33% of sending physician offices and all non - AHS physiotherapists do not have access to Netcare. An opportunity exists to increase eReferral uptake by providing Netcare access for all physician offices and allied health. How a referral is sent to a receiving user (modality) is only restricted by preference, and therefore multiple modalities continue to exist (phone, fax, web portals, mail, email, eReferral). Since not all sending sites have eReferral access or training and not all services are available through eReferral, multiple modalities are necessary.

It can be surmised that an increase in the number of eReferral users over time may be an indication of choice to use eReferral over other modalities and therefore a benefit is seen by the sending user. **Table 2** demonstrates that over time the number of eReferral users has steadily increased by an average of 12 new users every month.

Table 2: Total Number of eReferral Senders, n=171

Note: Table 2 is based on data up to August 28, 2015

	Jul. '14	Aug. '14	Sept. '14	Oct. '14	Nov. '14	Dec. '14	Jan. '15	Feb. '15	Mar. '15	Apr. '15	May '15	Jun. '15	Jul. '15	Aug. '15
Physicians	3 (18%)	4 (15%)	7 (18%)	11 (20%)	13 (21%)	15 (21%)	19 (23%)	21 (23%)	26 (24%)	32 (27%)	35 (27%)	39 (28%)	49 (31%)	51 (30%)
Non-Physicians	14 (82%)	23 (85%)	33 (83%)	44 (80%)	49 (79%)	58 (79%)	63 (77%)	69 (77%)	83 (76%)	87 (73%)	94 (73%)	102 (72%)	107 (69%)	120 (70%)
Total Users	**17**	**27**	**40**	**55**	**62**	**73**	**82**	**90**	**109**	**119**	**129**	**141**	**156**	**171**

Table 2 provides a breakdown of eReferral sending users by role: Physicians and non-physicians (includes medical office assistants, clerks, nurses, referral coordinators and administrative supports). 70% of eReferral users are non-physician staff in physician offices, an important finding considering eReferral was designed to be used by physicians, yet in the Alberta context; it is primarily used by office staff. Who uses the tool becomes important when deciphering adoption of eReferral by sending users. The discrepancy between physician and non-physician users may be the result of who was trained on eReferral, but it may also be an indication of who is more likely to use the tool. Consider **Tables 3 and 4** that provide a comparison of the total referrals versus eReferrals for lung and breast cancer to specific cancer centres:

Table 3: Comparison of Total Referrals vs. eReferrals sent to Breast Cancer by Cancer Site (July 2014 - July 2015)

Site	Total Referrals	eReferrals	% of Total Referrals on eReferral
Cross Cancer Institute	1438	310	22%
Tom Baker Cancer Centre	1214	493	41%
Jack Ady Cancer Centre	250	150	60%
Central Alberta Cancer Centre	209	178	85%
Grand Prairie Cancer Centre	86	2	2%
Margery E. Yuill Cancer Centre	62	1	2%
Total	**3259**	**1134**	**35%**

Table 4: Comparison of Total Referrals vs. eReferrals sent to Lung Cancer by Cancer Site (July 2014 - July 2015)

Site	Total Referrals	eReferrals	% of Total Referrals on eReferral
Cross Cancer Institute	891	145	16%

Tom Baker Cancer Centre	605	21	3%
Central Alberta Cancer Centre	108	6	6%
Jack Ady Cancer Centre	107	0	0%
Grand Prairie Cancer Centre	64	3	5%
Margery E. Yuill Cancer Centre	15	0	0%
Total	**1790**	**175**	**10%**

For breast cancer referrals, there are high adoption rates of users sending to breast cancer at the Central Alberta Cancer Centre (85%) and the Jack Ady Cancer Centre (60%). At both of these centres, office staff were trained to use eReferral and for the majority of referrals, office staff complete and send eReferrals on behalf of the physician. Adoption rates might be the result of training and role (more non-physician users than physician) and could explain why these rates were higher than the other sites.

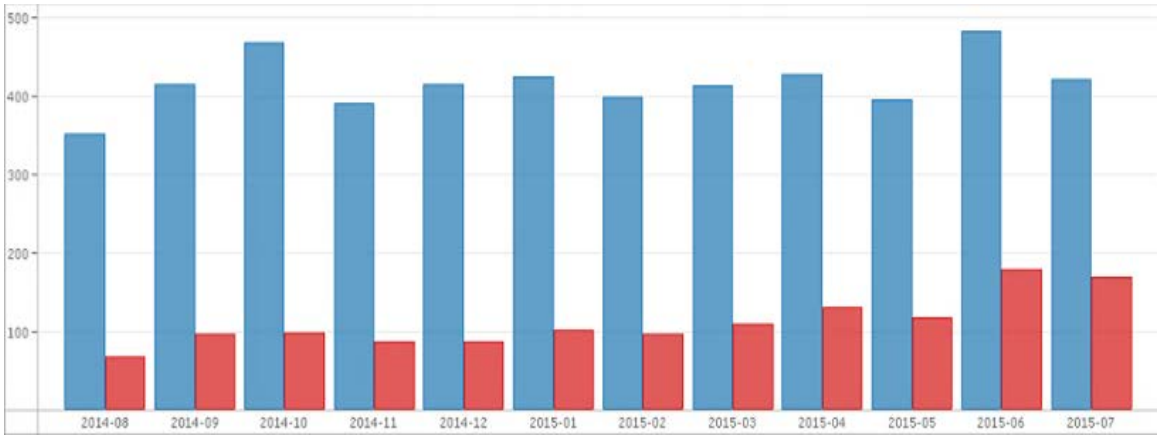
The lowest adoption occurs at Grand Prairie (2%) and Margery Yuill (2%) Cancer Centres. Grand Prairie referring surgeons had requested to be late adopters accounting for the low adoption rates, and Margery Yuill had the majority of their breast cancer referrals coming directly from acute care and primary care. As demonstrated earlier, cancer care referrals from primary and acute care are infrequent, as opposed to their surgeon/specialist counterparts. With the surgeon group opting out it would be expected that low adoption rates would result. (The majority of breast cancer referrals are sent by a surgeon's office ~57% versus 33% for lung cancer).

Cross Cancer Institute (CCI) and Tom Baker Cancer Centre (TBCC) fall midway with breast cancer eReferral adoption rates at 22% and 41% respectively. CCI's referring breast surgeons chose to initially limit the number of offices who were referring to them which might explain lower adoption rates than TBCC.

The landscape is a little different when it comes to lung cancer referrals. Most centres except Cross Cancer (16%) experience very low adoption rates. One conclusion that may be drawn from the data is that the referral requirements in eReferral for lung cancer at present are very complex and difficult for non-physician staff such as medical office assistants (MOAs) to interpret. MOAs resort to old familiar practices and send manual referrals. Another consideration is that lung cancer referrals are sent less often by primary care (1790 yearly as compared to the 3259 for breast) and may contribute to low adoption simply because primary care staff are less familiar with the tool or have forgotten how to use eReferral by the time a lung cancer referral is required.

A comparison of Breast and Lung eReferrals over time (Figure 2) demonstrates that although the total number of referrals over time remains relatively consistent, the number that are sent via eReferral is slowly increasing. The gradual increase in eReferrals may be an indication of choice and realized benefit of eReferral over other modalities. (No data source was available to make the same comparisons with Hip & Knee).

Figure 2: Comparison of Total Referrals vs. eReferrals sent to Breast/Lung Cancer (August 2014-July 2015)



Legend: **Blue** = Count of All Referrals; **Red** **=** Count of eReferrals

The volume of referrals sent by eReferral is important as it can be an indicator of uptake of the tool. **Table 5** depicts the proportion of eReferrals compared to total number of referrals received by each of the three receiving groups.

Table 5: Proportion of Referrals that are eReferrals by Receiving Sites (July 2014 -July 2015)

Referral Type	Total Number of Referrals (including eReferrals)	Total Number of eReferrals	Percent of Total Referrals that are eReferrals
Hip and Knee Referrals (South, Edmonton, Calgary Zones only)	32268	603	1.8%
Breast Cancer Referrals (all zones)	3259	1296	40.0%
Lung Cancer Referrals (all zones)	1790	185	10.3%
Total	**37 317**	**2084**	**5.6%**

The overall uptake of eReferral has been slightly less than 6% of total referrals sent. Breast cancer has shown the greatest adoption or eReferral with 40% of all referrals sent using the tool. Lung cancer and Hips & Knees show the least amount of adoption at 10% and 2% respectively.

Since Netcare adoption is relatively consistent (59-72%), the ability to use eReferral is likely not a factor in the low adoption rates. Who was trained (physicians versus non-physicians) and complexity of the referral requirements within eReferral for certain services (such as Lung Cancer) may be factors, but further investigation is required.

EVALUATION FINDINGS

OUTCOME A: IMPROVE EFFICIENCY IN SCHEDULED HEALTH SERVICES ACROSS ALBERTA BY IMPROVING, STANDARDIZING, AND AUTOMATING BUSINESS PROCESSES

1. TO WHAT EXTENT DOES AUTOMATED REFERRAL PROCESSES CORRESPOND WITH A REDUCTION IN REFERRAL ERRORS?

Purpose: One method to improve efficiency is to reduce the amount of errors that occur during the referral process and the extra time, effort and delays in care that can occur because of these errors. Common errors that delay the referrals being processed, and ultimately the patient being scheduled for service include incomplete referrals, duplicate referrals, and referrals sent to the wrong service (redirected or rejected). Another strain on efficiency are patients who either miss or cancel their appointments – which leads to double effort on the part of staff who reschedule missed appointments (scheduling two or more appointments instead of just the one). Cancelled appointments occur when a patient no longer wants or needs a service – in which case the efforts to schedule the appointments did not result in a patient being seen – this could be considered a loss of time.

To demonstrate whether eReferral contributed to a reduction in referral errors and the number of missed appointments and cancellations, various data sources were examined.

Data Sources: eReferral Reports, Hip and Knee Referral Forms, and Cancer Care Dashboard.

Assumptions: This evaluation report assumes that the data sources accurately capture referral errors and that a reduction in referral errors upon implementation of eReferral is directly correlated with eReferral. It is also assumed that reducing errors improves efficiency.

Findings & Discussion:

Limited baseline data was available across the data sources to compare pre and post eReferral impact on referral errors, missed appointments and cancellations. It is important to note that the ability to measure (and provide transparency of the magnitude of the problem) is now possible because of eReferral. **Table 6** below demonstrates eReferral capability to report on referral errors. In addition, the data provides insight as to how big the problem of referral errors is.

Table 6: Post-eReferral Implementation Referral Errors for Cancer (July 2014-July 2015)

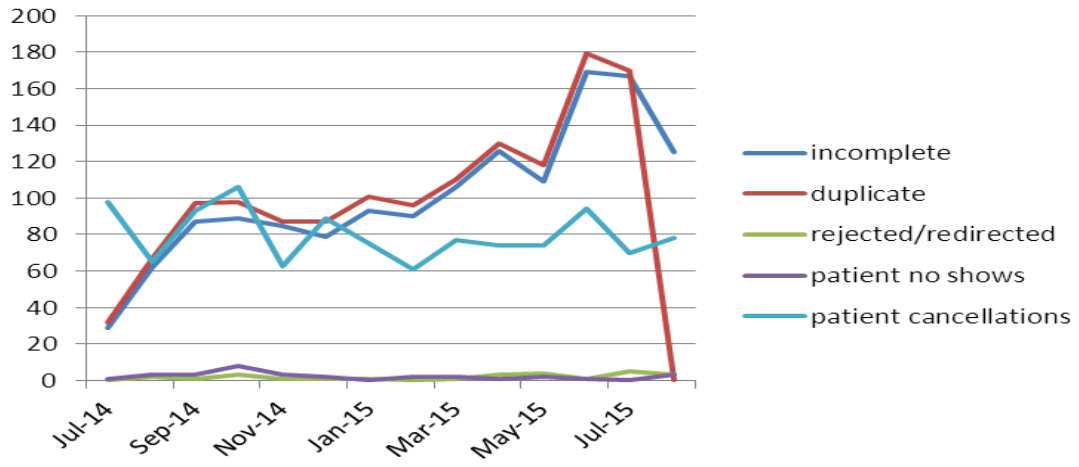
Indicator/Measure – Referral Status	Breast Total Referrals = 3249	Lung Total Referrals = 1789
Incomplete Referrals	999 (31%)	125 (7%)
Duplicate Referrals	1054 (32%)	148 (8%)
Redirected or Rejected Referrals	15 (0.04%)	3 (0.01%)
Patient No Shows	15 (0.04%)	13 (0.07%)
Cancellations	519 (16%)	450 (25%)

Figure 3 illustrates the overall Cancer referral error data by month from July 2014 to August 2015. There appears to be a steady incline in the number of incomplete and duplicate referrals overall. It is important to note that the increase in errors could be in large part due to the time it takes to adjust to a new referral

process and referral system. Visibility to the error is now present, but sending staff have not yet adhered to the new processes and are not yet following the new referral guidelines. At the same time staff are adopting eReferral as the preferred modality and the end result is that more referrals are being sent in each month, learning is still occurring so an increase in the number of incomplete referrals is to be expected.

It was discovered that support staff have struggled with the new automated process and some were sending referrals through both eReferral and fax which would contribute to an increase in duplicate referrals.

Figure 3: Summary of eReferral Statuses for Cancer Care (July 2014-August 2015)



It should be noted that there was an extreme decrease in the number of duplicate referrals in August 2015. It appears that the decrease was a data entry issue rather than a shocking improvement of referral processing. Continued data collection is required to verify this assumption.

An examination of Hip and Knee Data provides some insight into pre- and post-implementation rates for incomplete referrals, duplicate referrals and redirected/rejected referrals. The reasons for denied and pending referrals was further explored (**Table 7**). The primary reason for denied/pending referrals for the baseline data was "Referral Documentation Incomplete" (63%). The same reason Post-LPR dropped to 45%. The decrease in the number of incomplete referrals may be attributed to the implementation of eReferral which checks referrals for completeness. Other contributing factors may be that during the pre-implementation of eReferral, work was done to standardize the referral requirements for the receiving groups, allowing sending groups to submit referrals that adhered to the same standard. Also during the evaluation period, hip and knee clinics across the province stated their preference to primary care that referrals be submitted using the standardized provincial hip and knee form.

Table 7: Baseline and Post-LPR Reasons for Denied and/or Pending Referrals (n=56, n=56)

Denied/Pending Reason	Baseline (%; *n* = 56)	Post-LPR (%; *n* = 56)
Inappropriate referral	0 (0%)	1 (2%)
Doctor not qualified or able to provide treatment	2 (4%)	0 (0%)
Patient referred elsewhere	1 (2%)	0 (0%)
Referral documentation incomplete	**35 (63%)**	**25 (45%)**
X-rays not appropriate	6 (11%)	**27 (48%)**

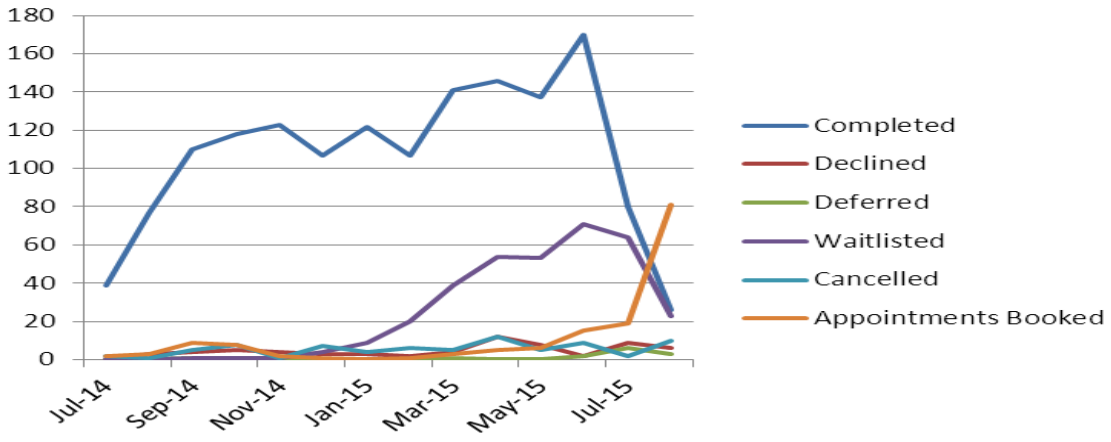
Denied/Pending Reason	Baseline (%; *n* = 56)	Post-LPR (%; *n* = 56)
X-rays not appropriate/Doctor not qualified or able to provide treatment	1 (2%)	0 (0%)
X-rays not appropriate/Referral Documentation Incomplete	0 (0%)	3 (5%)
Other	11 (20%)	0 (0%)

The number of inappropriate X-rays increased since baseline (11% to 48%)**.** The increase may be due to the standardized referral requirements that were shared with both sending and receiving providers and efforts on the receiving provider to identify referrals with inappropriate x-rays. There was a decrease in the number of denied and pending referrals for "Other" reasons such as: unable to contact patient, patient requests and patient no-show (3 times), from 20% to 0%, which suggests that eReferral might have contributed to the reduction in the number of inappropriate referrals (which require redirection or rejection).

The number of rejected/redirected referrals has remained steady throughout the time eReferral has been utilized in breast and lung cancer groups. (**Figure 4** also supports this trend for Hips & Knees – reported as "declined" statistics). It is important to understand that although eReferral can help to ensure appropriateness of referrals and decrease the number of referrals that need to be redirected or declined, it does not guarantee that every complete referral will be appropriate for the service or that every service will have the capacity to see a patient. Other reasons for rejecting or redirecting referrals have less to do with automation and more to do with external factors (such as capacity and caseload). It remains to be seen if over the long-term eReferral will help decrease the number of incomplete or duplicated referrals in breast and lung groups.

eReferral's ability to check referrals for completeness is limited by non-standardized naming conventions that are used for lab and diagnostic imaging results. The eReferral system cannot currently check if what the user says is attached really is what is attached. The Lab Standardization Project (Lab Information Systems – Standards ITC-11-522) which is underway will make it easier to search for lab results and verify them. Having a referral checked for completeness at the time of submission could save both patient and providers eliminating the need for a patient to return to the clinic to provide missing information or investigations.

Figure 4: Summary of eReferral Statuses for Hip and Knee, Lung Cancer, and Breast Cancer



Note: The numbers reported for August 2015 are complete up to August 28, 2015.

eReferral may indirectly contribute to decreasing patient no shows or cancellations (i.e. a patient's referral is processed quickly so the need for sending providers to send duplicate referrals is eliminated). Alternatively, there is an ability to identify a duplicate referral before a second appointment is booked for the patient. ARIA MO numbers for cancellations (termed expired referrals), incomplete referrals and patient no-shows are presented in **Table 8.** The number of cancellations and patient no-shows pre-LPR compared to post-LPR is similar with a slight decrease in cancelled referrals post-implementation, which may be due to the development of standardized processes regarding when to send a referral to a cancer centre.

Table 8: Cancer Referrals (Cancelled, Incomplete, Patient No-Show)

Variable	Pre-LPR (July 2013 – 2014)	Post-LPR (July 2014 (July 2015)
# of Cancellations (Expired)	992	969
# of Patient No Shows	28	28

A benefit of eReferral is that there is now transparency of how many missed appointments or cancellations are occurring. The information is useful to identify waste in current business processes and opportunity to develop more efficient practices.

Conclusion:

Hips & knees, lung cancer and breast cancer did not have the ability prior to the implementation of eReferral to easily measure the number of incomplete, duplicate and redirected/rejected referrals. It is difficult to surmise a causal link between the increase of referral errors and the function and capability of eReferral. The ability to measure and monitor the referral errors is a key benefit of eReferral and with transparency comes the ability to improve efficiency. It remains to be seen if over the long-term eReferral will help decrease the number of incomplete or duplicate referrals.

eReferral provides transparency to the number and trend for missed appointments and cancellations by patients. It will be up to the services to act on the information to make changes – positive changes will reflect in eReferral reports and patient satisfaction surveys as a decline in the number of missed appointments and cancellations.

Recommendations:

(1) The eReferral Team should continue to support the spread of eReferral to sending providers as well as to receiving providers to ensure consistent data capture across the hip & knee, lung and breast cancer participating sites.

(2) The eReferral Team should continue to monitor eReferral status information to determine whether the current trends in referral errors, missed appointments and cancellations improves over time.

(3) AHS should continue supporting the development and adoption of provincial referral guidelines to standardize referral processes for patients and providers and streamline the process for future eReferral implementations. Even in the absence of automation, standardized referral processes reduce variability and simplify the referring process for patients and providers (i.e. one process for all providers within a specialty). Sending and receiving sites are equally important in the referral process and sites should support guidelines in daily practice (i.e. accept referrals that are complete, offer education on referral guidelines).

(4) AHS should continue to sustain eReferral and consider the benefits of spreading eReferral more broadly (benefits include error reduction, increased efficiency for both sending and receiving providers and transparency into the potential issues within the referral process for proactive resolution).

2. WHAT HAS BEEN THE EREFERRAL ADOPTION RESPONSE ACROSS HIP AND KNEE AND BREAST AND LUNG GROUPS?

Purpose: To determine the adoption of eReferral as an indicator of improved efficiency.

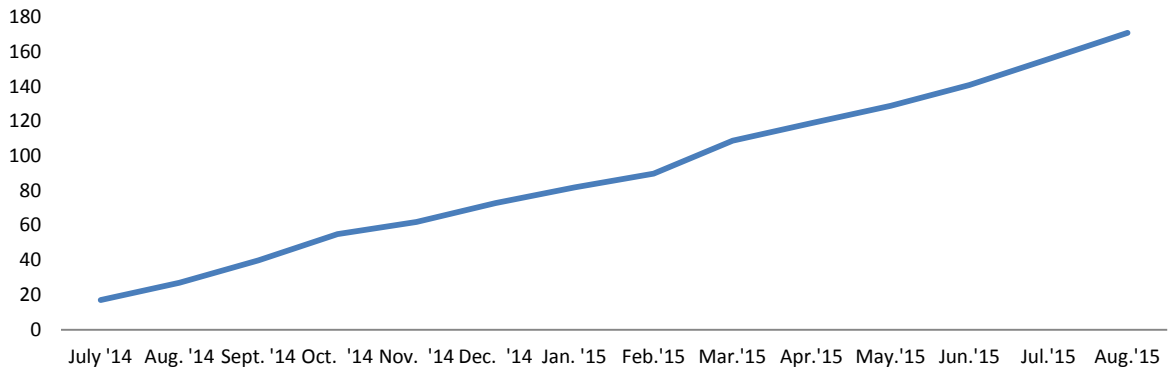
Data Sources: eReferral Reports, Cancer Data, and Netcare.

Assumptions: It is an assumption that upon adopting eReferral, referral processes become more efficient and the eReferral adoption rate is a good indicator of improved efficiency. In addition, it is assumed that the data is captured accurately (no human errors in data entry and the same criteria is used to populate databases) and reflects the adoption rate.

Findings & Discussion: As noted earlier in this report (**Table 4**) between July 14, 2014 and July 31, 2015, there was a total of 37,317 referrals and 2,084 (5.6%) of those were eReferrals. A likely reason for more manual referrals overall is that from the perspective of the sending provider, eReferral becomes one of many different modalities to send referrals, and the infrequency of Hip & Knee, Lung and Breast Cancer referrals causes senders to resort to familiar (manual) processes. As eReferral scales implementation, and replaces other modalities an increase in adoption is expected.

Figure 5 shows a steady increase in the number of sending providers month over month, demonstrating continued adoption of the tool. The evaluation data showed that once users began using eReferral most continued to use it.

Figure 5: Number of eReferral Users by Month (July 2014-August 2015)



Conclusion: The data demonstrates an increased adoption of eReferral in the last year.

Recommendations:

(5) The eReferral Team should continue to deploy eReferral to more clinics and specialties.

3. WHAT EXTENT HAS EREFERRAL IMPACTED EFFICIENCY (TIME SAVED) IN THE REFERRAL PROCESS?

Purpose: To capture quantitative feedback from eReferral users regarding the efficiency of using eReferral.

Data Sources: eReferral User Survey.

Assumptions: The eReferral User Survey is assumed to capture data that demonstrate the efficiency of the eReferral system. Survey data is self-reported, therefore, an assumption is made that the responses to the survey are an accurate reflection of respondent opinion (response bias).

Findings & Discussion:

In the eReferral User Survey, efficiency was addressed by asking respondents about their perception of eReferral's impact on requesting health services, tracking the patient journey and integration into workflow. Eighty-one percent (30 out of 37 responses) of survey respondents reported that they strongly or moderately agreed that eReferral had increased efficiency in the referral process leaving 19% stating that they were not yet fully convinced (due to their lack of familiarity with the new referral system). The latter group may have answered unfavorably because of the repeated work required when using eReferral (a result of misalignment of EMRs and eReferral). However, the majority of respondents rated eReferral as an efficient system (89% Strongly Agree), particularly in terms of tracking the patient journey.

eReferral was also rated as effective by the majority of users in terms of improving quality of care (67% Agree), improving transparency (87% Agree), and enhancing continuity of care (67% Agree). User's perception of the impact of eReferral on referral guidelines was less confident, as many users were unsure of how eReferral contributed to awareness (27% Unsure), coordination (16% Unsure or Not Applicable), and standardization of guidelines (32% Unsure or Not Applicable); though 62% of respondents stated eReferral has helped with standardization.

The greatest perceived benefit of eReferral by users was providing information on wait times and service availability (35%), followed by ability to track referral status (30%) and knowing that referrals have been submitted and received (24%). For the most part, participants recommended scaling eReferral to other services and/or pathways beyond LPR (76%), with 71% likely or very likely to recommend eReferral to other health care users. The survey also demonstrated areas for improvement. In particular, 65% respondents desired an easier way to attach Netcare or external documents out of their EMRs and noted that this was a barrier to their referral processing.

Table 9: eReferral Users Perceptions of Efficiency (n=37)

Item	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not Sure	Not Applicable
The eReferral system is an efficient way (i.e. saves time between the sending, tracking, and closing of referrals) to request health services	**21 (57%)**	**9 (24%)**	3 (8%)	3 (8%)	1 (3%)	0 (0%)
The eReferral system is useful in tracking the patient journey (i.e. improving wait times, making processes transparent for the patient)	**20 (54%)**	**13 (35%)**	1 (3%)	2 (5%)	1 (3%)	0 (0%)
The eReferral system is well-integrated into my workflow	**14 (38%)**	**10 (27%)**	5 (14%)	4 (11%)	3 (8%)	1 (3%)

Note: The breakdown for the area of work of the respondent of the 37 participants for this question is as follows: 13 from hip and knee, 7 from breast cancer, 3 from lung cancer, 9 from primary care, and 5 from specialty care.

As shown in **Table 9**, the majority of respondents (81%) Strongly and Moderately Agreed that the eReferral system saves time when sending, tracking, and closing referrals. The majority of respondents also Strongly and Moderately Agreed that the system is useful for tracking patient's progress (89%) and that the system is well-integrated into workflow (65%). Moreover, when asked about the eReferral system's effectiveness, 78% of respondents Strongly and Moderately Agreed that eReferral leads to faster responses to requests. Based on the findings of the eReferral User Survey, there is majority consensus among eReferral users that eReferral does save time in the referral process.

Conclusion:

eReferral was reported as an efficient referral system for sending, tracking and closing referrals. Respondents are generally satisfied with the usefulness of eReferral in tracking the patient journey and felt that the system was integrated into their daily workflow. It is of note that some respondents (25%) moderately or strongly disagreed with eReferral being well-integrated into their workflow. The overall perceived benefit of eReferral was access to wait time information and service availability.

Recommendations:

(6) The eReferral team should assist in sustaining current users' adoption of eReferral and continue to elicit and respond to user feedback.

(7) eReferral efficiency and uptake could potentially be further improved by exploring the implementation of the ability to attach documents directly from EMRs into Netcare with the respective EMR vendors. NOTE: in June 2015 the eReferral platform was enhanced to allow for the attachment of EMR generated referrals for hip and knee joint replacement.

(8) For those sites who felt that the eReferral system is not well integrated into their workflow, the eReferral Team should consider process mapping current workflows and clinical systems before implementation – noting changes to workflow, highlighting benefits and discussing with users.

(9) Future marketing strategies commenting on the efficiency advantages of eReferral should focus on the accessibility of information as it relates to service availability and wait times.

OUTCOME B: IMPROVE **ACCESSIBILITY** AND REDUCE WAIT TIMES FOR SCHEDULED SERVICES

4. TO WHAT EXTENT IS PROVINCIAL SYSTEM NAVIGATION IMPROVED?

Purpose: To generate an understanding of how stakeholders in the early adopter groups perceive differences in navigating referral processing before and after eReferral.

Data Sources: Receiving Site User Focus Groups; Non-user survey, eReferral user survey

Assumptions: Responses, statements and sentiments discussed in the receiving site user focus groups and non-user surveys accurately reflects ease of navigation.

Findings & Discussion:

Receiving site user focus groups from Hip and Knee and Cancer suggest that system navigation has not improved. Participants explained that using eReferral was difficult because the lack of technological access and integration created duplication of work in multiple systems.

Sending providers use a variety of tools to determine the best place to send a referral and what information to include. Some of the receiving clinics provide referral forms, while others have referral guidelines. These forms and guidelines are variable in their detail as well as location. **Table 10** lists the multiple tools used by non-users to find referral information, often accessing multiple tools to process one referral. eReferral has the capability to store referral information in one place, making it easier to navigate the referral system.

Table 10: Resources and Tools Used to Navigate Referrals Among Non-Users

Resources/tools used by your service/program to assist with navigating referral system (Select all that apply)	Legacy Frequency	Legacy Percentage	Updated Frequency	Updated Percentage
Alberta Netcare eReferral/Health Service Catalogue	2	5%	24	22%
Alberta Referral Directory (ARD)	5	13%	15	14%
Central Access & Triage in Calgary	7	18%	33	30%
Central Access in Edmonton	3	8%	6	6%
Health Link Alberta	1	3%	9	8%
Health professional information sheets	3	8%	10	9%
InformAlberta.ca	3	8%	4	4%
Myhealth.Alberta.ca	2	5%	2	2%
Paedlink in Calgary			1	1%
Path to Care Directory	4	10%	20	18%
Patient information sheets	2	5%	5	5%
RAAPID	4	10%	15	14%
Referral forms	21	**54%**	56	**51%**
Referral guidelines	10	26%	35	32%
Send a confirmation letter with approximate wait times	8	21%	24	22%
Specialist link	1	3%	6	6%
TOP (Towards Optimized Practice) - Clinical practice guidelines	4	10%	6	6%
None of the above	4	10%	21	19%
Other	8	21%	13	12%
Alberta Netcare	17	44%		
N/A	1	3%		

The eReferral User survey assessing awareness, completeness, coordination and standardization of Referral Guidelines found that, “Implementation of eReferral has helped with the standardization of referral guidelines,” (62% Strongly Agree/Agree) (**Table 11**).

Table 11: eReferral Users Perceptions of Referral Guidelines and eReferral (n=37)

Item	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not Sure	Not Applicable
My level of awareness of the referral guidelines for my specialty increased with the implementation of eReferral	6 (16%)	13 (35%)	0 (0%)	3 (8%)	**10 (27%)**	5 (14%)
The referral guidelines for my specialty are complete (i.e. well written, easy to access and includes all the required information)	**10 (27%)**	9 (24%)	2 (5%)	2 (5%)	5 (14%)	9 (24%)
Implementation of eReferral has helped with the coordination of referral guidelines within my specialty	7 (19%)	9 (24%)	4 (11%)	1 (3%)	6 (16%)	**10 (27%)**
Implementation of eReferral has helped with the standardization of referral guidelines	9 (24%)	**14 (38%)**	1 (3%)	1 (3%)	6 (16%)	6 (16%)

Lack of access to Netcare and the disorganization of the internal AHS website (InSite) were cited as additional reasons that prevented ease of navigation and ultimately uptake of eReferral. Furthermore, the primary care participants noted that the services that were currently in eReferral were not referred to on a regular basis so it reduced the chance that the users would think to use eReferral when the opportunity arose.

Conclusion:

The focus groups noted that they have not yet seen improvements in overall referral system navigation. Lack of understanding on the part of physicians of the benefits of eReferral for patients and the failure to recognize that extra work will not be required to implement eReferral in the long run has in part contributed to the lack of improved system navigation. The participants advocate for the expansion of eReferral across a wider program area if the before-mentioned barriers were addressed.

Recommendations:

(10) Address the potential for short-term increases in workload and provide support from the eReferral team to help mitigate this as much as possible.

(11) Clearly explaining to users and potential users, and particularly to physicians, what the patient and clinical benefits of eReferral are and increase access to Alberta Netcare and AHS Insite

(12) More consistent organizational support is required to train and prepare for eReferral to be spread to a larger sample of user groups. Without the spread of eReferral to more specialties, it is difficult for programs to use a system that does not align with other systems in the field.

5. TO WHAT EXTENT DO EXISTING BUSINESS PROCESSES SUPPORT EREFERRAL SYSTEM IMPLEMENTATION?

Purpose: To understand current business processes and how they support or do not support automation.

Data Sources: Implementation Assessment Tool (IAT)

Assumptions: It was assumed that the defined measures of success and/or chosen indicators, accurately capture (validity) and reflect the extent to which business processes support eReferral system implementation. It is also assumed that no human errors were made in data entry of the Implementation

Assessment Tool (IAT) and that these databases were populated using the same criteria and understanding for each early adopter. There was no control for differences in population size for each zone and therefore, assumptions about the progress of certain zones cannot be made when interpreting the data.

Findings & Discussion:

As demonstrated in **Table 12** the majority of services/clinics had:

- leadership support identified (76% Agree/Strongly Agree)
- were currently accepting referrals or able to accept referrals from outside their zone or area (82% Agree/Strongly Agree)
- had clearly defined clinic specific referral requirements (82% Agree/Strongly Agree)
- were using Alberta Netcare (78% Agree/Strongly Agree).

However, the majority of respondents did not have clearly defined standardized provincial referral requirements (59% Disagree/Strongly Disagree), which suggests there is a recognized need for further work. Provincial referral requirements simplify the referral experience so the same information is required regardless of where the referral is being sent. The IAT completions also show an average Overall Access Assessment score of 52% and an average Referral Management Access Assessment score of 58%, indicating that more work is needed with individual services/clinics to ensure that their business processes are standardized and consistent.

Table 12: Provincial Referral Guideline Assessment Tool Results (n=17)

Item	Strongly Disagree	Disagree	Agree	Strongly Agree	I Don't Know	Not Applicable
Leadership support for Provincial Referral Pathways Implementation identified	0 (0%)	1 (6%)	6 (35%)	**7 (41%)**	3 (18%)	0 (0%)
A local representative has been identified to work with the Referral Pathways team	0 (0%)	4 (24%)	3 (18%)	**5 (29%)**	2 (12%)	3 (18%)
Clinical networks have been identified that can help drive the Provincial Referral Pathways work	1 (6%)	2 (12%)	**6 (35%)**	0 (0%)	6 (35%)	2 (12%)
Your service/clinic has clearly defined clinic specific referral requirements	2 (12%)	1 (6%)	6 (35%)	**8 (47%)**	0 (0%)	0 (0%)
Your service/clinic has clearly defined standardized provincial referral requirements	2 (12%)	**8 (47%)**	5 (30%)	2 (12%)	0 (0%)	0 (0%)
Your service/clinic is currently using Alberta Netcare	2 (12%)	2 (12%)	4 (24%)	**9 (53%)**	0 (0%)	0 (0%)
Your service/clinic's electronic medical record interfaces with Netcare	2 (12%)	**5 (30%)**	3 (18%)	3 (18%)	1 (6%)	3 (18%)

Recommendations:

(13) In order to ensure smooth adoption of eReferral across the province, more work needs to be done with individual services and clinics to ensure that their business processes are standardized and consistent.

(14) The eReferral Team should research, plan, and implement strategies to better engage physicians and their support staff to improve the eReferral platform, referral requirements and clinic work flow.

6. TO WHAT EXTENT DOES THE AUTOMATION OF THE REFERRAL PROCESS SUPPORT A REDUCTION IN REFERRAL WAIT TIMES ACROSS THE PROVINCE?

Purpose: To capture feedback that explicates whether automation reduces or does not reduce referral wait times (the time from referral received to scheduling the referral).

Data Sources: eReferral User Survey, eReferral Receiving Site User Focus Groups

Assumptions: It was assumed that the defined measures of success and/or indicators chosen accurately capture (validity) a reduction in referral wait times. Survey data is self-reported, therefore, it is assumed that the responses to the survey are an accurate reflection of respondent opinion (response bias). Lastly, it is assumed that the statements and sentiments discussed in eReferral user focus groups actually reflect program effects.

Findings & Discussion:

The eReferral User Survey (**Table 13**) demonstrates that the most commonly perceived benefit of eReferral was accessibility of information about wait times and available services, and the ability to track referrals (89% Strongly and Moderately Agreed). The majority of respondents felt that eReferral was an efficient way to request health services (81% Strongly Agreed and Moderately Agreed).

Table 13: eReferral Users Perceptions of eReferral System Efficiency (n=37)

Item	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not Sure	Not Applicable
The eReferral system is an efficient way (i.e. saves time between the sending, tracking, and closing of referrals) to request health services	**21 (57%)**	**9 (24%)**	3 (8%)	3 (8%)	1 (3%)	0 (0%)
The eReferral system is useful in tracking the patient journey (i.e. improving wait times, making processes transparent for the patient)	**20 (54%)**	**13 (35%)**	1 (3%)	2 (5%)	1 (3%)	0 (0%)

The current evaluation does not have robust enough data to capture referral wait times and can only infer a reduction (or increase) in wait times based on the survey and qualitative data gathered from users of eReferral. Although participants felt that the eReferral system enables faster responses to requests (**Table 14**, 78% moderately or strongly agree), respondents commented that eReferral did not reduce referral wait times. The finding should be corroborated with actual wait time data. The comments by respondents about wait times may be the result of the rework required for referral processing since implementation of eReferral. As noted earlier, staff managing referrals are using multiple systems to

process referrals, and they have reported that initially there was rework involved in referral processing causing a delay in the completion of the work. Incomplete referrals may result in a referral being triaged inappropriately (i.e. patient should be booked in quickly but the urgency is not clear on the referral) and as a result the referral is sent back to the referring provider. The back and forth of referral may delay patients care. Even if a complete referral is received quickly by the system, the supply of available appointments factors into the time the patient waits.

Table 14: eReferral Users' Perceptions of eReferral System Effectiveness (n=37)

Item	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not Sure	Not Applicable
Using the eReferral system enhances my ability to coordinate the continuity of care for patients	**12 (32%)**	**13 (35%)**	5 (14%)	2 (5%)	3 (8%)	2 (5%)
Using the eReferral system improves transparency in the patient journey	**15 (41%)**	**17 (46%)**	0 (0%)	3 (8%)	2 (5%)	0 (0%)
Using the eReferral system improves communication with patients	**9 (24%)**	**13 (35%)**	4 (11%)	2 (5%)	8 (22%)	1 (3%)
Overall, the eReferral system leads to faster responses to requests	**17 (46%)**	**12 (32%)**	3 (8%)	5 (14%)	0 (0%)	0 (0%)

According to the eReferral Receiving Site User Focus Groups, participants noticed no reduction in referral wait times across their services (**Table 15**). Both Hip and Knee and Cancer Care participants felt that eReferral has not made any difference in referral wait times for their respective services, and have noted duplication of work due to poorly streamlined processes. This lack of improvement was particularly evident among Hip and Knee eReferral users who observe a low volume of eReferrals and expressed the desire to expand to other bone and joint groups, but also emphasized the difficulty in doing so since other physicians use an entirely different system to process referrals for referral types other than hip and knee. It is important to have other physicians using eReferral and begin capturing concrete referral wait times. Again, it is emphasized that standardization, streamlining processes, and expansion to other services is required to observe potential differences in referral wait times across the province.

With current referral volume we were unable to show a decrease in wait times. The eReferral Health Services Catalogue provides users information about approximate wait times by provider (all orthopedic surgeons using eReferral) or site (all hip and knee and cancer sites) as well as what reasons for referral surgeons/cancer sites accept. This information was not easily accessible in the past and would have required a phone call or fax to obtain. Being able to see this information should easily allow for the referring provider to have conversations with their patients about the care options that are available to them.

Table 15: eReferral User Focus Groups (July 2015) Reported Challenges

Theme: Challenges	Quotations
Inadequate Volume of Referrals	*"In a week I may only have 8 eReferrals, that's in one week, and the next week I may only have 2, so there's just not the volume for us to get the full use out of it."*
Redundancy	*"[eReferral] creates a lot of extra work for us because [we use] 3 different systems. The big barriers are the lack of those interfaces [between eReferral and our systems]… we are progressing patients through everything on one EMR already, so it's tough to then do it again in eReferral."*

Theme: Challenges	Quotations
Lack of Impact	*"If anything [the wait times] have gotten a little bit larger… that doesn't have anything to do with whether it's eReferral or fax referral, it's our volumes of referrals that have increased… which has led to overarching wait times increasing."*
Lack of Support for User	*"When I first started I had [Name] and they were fantastic, and then I had [Name] when I went Live… [Name] from Calgary came down and they were great. Now I don't have either. So that's very disappointing that both of those jobs were lost and now I have only Edmonton resources, there's nobody down [South] here."*

Recommendations:

(15) eReferral should capture referral wait time information by accessing organizational analytics through Data Integration, Measurement and Reporting (DIMR); doing so will provide a more concrete measure of accessibility to scheduled services across the province.

(16) eReferral Team should continue to work on the standardization and streamlining of referral processes,

(17) eReferral needs to be expanded to other services in order to see demonstrated changes in referral wait times.

7. TO WHAT EXTENT DO REFERRAL WAIT TIMES TAKE INTO ACCOUNT PATIENT AND REFERRING PROVIDER CHOICES?

Purpose: To understand current business processes and how they support or do not support patient and referring provider choices.

Data Sources: Hip and Knee provider reports

Assumptions: It is an assumption that upon adopting eReferral it would be easier for referrers to provide patients with the option of choosing a specific service provider or for next available appointment. It is also an assumption that understanding service provider choice is an indicator of accessibility of health care providers. In addition, it is assumed that the data is captured accurately (no human errors in data entry and same criteria used to populate databases) and reflects the adoption rate.

Findings:

Of the five hip and knee bone and joint sites that received eReferrals between July 2014 and July 2015, four of the receiving clinics offer the choice of next available provider or a specific provider. eReferral captures data on if a specific provider was the patient's choice or the providers choice. This information gives us insight into how referrals are being directed in the system. Choosing next available appointment may show confidence in the clinic's ability to triage the patient to the most appropriate provider or potentially that the shortest wait time is preferred. When a specific provider is chosen it may be due to a collegial relationship between the sending and receiving providers; from the patient's perspective it could be due to continuity of care (the provider had seen them previously) or having heard good reviews of the provider. Table 16 below shows a breakdown of the four hip and knee sites offering provider and patient

choice. eReferral enables the transparency of options for service provider and patient in accessing hip and knee health services.

Table 16: How receiving providers are chosen for Hip and Knee eReferrals July 2014-July 2015 (n=570)

Number of users who selected "yes" in choosing a specific provider	**102**
Specific provider was patient preference	**70**
Specific provider was referring provider preference	**32**
Number of users who selected "next available appointment"	**468**

Conclusion: eReferral provides transparency into what care options exist, the referral requirements and wait times so the patient and provider could have a conversation about what care option is best. Based on eReferral data on the use of next available appointment and a specific provider, it is important to include different options.

Recommendation:

(18) As central intake models are implemented in other clinical areas, it is important to continue to offer patients options for their care as there may be multiple reasons for their referral choices.

8A. TO WHAT EXTENT DOES CONSISTENCY IN REFERRAL PROCESSES AFFECT EXPERIENCES OF EREFERRAL USERS AND REDUCE VARIATION ACROSS EARLY ADOPTER REFERRAL PROCESSES?

Purpose: To obtain user feedback about the consistency of referral processes.

Data Sources: eReferral User Survey, eReferral Team Focus Group

Assumptions: The work the eReferral team did with sending and receiving sites improves the consistency of the referral process of hip and knee and cancer (breast and lung) health services. The survey questions used to capture information on the experience of eReferral users are valid and reliable. User responses on the survey instrument are assumed to represent their opinion accurately (response bias).

Findings and Discussion:

The results of the eReferral User Survey show that slightly over half of the respondents perceived that the implementation of eReferral increased their awareness of referral guidelines (**Table 17:** 51% Moderately or Strongly Agreed), and helped with standardization of referral guidelines (62% Moderately or Strongly Agree). Slightly under half of the surveyed users felt that eReferral helped with coordination of referral guidelines (43% Moderately or Strongly Agreed). Respondents also felt that the referral guidelines for their specialty are complete (51% Moderately or Strongly Agreed). However, a sizable proportion of respondents also expressed a degree of uncertainty about the questions: of the 37 respondents, 27% were Not Sure about the impact of eReferral on awareness of referral guidelines, 32% were Not Sure about their level of satisfaction with the approach to inform stakeholders about referral guidelines, and 27% felt that the implementation of eReferral was Not Applicable to coordination of referral guidelines. The findings suggest that although there were mixed reviews about the consistency of referral processes after eReferral was implemented, some respondents were not aware of the referral guidelines that had been automated within eReferral.

Table 17: User Perspectives on Variation Across Early Adopter Referral Processes (n=37)

Item	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not Sure	Not Applicable
My level of awareness of the referral guidelines for my specialty increased with the implementation of eReferral	6 (16%)	13 (35%)	0 (0%)	3 (8%)	**10 (27%)**	5 (14%)
The referral guidelines for my specialty are complete (i.e. well written, easy to access and includes all the required information)	**10 (27%)**	9 (24%)	2 (5%)	2 (5%)	5 (14%)	9 (24%)
Implementation of eReferral has helped with the coordination of referral guidelines within my specialty	7 (19%)	9 (24%)	4 (11%)	1 (3%)	6 (16%)	**10 (27%)**
Implementation of eReferral has helped with the standardization of referral guidelines	9 (24%)	**14 (38%)**	1 (3%)	1 (3%)	6 (16%)	6 (16%)
I am pleased with the approach taken to inform stakeholders about referral guidelines	7 (19%)	7 (19%)	2 (5%)	1 (3%)	**12 (32%)**	8 (22%)

In the eReferral team focus group, it was identified that due to the complexity of the primary care environment, (42 different PCNs and varied communication avenues); it was difficult to get the referral guidelines disseminated to users and adopters. The eReferral team and the Netcare Deployment team used a variety of approaches to introduce eReferral and the referral requirements to users including in-person visits, phone calls, newsletters (PCNs, eReferral), webinars, attending and presenting at conferences, presenting at PCN and specialty events, and the Alberta Netcare eReferral website with various links coming from other websites. Prior to the implementation of eReferral, minimal marketing had occurred to sending users about the provincially standardized referral guidelines. Receiving sites also reported that they followed the referral guidelines to varying degrees. When the requirements were automated in eReferral, the requirement to fill in mandatory data elements before the referral could be submitted for some users meant the eReferral process required more information from the patient and referring physician so faxing minimal information is less work. Some of the hip and knee sites sent out communication to the referring providers pertaining to the value of using the standardized referral form (i.e. allows the hip and knee clinics to easily and more appropriately triage the referral) and that they preferred for referrals to be sent on the form and eReferral if possible. Some clinics did not decline referrals that were not on the form or did not have all of the information that the form required.

Conclusion: Historically referral forms and/or guidelines were developed in isolation by the receiving sites. To increase the appropriateness and adoption of referral guidelines, it is important to include both sending and receiving providers in their development. The eReferral team has been working to improve the quality of the referral requirements for automation by reviewing and revising them with the sending and receiving users. There has to be some benefit to the user for them to use eReferral and also there must be consistent requirements applied to what is expected of the referring provider regardless of the sending modality.

Recommendations:

(19) To encourage consistency in referral processes and improve user experiences, eReferral should continue to work with sending and receiving users on standardized referral processes and developing and improving referral guidelines.

(20) Efforts should be made to work with Primary Care Networks, Departments of Family Medicine and AMA to develop a common communication strategy for developing and implementing referral guidelines.

8B. TO WHAT EXTENT HAS EREFERRAL AFFECTED THE PATIENTS' REFERRAL EXPERIENCES AND AWARENESS OF CARE OPTIONS?

Purpose: To understand the patient referral experience in relation to the implementation of eReferral.

Data Sources: Patient Satisfaction Survey, Patient Acceptability Literature Search.

Assumptions: The measures used are accurate in capturing the patients' referral experiences and awareness of care options. The survey questions represent patient satisfaction. With the patient satisfaction survey, we assume that the data reflects respondents' viewpoints and opinions. The literature is a sufficient proxy measure for patient satisfaction.

Findings and Discussion:

In general patients do not have a role in how referrals are processed, and are often unaware of these processes; nevertheless, it is important to gather feedback on whether patients perceived any improvements to their access pre and post eReferral implementation.

The baseline Patient Satisfaction Survey data for cancer sites revealed that the majority of patients are aware of their diagnosis before being contacted (95%) and were contacted within 48 hours of being referred (79%). Most referral users were informed about the date referral is received (90%), status of referrals (77%), and the consult date (94%), but only a small majority were aware of referral guidelines (58%).

At post-implementation, 53 Cancer Care patients out of 61 potential respondents completed a satisfaction survey (87% response rate). A total of seven out of 14 participants (50%) agreed or strongly agreed that they were satisfied with the current referral process for patients that need breast or lung cancer consultation while 35.7% disagreed with the same statement. Open-ended comments indicated that patients were generally quite satisfied with their experience. Some respondents indicated that their wait to receive a clinic visit could have been reduced or an estimated wait time could have been provided.

The baseline satisfaction survey results for Hip and Knee sites (**Table 18**) show that the majority of patients are provided with information about the referral process (75% Agree/Strongly Agree), are aware of their wait time (74% Agree/Strongly Agree), and are satisfied with their experience with the referral process (79% Agree/Strongly Agree). Patients also provided open-ended comment feedback. Generally, patient comments about the Hip and Knee process were positive – describing a good patient experience. However, some patients stated that timeliness and lost documentation were areas of concern. For example, one patient commented that "it takes too long to get anything done." Patient suggestions for improving the referral process included more information about the referral process and better communication.

Table 18: Baseline Satisfaction Survey Results for Hip and Knee Sites: Patient Feedback (August 2014)

Patient Survey Feedback						
Item	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Not Applicable**
I was provided with the information I need to understand the referral process (*n* = 152)	15 (10%)	12 (8%)	9 (6%)	**72 (47%)**	**42 (28%)**	2 (1%)
I was made aware of the options available to me, including the option to see the next available surgeon (*n* = 154)	9 (6%)	28 (18%)	25 (16%)	**51 (33%)**	**25 (16%)**	16 (10%)
I was made aware of the wait time to receive a clinic visit (*n* = 153)	5 (3%)	18 (12%)	16 (11%)	**80 (52%)**	**34 (22%)**	0 (0%)
I am satisfied with my experience of the referral process (*n* = 152)	3 (2%)	16 (11%)	12 (8%)	**78 (51%)**	**42 (28%)**	1 (1%)

At post-implementation, 15 Hip and Knee patients out of 29 potential respondents completed a satisfaction survey (52% response rate). Eight of 15 respondents (53%) disagreed or strongly disagreed with the statement, "I am satisfied with the experience of the referral process from when I saw my family physician and received a referral to the time I was seen at a specialty clinic". Six of 15 (40%) respondents agreed or strongly agreed with the same statement. Open-ended comments indicated that patients felt that the waiting period was too long. Patients also suggested that the clinic should implement channels of communication for patients to clarify questions, to address a need to change the appointment, or to address a change in circumstances.

At post-implementation, both groups stated that their wait time to see a specialist could have been reduced. For hip and knee patients, the satisfaction level decreased. Although the comments from hip and knee patients were similar stating that the wait time was too long and that they experienced confusion with the referral process when sites lost their documentation. It is important to note that the post survey was more in-depth than the pre-implementation survey meaning that this could bias the results. The Cancer data from baseline is not comparable to the post data as the baseline survey was not constructed as a satisfaction survey. In the future it is important to have the evaluation team construct both pre and post surveys for comparability and reliability purposes. In order to get a well-rounded perspective of the referral experience, the referring users and referring recipients were also surveyed at baseline and post-implementation. At post-implementation, Referral Users (**Table 19 & 20**) were less satisfied with their current referral process (68% Agree/Strongly Agree) and are evenly split on being informed of referral date (57% Agree/Strongly Agree vs. 59% pre-implementation), being informed of referral status (48% Agree/Strongly Agree vs. 41% pre implementation), opinions on the ease of tracking referrals (51% Agree/Strongly Agree), and opinions on the timeliness of the referral process (55% Agree/Strongly Agree). Overall, the majority of referral users and recipients state that they agree with the statement, "I am satisfied with the current referral process for patients that need hip or knee replacement specialty consultation". Twenty percent of referral users disagree and 30% of referral recipients strongly disagree or disagree with that same statement. Patient experience of the referral process is an area for opportunity in the referral experience. It is important to keep patients in mind when developing the referral processes and systems. Obtaining patient feedback is important in keeping patient priorities central to planning and development. The majority of Referral Recipients felt that they could easily track the progress of a referral (80% Agree/Strongly Agree) and that the referral process is efficient (76% Agree/Strongly Agree).

Table 19: Baseline Satisfaction Survey Results for Hip and Knee Sites: Referral Recipient Survey Feedback (August 2014)

Referral Recipient Survey Feedback						
Item	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Not Applicable**
I can easily track the progression of a referral (*n* = 30)	1 (3%)	4 (13%)	1 (3%)	17 (57%)	7 (23%)	0 (0%)
The process from the time I receive a referral to the time a patient is waitlisted/booked for consultation is efficient (*n* = 30)	0 (0%)	4 (13%)	3 (10%)	16 (53%)	7 (23%)	0 (0%)
The referral process supports timely services/consults for patients (*n* = 30)	1 (3%)	4 (13%)	3 (10%)	17 (57%)	5 (17%)	0 (0%)
I am satisfied with the current referral process for patients that need a hip or knee replacement specialty consultation (*n* = 30)	1 (3%)	8 (27%)	2 (7%)	16 (53%)	2 (7%)	1 (3%)

Most referral recipients rarely received incomplete referrals, rarely need to redirect referrals and seldom need to contract the referrer for additional information (67%). No open-ended comments were collected.

Table 20: Baseline Satisfaction Survey Results for Hip and Knee Sites: Referral Users (August 2014)

Referral Provider Survey Feedback						
Item	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Not Applicable**
I am informed of the date my referrals are received (*n* = 56)	5 (9%)	13 (23%)	3 (5%)	22 (39%)	10 (18%)	3 (5%)
I am informed of the status of the referrals I make (*n* = 56)	2 (4%)	16 (29%)	5 (9%)	23 (41%)	4 (7%)	6 (11%)
I am informed about how long my patients will be waiting to be seen at a specialty clinic (*n* = 56)	0 (0%)	16 (29%)	4 (7%)	28 (50%)	5 (9%)	3 (5%)
I can easily track the progression of a referral (*n* = 55)	3 (6%)	18 (33%)	5 (9%)	21 (38%)	7 (13%)	1 (2%)
I can easily direct referrals to the next available specialist (*n* = 56)	2 (4%)	6 (11%)	6 (11%)	20 (36%)	5 (9%)	17 (30%)
The referral process supports timely services/consults for patients (*n* = 54)	1 (2%)	19 (35%)	4 (7%)	26 (48%)	4 (7%)	0 (0%)
I am satisfied with the current referral process for patients that need hip or knee replacement specialty consultation (*n* = 56)	0 (0%)	11 (20%)	7 (13%)	33 (59%)	5 (9%)	0 (0%)

The literature suggests eReferral can improve patient's perceptions of continuity of care. Moreover, the literature states that the electronic referral systems improved clinic wait times, efficiency, and health care provider communication (Straus, Chen, Yee, Kushel, & Bell, 2011). Literature revealed an association between greater timeliness, increased acceptability, and a smoother patient journey and electronic consultation methods among patients studied. Overall, the search demonstrated the potential for electronic systems to positively contribute to patient experience, transparency, and communication.

Conclusion:

It is difficult to surmise the patient experience through proxy measures. Patients are not expected to have knowledge about automated referral systems, but their general satisfaction of their referral experience is noted here. Patients indicated general satisfaction with their process with Cancer Care. However, for Hip and Knee, both at baseline and post-implementation, patients indicated that long wait times are a

concern and suggested that communication processes could be improved. A review of the relevant literature suggests that automated referral systems have the potential to improve patient experiences if implemented correctly and broadly. Referral recipients and users are divided in their satisfaction with current referral processes.

Recommendations:

(21) In order to keep patient priorities central to planning and development, eReferral Team should continue to obtain patient feedback. Methods for obtaining feedback might include surveys, questionnaires, interviews, and informal feedback.

(22) To improve patient knowledge regarding eReferral and Referral Guidelines, strategies to communicate to patients (such as providing patients with relevant medical and system information and resources while they wait for their appointment) should be explored.

OUTCOME C: INCREASE STAKEHOLDER **ACCEPTABILITY** BY IMPROVING AWARENESS AND CLARITY OF PATIENT'S PATH TO CARE

9. TO WHAT EXTENT DOES EREFERRAL HAVE CONSISTENT UPTAKE OF USERS ACROSS EARLY ADOPTER GROUPS?

Purpose: To capture data reflecting consistency of uptake of eReferral across early adopter groups.

Data Sources: eReferral reports, Stakeholder receiving sites focus group, communication logs

Assumptions: The defined measures of success and/or indicators chosen accurately capture what we are seeking to measure (validity), and that these measures demonstrate the extent of consistent uptake of users across eReferral's early adopter groups. It is assumed that the eReferral data was accurately captured (with no human error), and that the same criterion was used across sites to populate the database. Statements and sentiments discussed in stakeholder focus groups actually reflect program effects and are corroborated with other evidence gathered in the evaluation.

Findings and Discussion:

Table 21 and **Figure 6** demonstrate that eReferral has observed a steady uptake of users each month. The busiest month for new users was March 2015 with a steady flow of new users into the summer months. Near the end of 2014 the data shows a decrease in the number of new eReferral users each month (November 2014 to- February 2015). On average, there are 12 new eReferral users each month (adoption is steadily increasing) and 74 regular users of eReferral (infer from this that users are deriving some benefit from using eReferral). Regular users include those who process one or more referrals each month and may have zero eReferrals for at most 2 consecutive months.

Table 21: New Monthly eReferral Users by Month

Month	July 2014	Aug. 2014	Sept. 2014	Oct. 2014	Nov. 2014	Dec. 2014	Jan. 2015	Feb. 2015	Mar. 2015	Apr. 2015	May 2015	June 2015	July 2015	Aug. 2015	**Total**
Monthly New Users	17	10	13	14	7	11	9	7	20	11	12	12	13	12	**168**

Figure 6: Number and Trend of New eReferral Users by Month

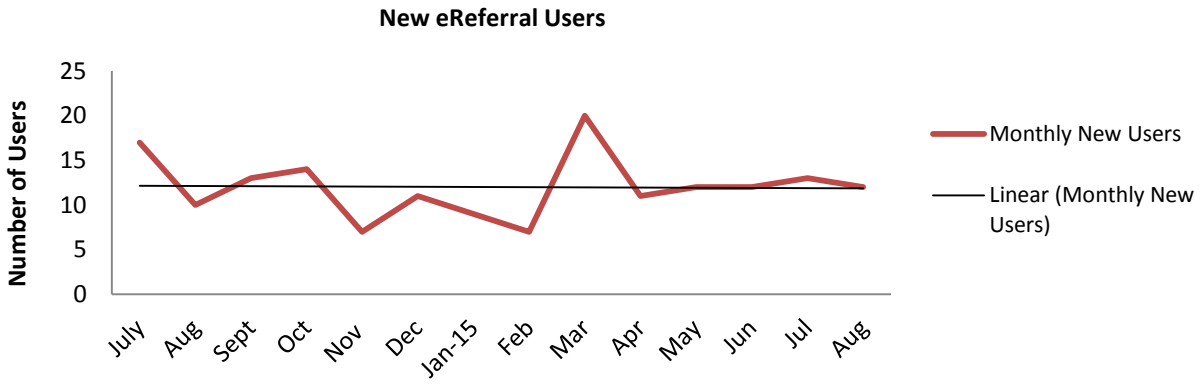
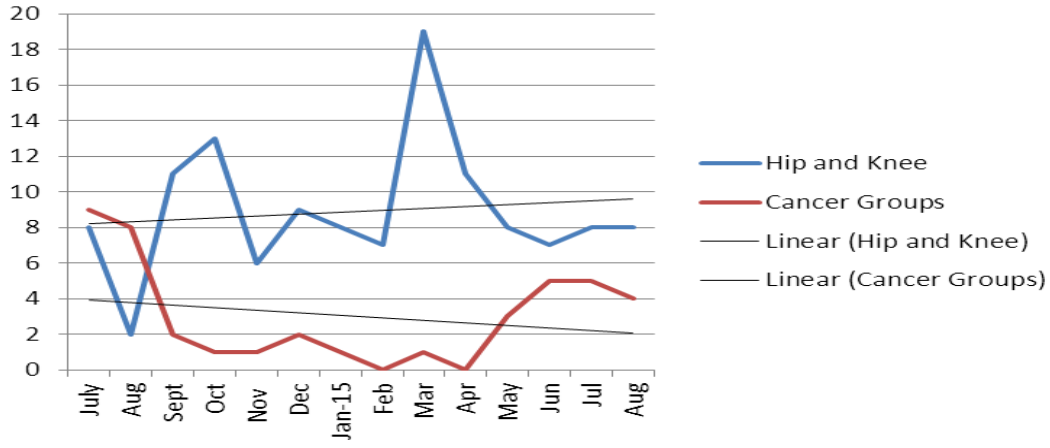


Figure 7 appears to indicate that the number of hip and knee users is slightly increasing while the cancer groups are demonstrating a "U" curve showing high uptake at the beginning of implementation, a dip between September 2014 and April 2015, and an increase again in May 2015. There is a large peak in the hip and knee group in March 2015 and a slight peak in the cancer group in the same month, which is likely the result of a March conference attended by the eReferral Team to promote eReferral. Likely, the cancer curve demonstrates a small peak there because one of the two groups in cancer was peaking and the other was not. The eReferral Team and a transition coordinator demonstrated eReferral to primary care groups across the province in person demonstrations and via webinar (663 and 170 physician and support staff, respectively). The eReferral Team has attended a number of primary care conferences, surgical conferences, and clinical manager meetings for large scale engagement. Attempts to reach interested parties also exist through in person office visits, phone calls, electronic distribution of a regular eReferral Newsletter and communication channels through all of the Primary Care Networks (PCNs).

Figure 7: Number and Trend of eReferral Users by Group



The eReferral Team Focus Groups highlighted key strategies and barriers to uptake of eReferral (summarized in **Table 22** below). Specific strategies the team has implemented to increase the uptake of eReferral users include:

- communication and consistent messaging
- personal and collaborative interaction
- utilization of existing resources

- honesty and transparency in the implementation process
- testing and training
- emphasizing the benefits of eReferral to sending and receiving users

Communication and messaging is vital in implementing the program and the eReferral team found it was important to be open, honest and consistent with messaging. The team has a regular newsletter that goes out to over 700 different subscribers which contains information about eReferral implementation status, what was being worked on, what potential users could be doing to prepare for eReferral and pointers for using eReferral. The team also revealed the need for personal face-to-face interaction with stakeholders and identified this as instrumental in increasing uptake of users and improving the eReferral software. They explained that stakeholders appreciated the facilitation by the eReferral Team, sending the message “we’re all in this together" and made the team themselves more responsive to stakeholder feedback. Personal and collaborative interaction with the stakeholders was found to be critical for further improvement of eReferral utilization overall and in targeting more potential users.

Next, the team emphasized the strategy of utilizing existing resources such as the team members from the receiving sites, the Alberta Netcare operations team, the Netcare Deployment team, Orion Health, and primary care super-users to build capacity for implementation. The team also used various education methods to expand the number of eReferral users. Being practical and upfront with stakeholders through the implementation process was another strategy the eReferral team found to be effective in increasing uptake of users. For example, stakeholders appreciated knowing about delays or limitations of eReferral. Conducting additional testing, and focusing on solutions and providing more training as required were all successful strategies in building adoption. Lastly, the eReferral team never lost sight of the program’s benefits and continued to emphasize them to potential users.

The team also identified several barriers to consistent eReferral user uptake including organizational barriers, misguided perceptions of eReferral, resource limitations, and IT related challenges. In order for eReferral to flourish, the team stated that a leader at the organization level is required to “own” the project and act as a sponsor for the progress of the work. The team also mentioned that an issue that came forward was that some staff members did not seem to grasp the amount of work required to receive the benefits of eReferral. Many staff members are vocal about their interest in eReferral, but treat the system as if it will solve all of their referral related issues with minimal effort. The team was clear to note that much work is required to make eReferral beneficial to users. The eReferral team works to provide as clear a message as possible with respect to expectations of eReferral, but the group still felt in the focus group that this was a barrier to successful uptake because potential users would not see benefits immediately and thus not continue with the work.

Third, the team struggled with limited resources allotted to the team to carry out day to day functions. With inadequate staffing levels and a hiring freeze mandated across the organization, the team stated that this caused them to act in multiple roles and take on more responsibility than they were able to handle at times causing inefficiencies in productivity. Lastly, the team remarked that they had not foreseen that there would be as many technical difficulties associated with implementing eReferral. The team found that implementing the system was much more complex than any of them originally expected causing delays and potentially discrediting the system in the eyes of potential users and the organization.

Table 22: eReferral Team Focus Group Key Strategies and Barriers for Uptake

Themes	Quotations
Strategies	
Communication and Messaging	*"A strength we had was communication, whether it was good news or bad news. Like some projects just disappear off the radar and you're like where are they… but we were still consistent out there and I think people trusted that a bit more."*
Personal and Collaborative Interaction	*"I think it's also to show that we're listening… when we'd come back, we'd show them how we had addressed their previous concern"*
Utilization of Existing Resources	*"We got to leverage the deployment team and I mean all the processes and procedures we have in place within our Netcare teams, like our testing cycles… we just had to adapt it for eReferral, which was sometimes easier than if you have a whole new team working on a whole new product with a whole new vendor."*
Being Practical	*"At the outset [we recognized] that we needed to tackle something that was an achievable goal as opposed to shooting for the moon… we would not have been successful otherwise."*
Emphasis on the Benefits	*"I've never let go of the benefits… Look at the benefit that you're gonna recognize here with respect to transparency, with respect to access to all this great information that you do not have now in your paper system."*
Barriers	
Organizational	*"I think [someone has] to own it… you have to have consistent ownership. We needed strong sponsorship, so for example our team has reported up to 13 different people in the last 3, 4 years. So I think that created a lot more work than there needed to be."*
Perceptions of eReferral	*"eReferral is not a silver bullet. Like people even asking can we be the next on eReferral. Yup, but there's a lot of work for your clinic to do to get your act together so that you can actually get the benefit out of eReferral."*
Resource Limitations	*"The responsive time is not as quick as it used to be because at the beginning… we can even reply within a day but now it's because we are wearing so many different hats and doing the testing, doing focus groups… it's hard to just take the [time for] everything, then that part will definitely slow down your [response] time."*
Technical and IT Related	*"I think we all underestimated the technical complexity of launching eReferral and that was our delay of 8 months, it's not insignificant… but the IT stuff actually shocked me when we kind of kept hitting those, oh we're gonna delay, we're gonna delay again."*

Recommendations:

(23) The eReferral Team should maintain openness with stakeholders, help adopters take ownership of their use of eReferral, express a sense of urgency, recognize stakeholder needs, and be consistent with messaging.

(24) The Team should also continue to make time for personal face-to-face interaction with users in training and as support. Users reported the support of the team and personal interaction facilitated eReferral implementation.

(25) eReferral should continue to be open and accepting of user feedback and take steps to show users that their feedback will contribute to improvements in the eReferral system and process.

(26) To build capacity for implementation, the eReferral Team should continue to utilize existing resources and a variety of education methods to expand reach of the catchment area.

(27) In order to maintain existing stakeholder relationships, the team should continue to be realistic and practical throughout the implementation process. This includes being upfront and honest about delays, conducting additional testing and training, and focusing on solutions.

(28) AHS should designate a leader to sponsor, support and champion eReferral.

10. TO WHAT EXTENT HAS THE JOURNEY TO IMPROVE WAIT TIMES AND CREATE A TRANSPARENT PATIENT JOURNEY HELPED SERVICES TO COMMUNICATE WITH PATIENTS?

Purpose: To capture feedback on how communication with patients has been affected since the implementation of eReferral.

Data Sources: eReferral User Survey, Patient acceptability literature search

Assumptions: A connection between creating a transparent patient journey and communication with patients exists. The survey questions used to capture information on the experience of eReferral users are valid and reliable. User responses on the survey instrument are assumed to represent their opinion accurately (response bias).

Findings and Discussion:

The eReferral User Survey (**Table 22**) demonstrates that some improvement has been made in creating a transparent patient journey and that use of eReferral assisted in communicating with patients. When asked about eReferral as a useful tool for tracking the patient journey (i.e. improving wait times, making processes transparent for the patient), 89% of respondents Agreed or Moderately Agreed. Users Agreed and Moderately agreed that using the eReferral system improves the quality of care (67%). Respondents also Agreed and Moderately Agreed that using the eReferral system enhances their ability to coordinate the continuity of care for patients (67%). Furthermore, 87% (agreed and moderately agreed) of users stated that the eReferral system improves transparency in the patient journey, and improves communication with patients (59%, agreed and moderately agreed).

Table 23: eReferral User Survey, eReferral System Effectiveness (n=37)

Item	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not Sure	Not Applicable
Using the eReferral system improves the quality of care	**13 (35%)**	**12 (32%)**	4 (11%)	2 (5%)	5 (14%)	1 (3%)
Using the eReferral system enhances my ability to coordinate the continuity of care for patients	**12 (32%)**	**13 (35%)**	5 (14%)	2 (5%)	3 (8%)	2 (5%)
Using the eReferral system improves transparency in the patient journey	**15 (41%)**	**17 (46%)**	0 (0%)	3 (8%)	2 (5%)	0 (0%)
Using the eReferral system improves communication with patients	**9 (24%)**	**13 (35%)**	4 (11%)	2 (5%)	8 (22%)	1 (3%)

The Patient Acceptability literature search revealed eReferral can improve patient's perceptions of continuity of care. Clinic wait times, efficiency, and health care provider communication demonstrated improvements with the use of electronic referral systems (Straus, Chen, Yee, Kushel, & Bell, 2011). Patients surveyed in the literature also found that electronic methods of consultation and referral were associated with greater timeliness, increased acceptability, and a smoother patient journey (Horner, Wager, & Tufano, 2011). This fact is particularly important as the review suggests when patients experience a disruption in the continuity of care they felt powerless, devalued, and insignificant in their patient journey (Preston, Cheater, Baker & Hearnshaw, 1999).

Recommendations:

(29) Continue to capture feedback from sending and receiving sites and patients in order to understand their needs and to ensure eReferral is addressing them. Use this information to communicate back to stakeholders how best to improve transparency in the patient referral experience.

OUTCOME D: IMPROVED CARE APPROPRIATENESS THROUGH A STANDARDIZED REFERRAL MANAGEMENT PROCESS

11. TO WHAT EXTENT HAS THE AUTOMATION OF EREFERRAL AFFECTED THE NUMBER OF INAPPROPRIATE REFERRALS IN EARLY ADOPTER GROUPS?

Purpose: Using data to determine how automation has impacted the number of inappropriate referrals for hip and knee, breast and lung cancer.

Data Sources: Hip and Knee site data, Cancer dashboard

Assumptions: It is assumed that the data sources will accurately provide the number of inappropriate referrals to early adopter groups and that these measures are valid. Additionally, it is assumed eReferral was implemented in the same way at each site.

Findings & Discussion:

Implementation of eReferral appears to have had no impact on the number of inappropriate referrals as there were very few referrals (0% and 2% pre and post-implementation) with a status of "inappropriate" (see **Table 24**). Redirected/rejected referrals can also be an indication of inappropriateness. Findings and discussion was previously covered in Question 1.

Table 24: Hip and Knee Denied/Pending Referrals Data

Denied/Pending Reason	Baseline (%; *n* = 56)	Post-LPR (%; *n* = 56)
Inappropriate referral	0 (0%)	1 (2%)

Conclusions:

eReferral has had minimal impact on the number of inappropriate referrals.

Recommendation:

(30) The eReferral Team should continue measuring inappropriate referrals focusing on sites with a fairly established user base. This will help eReferral analyze trends that are distinct from the variance caused by new users.

OUTCOME E: KEY PERFORMANCE INDICATORS WILL HELP IDENTIFY ACCESS IMPROVEMENT OPPORTUNITIES AND DETERMINE EFFECTIVENESS OF THE PROGRAM

12. TO WHAT EXTENT DID EREFERRAL BENEFIT AHS AND ITS CONSUMERS?

Purpose: To determine if eReferral was effective.

Data Sources: Cancer Care Clinical Information System, eReferral User Survey, eReferral Non-User Survey

Assumptions: The data are accurate and measure effectiveness.

Findings and Discussion:

For the 3 LPR groups the majority of the potential referrals originate in primary care. The non-user survey provides some insight into current referral processes while the user survey looks at the eReferral user experience.

Table 25: eReferral Non-User Survey Primary Care Breakdown

Item	Legacy Frequency and Percentage (n=7)	Updated Frequency and Percentage (n=22)
On average, how many referrals do you send and/or receive weekly?		
More than 50 referrals per week	1 (14%)	1 (5%)
26 – 50 referrals per week	0 (0%)	1 (5%)
10 – 25 referrals per week	5 (71%)	14 (64%)
1 – 9 referrals per week	0 (0%)	6 (27%)
Less than one referral per week	1 (14%)	0 (0%)
What are the benefits of the referral system you use? Please select all that apply.		
Built into my EMR	4 (57%)	16 (73%)
Familiarity with the system	2 (29%)	13 (59%)
None: It is complex and all done manually	2 (29%)	1 (5%)
Ability to track a referral's status	1 (14%)	6 (27%)
Ability to track and send different types of referrals within one system	1 (14%)	5 (23%)
Knowing that a referral has been successfully submitted and received	2 (29%)	6 (27%)
Provides referral requirements	1 (14%)	2 (9%)
Other	1 (14%)	5 (23%)
What are the main areas for improvement in your current referral system? Please select all that apply.		
Need to reduce the steps required to create and submit a referral	2 (29%)	4 (18%)
Receive notifications from Alberta Netcare portal that there is new information	1 (14%)	0 (0%)
More statuses/information from receiving sites required (For example, no shows, appointment dates, etc.)	2 (29%)	3 (14%)
Length of time it takes to process a referral	4 (57%)	5 (23%)
Referrals get lost or duplicated based on manual tracking system	4 (57%)	5 (23%)
Updated directory of services or users	1 (14%)	8 (36%)
Manually have to enter much of the data	4 (57%)	2 (9%)
Often do not know if a referral has been received by specialty	5 (71%)	13 (59%)
Other:	0 (0%)	3 (14%)

On average, the majority (71%) of Legacy participants sent and/or received 10 – 25 referrals weekly. Physician non-users reported that the main benefit of the referral system currently used is that it is built

into their EMR (57%). Participants of the non-user survey also cited challenges in using their current referral system. The greatest challenge encountered by Legacy respondents in using their current referral system was no communication or notifications from receiving sites so they're unaware of a referral's status (71%).

Other challenges included the time it takes to send and receive referrals (29%), referrals are not easy to track (29%), lost referrals (14%), does not check for incomplete referrals (14%), and other ("*rude MOAs for several disciplines*", 14%). Legacy respondents described their experiences with navigating their current referral system in open-ended comments and revealed that their current system was "*too complicated*". Others felt that there were "*to[o] many forms, all want different information, lots of writing with chance for errors, no way to track, no notifications, tons of duplication and hybrid systems,"* which reinforces the need for standardization of referral requirements across scheduled services. Another respondent felt that their current referral system leaves mandatory data incomplete, and that they "*would like a way of systematically ensuring that mandatory data is provided to ensure best and consistent triage decisions are made*."

Only one primary care non-user of eReferral felt that their system worked for them. Forty-three percent of Legacy non-users would switch to an automated referral system. The top four barriers for non-user primary care physicians face in adopting Alberta Netcare eReferral includes: Integration of eReferral with your current system (EMR) (57%), there are not enough service options in Alberta Netcare eReferral to make it worth adopting (57%), lack of familiarity with the system (43%), and a lack of support in understanding eReferral (i.e. training, online modules, etc) (43%). Lastly, the majority (86%) of Legacy primary care non-users would like to see Alberta Netcare eReferral expanded to include more services.

On average, the majority (64%) of Updated respondents also sent and/or received 10 – 25 referrals weekly. PCP non-users reported that the main benefit of their current referral system is also that it was "*Built into my EMR*" (59%). The most critical area of improvement was "*Often do not know if a referral has been received by specialty*" (23%). PCP respondents to the Updated survey described their experience navigating their current referral system in open-ended comments. Some expressed satisfaction with their current referral system: "*Very good – auto-population of demographics and medical information is a huge time saver."* Respondents express appreciation for their staff in facilitating the referral process: *"Works well but relies on excellent staff to follow through."* Other difficulties noted by PCPs were difficulty tracking referrals, cumbersome and redundant processes, and choosing where to send referrals, i.e. *"can be difficult to know most appropriate place to send a particular referral with shortest wait ideally."* Slightly over half of the Updated survey PCP respondents would switch to an automated referral system. The top barriers that non-user PCPs face in adopting Alberta Netcare eReferral include: "*Creates more work because it is another system to use*" (64%), *"It isn't integrated with my current system (EMR)"* (59%), and *"Lack of familiarity with the system"* (50%). Lastly, the majority (68%) of updated PCP non-users would like to see Alberta Netcare eReferral expanded to include more services.

Figure 8: eReferral Users Perceived Greatest Benefit of eReferral (*n* = 37)

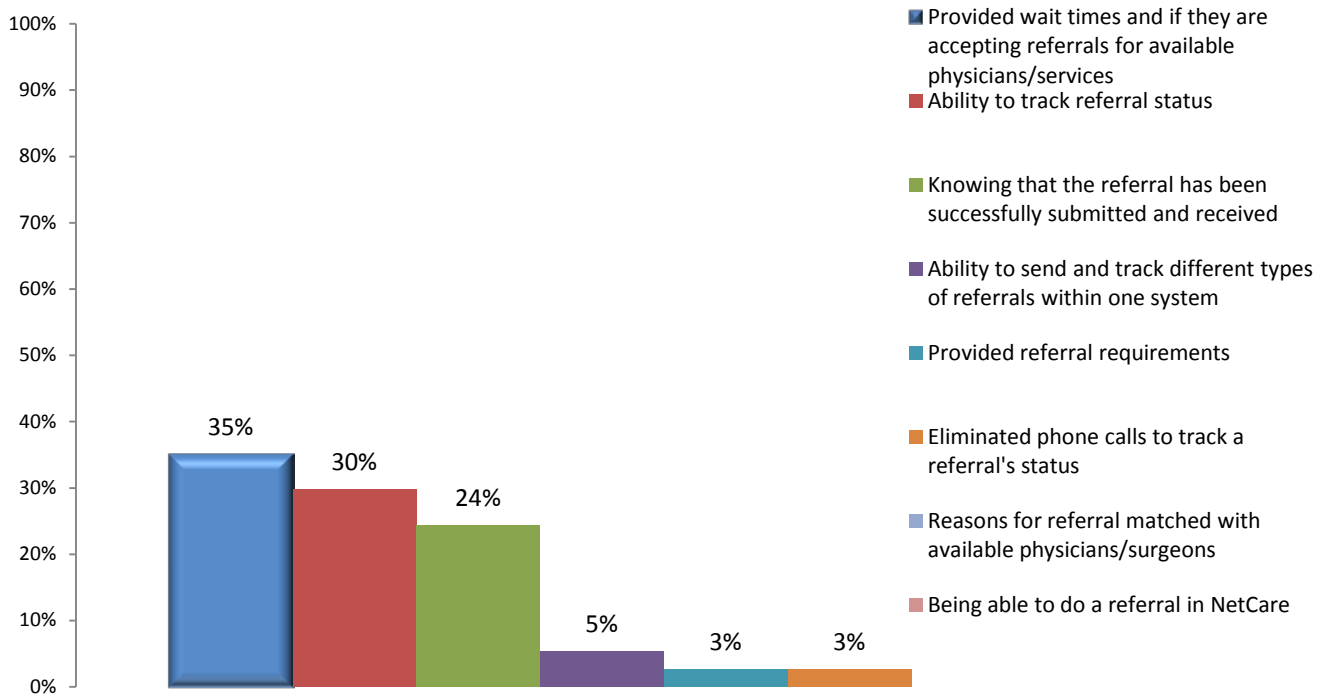


Table 25 and **Figure 8** summarize AHS staff perceived benefits of eReferral to the organization and the referral process – for both non-users and users of eReferral. Non-users anticipate that the potential benefits for an automated referral system would include the "Ability to track referral statuses" and "Knowing that the referral has been successfully submitted and received". "Surveyed current users of eReferral reiterate these perceptions by stating that the greatest benefits of eReferral include "Providing wait times and if they are accepting referrals for available physicians/services", "Ability to track referral status", and "Knowing that the referral has been successfully submitted and received." This alignment in perceived potential and actual benefits of an automated referral system across both users and non-users suggests that the implementation of eReferral addresses an important need in the AHS organization as perceived by staff.

Conclusions:

The users of eReferral stated that the benefits they are experiencing with automation include "Providing wait times" and which services accept "referrals for available physicians/services", "Ability to track referral status", and "Knowing that the referral has been successfully submitted and received." The non-users without experience using eReferral state that they would hope that an automated referral system would address the same benefits. Since the perceived and expected benefits of users and non-users respectively are aligned, it is important that non-users are able to understand that the system will deliver on these expectations if they are able to become adopters of eReferral.

Recommendations:

(31) eReferral should be expanded to other groups in order to create a cohesive referral processing system that aligns referral processes in all specialty areas. and fulfills expected benefits that eReferral can

provide as reported by users and non-users. Dependency for eReferral expansion is consistent leadership support.

13. WHAT ARE THE LESSONS LEARNED AFTER USING THE EREFERRAL SYSTEM?

Data Sources: eReferral User Survey, eReferral Receiving Sites User Focus Groups

Assumptions: The tools developed accurately capture what we are seeking to measure (valid) and that the data collected was analyzed without human or technical error. Given the subjective nature of the evaluation question and area of focus, it is important to note that the opinions and viewpoints represented in the user focus groups and users' survey are assumed to be true statements and sentiments (response bias) held by respondents and actually reflect program effects.

Findings and Discussion:

Results from the eReferral User Survey demonstrate lessons learned through using the eReferral system. Respondents expressed satisfaction with system capability in referral and appointment tracking. However, respondents explained the need to improve navigation and user friendliness of eReferral. They commented that using eReferral takes more time than usual and lacks adequate flagging and notification for referral issues. Users suggested expansion of eReferral to other areas and/or specialties, but expressed the desire for linkage to existing electronic medical record (EMR) systems.

Results from the Cancer Care User Focus Group demonstrated a lack of awareness of eReferral among physicians in addition to no noticeable difference in wait times for their services. This is evidenced by participant quotes such as: "*I monitor the wait times and it hasn't improved at all.*" Participants noted the need for greater engagement and training of users, "*…the perception is [eReferral] is going to increase their workload so much that they never even tried it."* Those included in the training should also be expanded to clerical staff, nurses, and other health professional that would process referrals on behalf of physicians. Additionally, Cancer Care participants frequently mentioned the need to shift who was targeted for the marketing of eReferral. eReferral is aimed toward physicians highlighting the benefits from a systematic perspective and informants stated that this often disengages the audience. Stakeholders emphasized the need to include other health care staff in targeting eReferral, and alter marketing to focus on patient benefits that arise from using the eReferral system.

Finally, the Hip and Knee Users Focus Group found that the impact of the eReferral system was difficult to ascertain due to the lack of service volume at hip and knee sites, "*In a week I may only have 8 referrals… and the next week I may only have 2, so there's just not the volume for us to get the full use out of it."* Participants suggested expansion to other orthopedic groups (i.e. shoulder, elbow, etc) to address this issue. Users pointed out that eReferral could benefit many groups if more specialties had access to it. One major benefit is an improved referral process that ensures better patient tracking: "*By having [the referral] on eReferral, doctors can know as soon as you've clicked on the patient is wait listed."* Users highlighted the redundancy created in using eReferral as they had to process referrals using multiple systems, creating additional work and rework. Discussion with users also touched on the need for increased support from the eReferral team and stated that increased support would benefit users. For suggestions, users primarily noted that an expansion of the scope of the project and efforts to sustain eReferral in the long term are critical. One participant stated that: *"We need more body parts on eReferral, I think it's very difficult for a family physician to go to eReferral for hip and knee… and then go hunting and looking for referrals for every other body part someplace else."* This is also mentioned in the eReferral Team Focus Groups and their resource limitations with staff turnover, and downsizing of their

team, which contributed to a slower progression of the project and more challenges in implementing eReferral.

Conclusions:

All early adopter groups were satisfied with eReferral's technical capabilities (i.e. tracking referrals and appointments); with one group mentioning that they would like to see an improvement in navigation and user friendliness. Both groups emphasized the importance of expanding business beyond just early adopter groups as a way to improve functioning of automation. Improving physician awareness in addition to marketing to all potential users would increase approval of the system.

Recommendations:

(32) As mentioned previously, eReferral experiences low service volume at some early adopter sites such that it is difficult to determine program impact. Efforts should be made to expand eReferral to groups beyond early adopters.

(35) Expansion of eReferral to other service groups can be assisted by marketing eReferral not only to physicians, but also to all potential users.

(36) Netcare uptake should also be a priority for the eReferral Team and the Netcare Deployment Team. This could be addressed by setting Netcare access targets for each zone until saturation and by reducing barriers to obtaining Netcare access for university staff and allied health practitioners. More Netcare users will mean more potential for using eReferral.

(37) With the knowledge that the majority of eReferrals are submitted by non-physicians (such as MOAs), the referral requirements should be revised based on input from both sending and receiving users.

(38) A useful feature to implement in the eReferral system would be notifications (EMR or email) to users of any changes to a patient's referral status while the referral is on the eReferral system.

(39) The eReferral team should continue to provide support (education, training, personal engagement) to user groups.

(40) eReferral early adopters have the full support of the Netcare Deployment Team (eHealth) but the training regimens between Netcare and eReferral are not aligned. Clear communication between training teams should be prioritized ensuring that all adopters are receiving consistent information.

(41) Efforts should be made by the eReferral Team and their IT collaborators to align eReferral with current EMRs to eliminate rework experienced by users who must process referrals via multiple systems. Doing so may also address perceived workload burden among physicians.

(42) Lastly, stable funding and leadership support for the eReferral team would enable continued continuity, growth, and support for the system.

14. WHAT ARE THE LESSONS LEARNED AS REPORTED BY EREFERRAL TEAM MEMBERS?

Data Sources: eReferral Team Focus Groups

Assumptions: The defined measures of success and/or indicators chosen accurately capture (validity), and measure lessons learned by eReferral Team Members. The statements and sentiments discussed in stakeholder focus groups actually reflect program effects.

Findings and Discussion:

Both team focus groups echoed similar themes in their discussions, with some overlap from the focus group conducted in 2014 with the eReferral team. Many comments emphasize the strategies of increasing user uptake of eReferral but the informants also highlighted strategies for eReferral's future direction. The team's recognition of contributing factors to the success of the eReferral Team and in the implementation of eReferral was thoroughly discussed. The qualities of accountability, flexibility, persistence, and diversity in team skills helped the project progress and build stakeholder relationships. Both groups also emphasized use of specific strategies to address stakeholder awareness and engagement. Of these strategies, the use of personal, face-to-face engagement facilitated communication and collaboration among stakeholders and promoted a "we're all in this together" environment. Team responsiveness to needs of the users and potential users assisted the team with stakeholder buy-in and with taking ownership in the project. The eReferral Team provided consistent communication and messaging with stakeholders. For example, the team was always upfront about any delays and functional limitations with the project and actively sought solutions to various challenges they faced. The team also explained the importance of commitment from AHS for the project to move forward. Team members learned of the demand for eReferral and realized the unsustainability of a paper-based and fax-based referral system. The group all believed that there is a great need for the development of a consistent referral experience facilitated by referral automation.

The team stated that their stakeholders expressed interest in eReferral, but they felt they were limited in both human and financial resources to address this demand. Other lessons learned by the team arose from the discussion of challenges in implementation. Difficulties expressed by the team focused on resource limitations, IT problems related to the delay of implementation, and working within the provincial structure of AHS and externally. Discussion of resource limitations focused on internal staffing and the ever-shrinking team due to funding limitations. This placed strains on the team with respect to time. As a result, remaining team members had to take on multiple roles and responsibilities in addition to their current roles, this also contributed to a noticeably slower project progression. Technical and IT challenges were a considerable part of the team's discussion. Having incompatible and outdated applications (i.e. Internet Explorer 6) and software played a significant role in the delay of implementation and limited functionality. Barriers to stakeholders were a large focal point in the discussion of challenges among the team. Of particular difficulty was accommodating the structure and needs of various stakeholders, partners, and organizations.

Lastly, the eReferral team encountered numerous barriers relating to the AHS and Alberta Netcare structures. Within the AHS structure, high leadership turnover had slowed project progress in having to constantly "resell" the idea of eReferral with new leadership as an important AHS project. Moreover, participants commented on the presence of an organizational culture that is in general, adverse to change, thus contributing to the difficulty of implementing eReferral. The divided Alberta Netcare structure with the operations belonging to AHS and deployment, communication and privileging belonging to Alberta Health has created extra work and delays for eReferral implementation.

eReferral staff agreed that being an innovative program and implementing on a provincial scale, there were many setbacks and unexpected circumstances. Despite these difficulties, the eReferral team

reiterated the importance of the eReferral project through discussion of its benefits to patients, users, and the overall referral process in emphasizing that eReferral is "the right thing to do."

Conclusions:

The eReferral team focus group discussed successes and challenges of implementation. Of note were the difficulties with organizational leadership change and having to "re-sell" the project several times to several leaders. The team felt the main strength of the team was their ability to communicate consistently, transparently, and openly with stakeholders with face-to-face engagement as a key element to communication. Overall the team echoed what users of eReferral stated elsewhere in the report that eReferral is "the right thing to do".

Recommendations:

(43) The evaluation notes the need for strong leadership endorsement and commitment to eReferral. To achieve this recommendation, executive leadership should advocate for eReferral and its team members in times of high turnover to not inhibit program progression, which ultimately impacts users and dissuades potential users of eReferral.

(44) The eReferral team should continue with its strategy of open communication and personal face-to-face engagement with stakeholders to foster trusting and supportive relationships.

(45) The eReferral team needs to streamline how they work with Alberta Netcare Operations and eHealth teams. This would improve communication between the eReferral team and their stakeholders, facilitate the smooth integration of system updates, and contribute to positive user experiences.

OUTCOME F: IMPROVE **SAFETY** FOR PATIENTS BY INCREASING TRANSPARENCY IN THE REFERRAL PROCESS

15. TO WHAT EXTENT HAS THE VOLUME OF SAFETY INQUIRIES CHANGED SINCE AUTOMATION?

Purpose: To collect information about the referral environment across AHS breast and lung cancer and hip and knee programs.

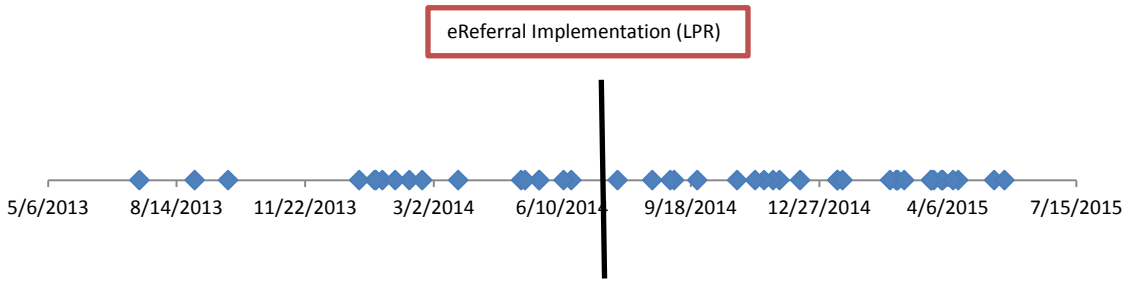
Data Sources: Reporting and Learning System (RLS)

Assumptions: The RLS tool used to measure the volume of safety inquiries is an accurate measure (valid) and that the RLS is a reliable indicator of safety inquires since automation.

Findings and Discussion:

The RLS data was captured to explicate the context in which referrals occur in AHS. Referral processes are not sound and errors occur across the organization in all specialties and programs. The RLS system is a way to report incidents so that the organization can understand and learn from issues as they arise. The RLS is a voluntary reporting system and thus is not a robust source for incident-related data across the organization.

Figure 9: Timeline of Patient Safety Reports (Related to Referrals) May 2013 - July 2015



Note: The line indicates the beginning of eReferral LPR (July 2014)

As **Figure 9** demonstrates, there were more referral-related patient safety reports made in the year following eReferral Go Live (*n* = 29) compared to the year before (*n* = 17). However, the timeline clearly indicates that there was a significant time period in the year before implementation where no reports were made at all. The RLS system has a voluntary reporting structure suggesting that a lack of utilization of RLS reporting may explain the difference in report frequency rather than a decrease in patient safety. As more staff becomes familiar with the system, the number of total reports increases. This increase in reporting can be misleading, as at first glance it may appear that safety is decreasing, but in reality the number of reports shows an increased utilization of the RLS. In addition to the number of reports, not all reports are the same in urgency and severity.

Content analysis of the 46 patient safety reports revealed the following themes: “missed referrals”, “delays of referrals”, “errors in referrals”, “incomplete referrals”, “process issues”, and “patient communication”. Missed referrals (33%, 15/46) include those referrals that were missed by staff and not processed. Delayed referrals (24%, 11/46) were the second most common reason found in reports, followed by error in referral (15%, 7/46). Errors in referrals include those referrals in which referral documentation itself lead to issues in referral process. Incomplete referrals were composed of 11% (5/46) of reports and were a result of missing information needed to process referrals. Process issues made up 13% of reports (6/46) and were a result of staff misconceptions of the referral process (e.g. not understanding how to process referrals properly). Lastly, patient communication (4%, 2/46) included those incidents where the referral process was interrupted due to miscommunication to patients about system navigation or appointments.

Analysis of 46 patient safety reports across the timeline revealed that the majority of reports were from the Calgary zone (41%, 19/46), followed by the South and North Zones (28%, 13/46; and 15%, 7/46 respectively). Edmonton zone had 13% of the reports (*n* = 6) and Central zone only had 2% (*n* = 1). By site, the Tom Baker Cancer Centre had the highest number of patient safety reports (19). Of the 46 patient safety reports there were only 2 related to Hip and Knee, both of which occurred at the Stollery Children’s Hospital, the other 44 reports occurred at Cancer Care sites.

Since Patient Safety Reporting is voluntary, we cannot draw conclusions about zone representation as it may reflect a greater willingness to report incidents rather than demonstrate a higher level of risk to patients. Differences may also be attributed to mandatory reporting policies that may be in place in some sites or a greater volume of patients at a particular centre.

Conclusions:

The RLS data demonstrates a cross-sectional perspective of what the referral issues are across the organization. The system is not robust enough to show a definitive summary of referral problems across programs, as it is voluntary. The data only explains what programs have chosen to report. By studying the reports over the last two years, it is notable that the cancer groups report higher incidents than hip and knee groups. This does not mean that there are more incidents that occur in cancer care, it simply means they are reporting more. It would be beneficial to understand how many programs are reporting consistently and how many are not and promote programs to put guidelines and policies in place to ensure consistent patient safety reporting, and thereby provide the standardization of practice that would then help determine whether implementing eReferral has an impact in the number of referral related reports in RLS.

Recommendations:

(46) To understand the extent to which patient safety inquiries has changed since automation, eReferral should continue to promote RLS reporting among users and potential users.

BREAKDOWN OF ALL RECOMMENDATIONS:

Each of the following recommendations are based on the evaluative findings of the eReferral System implementation conducted from July 2014 to August 2015 in Alberta. Recommendations are made based on a thorough examination of evidence and current literature in the field, but should not be taken as exhaustive. It should be noted that the recommendations are not listed in order of importance.

Table 26: Final eReferral Recommendations

Final eReferral Evaluation Recommendations	
*Outcome A: Improve **efficiency** in scheduled health services by improving, standardizing and automating business processes*	
eReferral Team	(1) The eReferral Team should continue to support the spread of eReferral to sending providers as well as to receiving providers to ensure consistent data capture across the hip & knee, lung and breast cancer participating sites.
	(2) The eReferral Team should continue to monitor eReferral status information to determine whether the current trends in referral errors, missed appointments and cancellations improves over time.
	(5) The eReferral Team should continue to deploy eReferral to more clinics and specialties.
	(6) The eReferral team should assist in sustaining current users' adoption of eReferral and continue to elicit and respond to user feedback.
	(8) For those sites who felt that the eReferral system is not well integrated into their workflow, the eReferral Team should consider process mapping current workflows and clinical systems before implementation – noting changes to workflow, highlighting benefits and discussing with users.
	(9) Future marketing strategies commenting on the efficiency advantages of eReferral should focus on the accessibility of information as it relates to service availability and wait times.

*Outcome A: Improve **efficiency** in scheduled health services by improving, standardizing and automating business processes*	
Hip and Knee	(7) eReferral efficiency and uptake could potentially be further improved by exploring the implementation of the ability to attach documents directly from EMRs into Netcare with the respective EMR vendors. NOTE: in June 2015 the eReferral platform was enhanced to allow for the attachment of EMR generated referrals for hip and knee joint replacement.
Cancer Control	
Organization	(3) AHS should continue supporting the development and adoption of provincial referral guidelines to standardize referral processes for patients and providers and streamline the process for future eReferral implementations. Even in the absence of automation, standardized referral processes reduce variability and simplify the referring process for patients and providers (i.e. one process for all providers within a specialty). Sending and receiving sites are equally important in the referral process and sites should support guidelines in daily practice (i.e. accept referrals that are complete, offer education on referral guidelines).
	(4) AHS should continue to sustain eReferral and consider the benefits of spreading eReferral more broadly (benefits include error reduction, increased efficiency for both sending and receiving providers and transparency into the potential issues within the referral process for proactive resolution).
*Outcome B: Improve **accessibility** and reduce wait times for scheduled services*	
eReferral Team	(10) Address the potential for short-term increases in workload and provide support from the eReferral team to help mitigate this as much as possible.
	(11) Clearly explaining to users and potential users, and particularly to physicians, what the patient and clinical benefits of eReferral are and increase access to Alberta Netcare and AHS InSite
	(13) In order to ensure smooth adoption of eReferral across the province, more work needs to be done with individual services and clinics to ensure that their business processes are standardized and consistent.
	(14) The eReferral Team should research, plan, and implement strategies to better engage physicians and their support staff to improve the eReferral platform, referral requirements and clinic work flow.
	(15) eReferral should capture referral wait time information by accessing organizational analytics through Data Integration, Measurement and Reporting (DIMR), doing so will provide a more concrete measure of accessibility to scheduled services across the province.
	(16) eReferral Team should continue to work on the standardization and streamlining of referral processes,
	(19) To encourage consistency in referral processes and improve user experiences, eReferral should continue to work with sending and receiving users on standardized referral processes and developing and improving referral guidelines.
	(20) Efforts should be made to work with Primary Care Networks, Departments of Family Medicine and AMA to develop a common communication strategy for developing and implementing referral guidelines.
	(21) In order to keep patient priorities central to planning and development, eReferral Team should continue to obtain patient feedback. Methods for obtaining feedback might include surveys, questionnaires, interviews, and informal feedback.
Hip and Knee	(18) As central intake models are implemented in other clinical areas, it is important to continue to offer patients options for their care as there may be multiple reasons for their referral choices.
	(22) To improve patient knowledge regarding eReferral and Referral Guidelines, strategies to communicate to patients (such as providing patients with relevant medical and system information and resources while they wait for their appointment) should be explored.

*Outcome B: Improve **accessibility** and reduce wait times for scheduled services*	
Cancer Control	(22) To improve patient knowledge regarding eReferral and Referral Guidelines, strategies to communicate to patients (such as providing patients with relevant medical and system information and resources while they wait for their appointment) should be explored.
Organization	(12) More consistent organizational support is required to train and prepare for eReferral to be spread to a larger sample of user groups. Without the spread of eReferral to more specialties, it is difficult for programs to use a system that does not align with other systems in the field.
	(17) eReferral needs to be expanded to other services in order to see demonstrated changes in referral wait times.
*Outcome C: Increase stakeholder **acceptability** by improving awareness and clarity of patient's Path to Care*	
eReferral Team	(23) The eReferral Team should maintain openness with stakeholders, help adopters take ownership of their use of eReferral, express a sense of urgency, recognize stakeholder needs, and be consistent with messaging.
	(24) The Team should also continue to make time for personal face-to-face interaction with users in training and as support. Users reported the support of the team and personal interaction facilitated eReferral implementation.
	(25) eReferral should continue to be open and accepting of user feedback and take steps to show users that their feedback will contribute to improvements in the eReferral system and process.
	(26) To build capacity for implementation, the eReferral Team should continue to utilize existing resources and a variety of education methods to expand reach of the catchment area.
	(27) In order to maintain existing stakeholder relationships, the team should continue to be realistic and practical throughout the implementation process. This includes being upfront and honest about delays, conducting additional testing and training, and focusing on solutions.
	(29) Continue to capture feedback from sending and receiving sites and patients in order to understand their needs and to ensure eReferral is addressing them. Use this information to communicate back to stakeholders how best to improve transparency in the patient referral experience.
Hip and Knee	
Cancer Control	
Organization	(28) AHS should designate a leader to sponsor, support and champion eReferral.
*Outcome D: Improved care **appropriateness** through standardized referral management processes and increased adoption of clinical best practices*	
eReferral Team	(30) The eReferral Team should continue measuring inappropriate referrals focusing on sites with a fairly established user base. This will help eReferral analyze trends that are distinct from the variance caused by new users.
Hip and Knee	
Cancer Control	
Organization	

*Outcome E: Key performance indicators will help identify access improvement opportunities and determine **effectiveness** of the program*	
eReferral Team	(35) Expansion of eReferral to other service groups can be assisted by marketing eReferral not only to physicians, but also to all potential users.
	(37) With the knowledge that the majority of eReferrals are submitted by non-physicians (such as MOAs), the referral requirements should be revised based on input from both sending and receiving users.
	(38) A useful feature to implement in the eReferral system would be notifications (EMR or email) to users of any changes to a patient's referral status while the referral is on the eReferral system.
	(39) The eReferral team should continue to provide support (education, training, personal engagement) to user groups.
	(41) Efforts should be made by the eReferral Team and their IT collaborators to align eReferral with current EMRs to eliminate rework experienced by users who must process referrals via multiple systems. Doing so may also address perceived workload burden among physicians.
	(44) The eReferral team should continue with its strategy of open communication and personal face-to-face engagement with stakeholders to foster trusting and supportive relationships.
eReferral Team and Netcare Deployment Team	(36) Netcare uptake should also be a priority for the eReferral Team and the Netcare Deployment Team. This could be addressed by setting Netcare access targets for each zone until saturation and by reducing barriers to obtaining Netcare access for university staff and allied health practitioners. More Netcare users will mean more potential for using eReferral.
	(40) eReferral early adopters have the full support of the Netcare Deployment Team (eHealth) but the training regimens between Netcare and eReferral are not aligned. Clear communication between training teams should be prioritized ensuring that all adopters are receiving consistent information.
	(45) The eReferral team needs to streamline how they work with Alberta Netcare Operations and eHealth teams. This would improve communication between the eReferral team and their stakeholders, facilitate the smooth integration of system updates, and contribute to positive user experiences.
Hip and Knee	
Cancer Control	
Organization	(31) eReferral should be expanded to other groups in order to create a cohesive referral processing system that aligns referral processes in all specialty areas. and fulfills expected benefits that eReferral can provide as reported by users and non-users. Dependency for eReferral expansion is consistent leadership support.
	(32) As mentioned previously, eReferral experiences low service volume at some early adopter sites such that it is difficult to determine program impact. Efforts should be made to expand eReferral to groups beyond early adopters
	(42) Stable funding and leadership support for the eReferral team would enable continued continuity, growth, and support for the system.
	(43) The evaluation notes the need for strong leadership endorsement and commitment to eReferral. To achieve this recommendation, executive leadership should advocate for eReferral and its team members in times of high turnover to not inhibit program progression, which ultimately impacts users and dissuades potential users of eReferral.
*Outcome F: Improve **safety** for patients by increasing transparency in the referral process*	
eReferral Team	(46) To understand the extent to which patient safety inquiries has changed since automation, eReferral should continue to promote RLS reporting among users and potential users.
Hip and Knee	(46) To understand the extent to which patient safety inquiries has changed since automation, the Hip and Knee should continue to promote RLS reporting among users and potential users.

*Outcome F: Improve **safety** for patients by increasing transparency in the referral process*	
Cancer Control	(46) To understand the extent to which patient safety inquiries has changed since automation, Cancer Control should continue to promote RLS reporting among users and potential users.
Organization	(46) To understand the extent to which patient safety inquiries has changed since automation, the organization should continue to promote RLS reporting among users and potential users.

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APPENDICES

APPENDIX A REFERRAL PATHWAY DEVELOPMENT AND AUTOMATION – EVALUATION FRAMEWORK

SEPTEMBER 1, 2014-SEPTEMBER 30, 2015

Preamble:	Path to Care aims to improve and optimize access to scheduled health services by supporting the development of processes and technological capability across Alberta Health Services. The evaluation findings will help to understand if eReferral was of benefit to the organization and its consumers and will inform decisions around future implementations of eReferral as well as provincial choices around IT solutions. The evaluation term is July 1, 2014, to September 30, 2015. This framework is prepared for Jodi Glassford, Director of Referral Pathways and Automation and Allison Bichel, Executive Director of the Provincial Access Team.

Referral Pathway and Automation Evaluation Outcomes by Quality Dimension

A. Improve ***efficiency*** in scheduled health services by improving, standardizing and automating business processes

- Manual to automated Referral Processes

B. Improve ***accessibility*** and reduce wait times for scheduled services

- Wait Time Management Processes (Standardized and Automated)
- Improve System Navigation
- Referral Wait Times

C. Increased stakeholder ***acceptability*** by improving awareness and clarity of patient's Path to Care

- Wait Time Transparency for Stakeholders

D. Improved care ***appropriateness*** through a standardized referral management process and increased adoption of clinical best practices

- Inappropriate Referrals

E. Key performance indicators will help identify access improvement opportunities and determine ***effectiveness*** of program

- Suggestions for the Future

F. Improve ***safety*** for patients by increasing transparency in the referral process

Preliminary eReferral Volume Summary (July 14, 2014 – December 31, 2014):

eReferral went from zero eReferrals in July to 650 eReferrals processed in December 31, 2014. The Breast Cancer group is leading in the total number of eReferrals during this time period. Some challenges to implementation of eReferral for the Lung Cancer and Hip and Knee group include their limited access to Netcare as well as a misalignment in their electronic medical records with eReferral. Both of these issues have been addressed and the eReferral team is working to improve the count for the Lung Cancer and Hip and Knee groups.

eReferral Category	Count
Total Lung Cancer eReferrals	77
Total Breast Cancer eReferrals	429
Total Hip and Knee eReferrals	144
Total # eReferrals	**650**

Preliminary Survey and Interview Feedback (July 14, 2014 to December 31, 2014):

- New users tend to continue with eReferral after initial uptake. Approximately 63% of users (10 out of 16) who started with eReferral in July 2014, submitted referrals through eReferral consistently until the end of December 2014.
- Most Cancer Control patients are satisfied with their referral experience both before and after implementation of eReferral.
- Receiving sites suggest that certain urgent referrals be flagged (such as neoadjuvent chemotherapy referrals) in order to process them more efficiently.
- Hip and Knee Patients Disagreed or Strongly Disagreed that they were satisfied with their referral experience.

eReferral Limited Production Roll-out Sites:

There are 17 sites involved in the Limited Production Roll-out. Six sites are Cancer sites and 11 sites are Hip and Knee Bone and Joint sites.

Below is a table of the sites by zone and location. The Green shaded sites indicate Breast and Lung Cancer Centres and the blue shaded sites indicate Hip and Knee Bone and Joint Sites.

Zone	Early Adopter Site	Location	Date of Go Live	Data Contact Name
North	Grande Prairie Cancer Centre (GPCC)	Grande Prairie	July 14, 2014	
	Bonnyville Healthcare Centre	Bonnyville	July 14, 2014	
	Westlock Healthcare Centre	Westlock	July 14, 2014	
	Westlock Healthcare Centre (Dr. Jan Lategan)	Westlock	July 14, 2014	
	Grande Prairie Bone and Joint Clinic	Grande Prairie	July 14, 2014	
	Cold Lake Healthcare Centre	Cold Lake	July 14, 2014	
Edmonton Edmonton	Cross Cancer Institute (CCI)	Edmonton	July 14, 2014	
	Edmonton Musculoskeletal (Edm MSK) Centre	Edmonton	July 14, 2014	
Central	Central Alberta Cancer Centre (CACC)	Red Deer	July 14, 2014	
	Camrose Musculoskeletal Clinic (Dr. Kumar)	Camrose	July 14, 2014	
Calgary	Tom Baker Cancer Centre (TBCC)	Calgary	July 14, 2014	
	South Health Campus Bone and Joint Clinic	Calgary	July 14, 2014	
	Alberta Hip and Knee Clinic	Calgary	July 14, 2014	
South	Margery E. Yuill Cancer Centre (MEYCC)	Medicine Hat	July 14, 2014	
	Jack Ady Cancer Centre (JACC)	Lethbridge	July 14, 2014	
	Chinook Bone and Joint Clinic	Lethbridge	Feb 9, 2015	
	Surgical Optimization Clinic	Medicine Hat	July 14, 2014	

Outcomes by Quality Dimension	Area of Focus	Evaluation Questions	Measures of success/ Indicators	Data Sources
Program Context Information	eReferral Users	**i.** How many users are currently on eReferral?	# of eReferral users # and % physician users # and % other users	eReferral Reports
	eReferral Volume	**ii.** What is the current eReferral volume at start of evaluation?	# of eReferrals in total # of eReferrals by group # of eReferrals by site	eReferral Reports
	Netcare Access	**iii.** Who has access to Netcare?	# of possible Netcare users by type (ex. POs, Specialty) # of total users and % of possible users	Netcare data (Dan Bosman) Netcare status report
	Total Referrals	**iv.** What are the total referral volumes in early adopter groups?	# of Hip and Knee referrals # of Breast Cancer Referrals # of Lung Cancer Referrals	Hip and Knee sites Cancer Data Cancer Data
A. Improve ***efficiency*** in scheduled health services by improving, standardizing and automating business processes	Manual to automated processes	1. To what extent does the move toward automated referral processes correspond with a reduction in referral errors?	1. Post-Launch reduction compared to Pre-Launch in: • Manual sending systems • Incomplete referrals • Duplicate referrals • Rejected/Redirected referrals • Patient No Shows/Cancellations	eReferral Reports/ Hip and Knee Referral Forms/ Cancer Data
		2. What has been the adoption rate in eReferral?	2. Increase over baseline (zero) in eReferral users • # of eReferral users by site/zone out of total potential users • # of referrals through eReferral	eReferral Reports/ Hip and Knee Referral Forms/ Cancer Data

Outcomes by Quality Dimension	Area of Focus	Evaluation Questions	Measures of success/ Indicators	Data Sources
			vs. Faxed referrals and mail in referrals • # of physicians' offices using eReferral out of total that have access to Netcare • # physicians' offices in total who are potential eReferral users	Netcare
		3. What has been the success in the efficiency of eReferral? (How much time is saved? Canada Health Infoway)	3. Stakeholders report that eReferral has been effective in improving efficiency throughout the referral process (sending, tracking and closing referrals)	Modified Canada Health Infoway Survey
B. Improve ***accessibility*** and support the reduction of referral wait times for scheduled services	System Navigation	4. To what extent is provincial system navigation improved?	4a. Users report that referral process is easy to navigate: • Awareness of services with or without eReferral • Knowledge of how to access services with or without eReferral • Awareness of estimated wait times with or without eReferral • Capabilities of eReferral not yet mobilized and how to address it' • Satisfaction with access to eReferral • Reason for using or not using eReferral • Barriers to access eReferral	Stakeholder Focus Groups
			4b. Positive changes in referral patterns o # of patients on waitlists o # of patients who choose	Hip and Knee data eReferral eReferral Reports

Outcomes by Quality Dimension	Area of Focus	Evaluation Questions	Measures of success/ Indicators	Data Sources
			'next available appointment' o # of eReferral users o # hits on health services catalogue 5. BAT/AAT scores improve over time	
		5. To what extent do business processes support eReferral system implementation?		Baseline Assessment Tools/ Access Assessment Tools
	Referral Wait Times	6. To what extent does the automation of the referral process support a reduction in referral wait times across the province?	6a. Increase in the completeness of referrals sent to specialist • % complete referrals sent to specialist 6b. Decrease from baseline in referral wait times across all Early Adopter Groups: • Patient referral wait time (T2-T3) 6c. Stakeholders report how automation has affected/not affected the completeness of referrals (how their site defines it) and why	eReferral data/ "Spot Check" Hip and Knee Site data/ Cancer Data Cancer Dashboard Modified Canada Health Infoway survey Question
	Wait Time Management Processes	7. To what extent do referral wait times take into account patient and referring provider choices?	7a. # of patients who selected "yes" in choosing a specific provider 7b. # of patients who selected "next available appointment" 7c. If next available was chosen then # of patients that it was patient preference 7d. If next available was chosen then # of patients that it was provider	eReferral Reports

Outcomes by Quality Dimension	Area of Focus	Evaluation Questions	Measures of success/ Indicators	Data Sources
			preference	
		8a. To what extent does consistency in referral processes affect experiences of eReferral users and reduce variation across Breast and Lung Cancer and Hip and Knee specialty groups? 8b. To what extent has eReferral affected the patients' referral experiences? Awareness of care options?	8a. Sending and Receiving referral stakeholders report that eReferral helped to implement and publicize the referral guidelines • Awareness of guidelines • Coordination of guidelines • Completion of guidelines • Standardization of guidelines • Approach taken to inform stakeholders about guidelines • Open comments about guidelines approach 8b: • Confusion to patients affected • Satisfaction of patients • Impact on wait times	Modified Canada Health Infoway Survey Patient Satisfaction Survey and Patient Acceptability Lit Search
C. Increased stakeholder ***acceptability*** by improving awareness and clarity of patient's Path to Care	Wait Time Transparency	9. To what extent does eReferral have consistent uptake of users across Early adopter groups? 10. To what extent has the journey to improve wait times and create a transparent patient journey helped you to communicate with patients?	9a. Steady increase in new and consistent users monthly # of new users by month # of consistent users by month 9b. Stakeholders report that eReferral team uses effective strategies to inspire uptake across Early Adopter Groups and what barriers/facilitators to uptake might be 10.Stakeholders report an increase in satisfaction from baseline (since LPR) in their experiences communicating with patients	eReferral Reports Stakeholder focus group Modified Canada Health Infoway Survey Patient Lit Search

Outcomes by Quality Dimension	Area of Focus	Evaluation Questions	Measures of success/ Indicators	Data Sources
			• How do you communicate with patients during referral process? • Has eReferral helped in communicating with patients? Hindered? How so? • Add question about usefulness of eRef? Tracking patient journey made easier? More difficult? The same?	
D. Improved care ***appropriateness*** through a standardized referral management processes and increased adoption of clinical best practice	Inappropriate Referrals	11. To what extent has the automation of eReferral affected the number of inappropriate referrals in Early Adopter groups?	11. Decrease in inappropriate referrals • declined • redirected • turned away • sent back	Hip and Knee forms/spot check data Cancer Dashboard
E. Key Performance Indicators will help identify access improvement opportunities and determine ***effectiveness*** of program	Benefits of eReferral	12. To what extent did eReferral benefit AHS and its consumers?	12. Increase in the number of patients treated for Hip and Knee or Breast and Lung Cancer Care inside of triage category (as a result of automation) # of HK patients/ BL Cancer patients seen within triage category	Hip and Knee data Cancer Dashboard
	Suggestions for the Future	13. What are the lessons learned after using the eReferral system?	13. Staff and stakeholders report the lessons learned after working with eReferral: • Strengths of eReferral system • Challenges of eReferral system • Device functionality • Virtual consults	Modified Canada Health Infoway Survey

Outcomes by Quality Dimension	Area of Focus	Evaluation Questions	Measures of success/ Indicators	Data Sources
		14. What are the lessons learned as reported by Path to Care team members?	• Business Processes • Communication methods are effective (newsletters, etc.) 14. Sustainment of eReferral eReferral team reports the main lessons learned in the implementation and sustainment process (Successes, Challenges, Future Projects) • Resources • Leadership • Governance • Plans and Process	Internal Focus Group
F. Improve ***safety*** for patients by increasing transparency in the referral process	Patient Safety	15. To what extent has the volume of safety inquiries changed since automation?	15. Decrease in safety inquiries involving referral process Overall # and % of safety inquiries involving referral process (monthly)	Reporting and Learning System (RLS)

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