Canadian **PARTNERSHIP** AGAINST **CANCER**
PARTENARIAT CANADIEN CONTRE LE **CANCER**

Readiness Assessment of the Electronic Synoptic
Surgical Quality Initiative (ESSQUI)

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Final Report

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Executive Summary

In 2006, the federal government established the Canadian Partnership Against Cancer (the Partnership) as an arm's length, not-for-profit organization to implement the Canadian Strategy for Cancer Control. Over a 30-year-span, by 2037, working collaboratively with the cancer control community (cancer survivors, patients and families, cancer experts, administrators and government stakeholders) across Canada, the Partnership's goals, shared with its partners, are to reduce the incidence of cancer, lessen the likelihood of Canadians dying from cancer and enhance the quality of life of those living with cancer.

Within the Partnership's strategic plan for 2012-2017, a key priority is to advance high-quality early detection and clinical care. One of the main initiatives for this priority is the Electronic Synoptic Surgical Quality Initiative (ESSQUI). This initiative builds on the success of the work done in Alberta in 1999. The goals of ESSQUI are to:

1. Develop national standards for breast, colon, rectal, lung, prostate, ovarian, endometrial, and thyroid cancers.

2. Enable adoption of national standards at a point of care by clinicians to synoptically report on intra-operative events.

3. Standardize surgical oncology care and increase availability of data for measurement.

To advance the goals of ESSQUI, the Partnership has been collaborating with surgeons and e-health leaders in ten provinces across Canada to develop, implement, and evaluate national standards. To date, all three goals of ESSQUI have been accomplished.

- National standards were finalized in 2016 for use on a system-wide basis across Canada.

- More than 250 surgeons in Alberta, Manitoba, Ontario, Nova Scotia, and Newfoundland Labrador are using the national standards and have transitioned from narrative to synoptic operative reporting.

- 89 surgeons have begun to draw from synoptic surgical reporting data to measure 80 quality and process of care indicators to help surgeons and clinicians use real world evidence in surgical oncology care.

Building on the success of ESSQUI to date, and to expand the adoption and use of the national standards across the country, it is important to get a clear sense about the readiness to scale up and whether or not provincial decision-makers are ready to

coordinate efforts to improve the consistency of the quality of cancer surgery delivered to patients. In 2016, the Partnership commissioned the Readiness Assessment.

The objective of the Readiness Assessment was to examine and identify the strengths and opportunities for scaling up ESSQUI implementation, identify the information needs of funders and decision makers, identify the roles of key parties to spread and scale ESSQUI and outline the opportunity costs of not implementing ESSQUI.

The information presented in this report was collected through document reviews, data reviews, literature reviews, key informant interviews and a survey of 140 health care professionals. The recommendations proposed draw on the findings and observations (Section 4), the discussion of the findings (Section 5) and the conclusions drawn from the analysis of the information (Section 6).

Strengths and Opportunities

Pan-Canadian standards have been developed and are available for eight cancer sites. They have been endorsed by the eight medical societies and are in use in six provinces - Alberta, Saskatchewan, Manitoba, Ontario, Nova Scotia and Newfoundland and Labrador, where synoptic reporting systems have now been implemented.

Over the past 10 years, surgeons, e-health leaders and project teams have made remarkable accomplishments in transitioning 250 surgeons from narrative to electronic operative reporting for breast, lung, colon, rectal, endometrial, ovarian, thyroid and prostate cancer cases.

Significant progress has been achieved in the four provinces initially involved in ESSQUI.

- In Alberta, the number of sites using synoptic reporting has increased from 5 facilities to 18 facilities since 2014;
- 10-20 surgeons in Manitoba are using synoptic reporting and synoptic surgery reporting is at a point where the data being collected is now aligned with 70 quality indicators;
- Nova Scotia has increased the number of sites using synoptic reporting from 4 to 8 facilities since 2014; and
- In Ontario's University Health Network, 100% of breast and prostate cancer surgeries and 70% of ovary and endometrial cancer surgeries are reported synoptically.

Other provinces not part of the original provinces participating in ESSQUI have also come on board.

- Saskatchewan is currently piloting the breast cancer templates and standards at the Saskatoon Hospital; and

- Newfoundland and Labrador is implementing the breast cancer templates and standards at a teaching hospital in St. Johns, with plans to add a second hospital. As well, they plan to roll out prostrate and colon templates and standards in the near future.

As a result of ESSQUI, there has been a substantial increase in the awareness of the benefits of Synoptic Surgical Reporting (SSR) within provinces for cancer surgery outcomes analysis, which in turn has the potential for quality improvements in cancer surgery practices, improved patient outcomes and reducing the overall health care costs associated with cancer surgery.

Opportunities for Scaling Up

In all provinces, priorities for surgical oncology care or cancer care in general include the following: access to care including improved wait times; improving quality, safety and outcomes of care; practice and treatment standards; and practice improvement.

Given the extent to which provinces have placed priority upon outcomes analysis and reporting, in support of improved patient outcomes and quality improvement, and other priorities such as practice improvement, there appears to be a significant level of interest in many provinces to measure surgical clinical care processes and patient outcomes related to cancer.

Building on the progress achieved in implementing SSR, a key opportunity is to increase the number of provinces using the pan-Canadian standards (minimum dataset and indicators) to support a national analysis of quality metrics to measure cancer system performance and variation from the standards. As well, there is a need to expand the reach and number of facilities and surgeons using SSR within provinces to allow for regional and local analysis within provinces.

This requires further awareness of the benefits of SSR amongst facilities as well as cancer surgeons to create a ground swell of demand for access to SSR systems at point of care.

There is also an opportunity to further the objectives of ESSQUI by forming strategic alliances with medical societies and pan-Canadian health organizations (e.g. CIHI) to promote and demonstrate the benefits of SSR and how SSR fits with the broader policy agenda of provinces.

At a recent Council of Deputy Ministers meeting (February 2, 2017), a presentation was provided on how SSR made a difference in patient care, clinical accountability and the impact of SSR on improving the overall health care system.

Following the presentation, three provinces (Alberta, Manitoba and Ontario) have expressed an interest in expanding the current implementation of SSR and increasing the number of surgeons using SSR within their provinces. British Columbia has also expressed an interest in joining the other jurisdictions in implementing SSR.

Information Needs of Funders and Decision Makers

In order for provincial ministries and health care administrators to establish funding for the implementation of SSR, further awareness and knowledge of the overall benefits to the health care system is required.

Aspects that should be highlighted include the following:

- Cost avoidance-lower readmission costs post-surgery related to complications as the level of quality outcomes improves due to evidence based decision making. Current research identifies that major complication rates are 7%-15.4% of cancer surgeries and that the cost of re-admission due to post surgery complications is $10,000 per patient;
- Cost reductions-no transcription costs related to narrative reporting ($100-$200/narrative report);
- Quantified improvements in patient care and patient outcomes related to the implementation of SSR; and
- Improved data for use in research and in resource allocation by hospital administrators and Health ministries.

As well, in order for provinces to fully benefit from synoptic surgery reporting, there needs to be a critical mass of surgeons using synoptic surgery reporting for cancer surgeries. Without a critical mass of surgeons from across the province routinely using the SSR, the indicators are neither representative nor meaningful. There should be consideration for making SSR reporting mandatory especially if the jurisdiction wants to use the data to report quality indicators.

There is also a technical requirement that a variety of systems (new and legacy) be linked and function seamlessly in terms of data entry and retrieval within the provincial structures. The associated implementation requirements are for a high level of support from the IT groups within provincial ministries and significant provincial-level financial investments. Sufficient resourcing needs to be planned and considered including analysis of the data quality and suitability for linkages between systems.

Furthermore, in many provinces cancer surgery is not integrated in the overall continuum of cancer care with the provincial cancer agencies. Surgery (including cancer) sometimes rests within the Ministries of Health or the regional health authorities within a province. There is a need for improved coordination/communication between organizations involved in the provision of cancer

services and cancer surgery to ensure a coordinated approach to cancer care within provinces.

Role of Key Parties to Spread and Scale ESSQUI Implementation

In order to support the implementation of SSR across Canada and increase the level of adoption within provinces, ongoing provincial funding is required for:

- IT infrastructure;
- Capacity Building;
- Quality metrics reporting in real time; and
- Overall program management.

For surgeons and clinicians, further awareness and knowledge of the benefits of SSR is required to increase the level of adoption and use of SSR. This is an area where the provincial cancer agencies can play an important role. Through their membership, networks and learning events, awareness and knowledge can be increased of the benefits of SSR. Use of demonstrated results, such as the Alberta Rectal Cancer Initiative and its findings can clearly demonstrate the clinical advantages in terms of improving patient outcomes.

There is a need for champions as clinical leaders to visibly support and advocate for SSR amongst their peers at the local level, within the province and within institutions within the province.

In order to have pan-Canadian comparisons of the standards and indicators, there is a need to have a national repository of anonymized electronic synoptic surgery data. The Canadian Institute for Health Information (CIHI) was identified as a national organization with the potential to be a collaborator on ESSQUI.

A number of issues were identified resulting from changes of the templates at both the national (Partnership) and local (provincial) levels.

Beyond endorsing the current pan-Canadian standards and templates, the eight medical societies could play a role in ensuring the standards and templates remain current and relevant by assuming the responsibility for the maintenance and revisions to the standards and templates as well as ensuring a rigorous process for version control. They can also play a role in increasing awareness and understanding of the benefits of implementing and adopting SSR within their membership.

There is a continuing need for Partnership and clinical thought leaders to continue to support the existing networks and communities of practice and further the awareness of the benefits of synoptic reporting to provinces, cancer organizations and surgeons and clinicians. The focus for the Partnership should move to outcomes reporting achieved

through SSR data collection and showcase tangible results that have been achieved through the implementation of ESSQUI (economic, social and clinical benefits).

Opportunity Costs

The benefits of synoptic surgery reporting, as described in the literature review identifies that research has consistently demonstrated that synoptic reports greatly improve the quality of surgical reporting. Synoptic surgery reporting results in health system efficiencies and provides an effective mechanism to generate real-time data. It has been widely endorsed as a means of standardizing cancer reporting, and improving the availability and quality of clinical information for persons diagnosed with cancer.[1]

In the longer term, the opportunity costs of not implementing SSR can be looked at from the perspective of patient outcomes. The literature review clearly demonstrates that outcomes analysis, supported by SSR, leads to improvements in clinical care pathways, which in turn reduces the associated surgical complications. Not implementing SSR would mean that it would be impossible to measure patient outcomes and identify areas of improvement. From a health care system perspective, additional costs may be incurred as provinces continue to provide funding for new systemic therapies with minor incremental gains in patient outcomes.

Without synoptic reporting, there is a lack of meaningful data to resolve quality gaps within and between provinces and an inability to provide meaningful surgical data to surgeons and key decision makers.

The recommendations presented in this report are intended to provide insights and lessons that may be helpful for:
- Evolving the implementation of national surgical standards in clinical practice to improve the quality of cancer treatment and care;
- Gaining support of prospective surgeons and provincial decision-makers;
- Addressing a key system-level gap—integrating cancer surgery with the provincial cancer strategy and investing in solutions to standardize surgical oncology care;
- Engaging key parties such as the Partnership and surgeons; medical societies; jurisdictions, provincial cancer agencies, CIHI and others to collaborate on identifying common goals for developing a national repository; and
- Consideration by the Partnership to consider investing in solutions (e.g., feedback reports) and mechanisms (e.g. clinician forms) to help participating

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[1] Multi-level factors influence the implementation and use of complex innovations in cancer care: a multiple case study of synoptic reporting, Urquhart et als. 2014, http://www.implementationscience.com/content/9/1/121

surgeons to use real world evidence at point of care and discuss evidence with peers in the aims of standardizing surgical care, reducing practice variation and identifying best practices.

Recommendation #1:

Share and showcase the value of synoptic surgery reporting and benefits for patient care and clinical management with prospective surgeons, funding decision-makers and key stakeholders in the cancer community.

Recommendation #2:

Leverage synoptic surgical data and provide indicator measures for surgeons to direct: a) clinical practice, b) conversations with peers, and c) the use of best practices.

Recommendation #3:

Medical societies should consider expanding their role from endorsement of standards and templates to include the revisions, maintenance and version control for their respective cancer types (e.g. breast, colorectal, lung etc.)

This should be supported by the mandatory use of the standards and templates being built into regular clinical practices for cancer surgery.

Recommendation #4:

Provinces should consider improving the coordination/communication between organizations involved in the provision of cancer services and cancer surgery to ensure a coordinated approach to cancer care within provinces with the capacity for establishing systematic evaluation and the provision of sufficient resources to enact change.

Recommendation #5:

Provincial funding is necessary to develop new systems, integrate existing systems and also establish a central database repository to easily produce provider level feedback reports as well as cancer system level performance measurement. Clinicians, e-health leaders, cancer agencies and regional bodies have an opportunity to collaborate on putting and presenting a business case to decision-makers.

Recommendation #6:

The Partnership and provinces should consider partnering with CIHI to leverage their expertise in establishing a pan-Canadian anonymized electronic synoptic surgery data repository. This will assist with inter-provincial, pan-Canadian comparisons of key indicators to measure access to oncology surgical care, complications, readmission, cancer recurrence, and other patient outcomes.

Recommendation #7:

Ensure all parties involved in Cancer Care in Canada have access to and use the contents of this report in furthering the implementation of SSR.

1.0   Introduction

The Electronic Synoptic Surgery Quality Initiative (ESSQUI) began in 2007 to establish and make national standards available to guide the capture of inter-operative notes consistently for eight cancer sites. The eight sites include breast, colon, rectal, lung, endometrial, ovarian, thyroid, and prostate cancer. Over the past 10 years $9.0 M have been invested to enable Alberta, Manitoba, Ontario, Nova Scotia, and Newfoundland Labrador to implement the pan-Canadian standards in electronic solutions and to transition 250 surgeons from narrative to electronic operative reporting. Efforts to date have laid the foundation to draw lessons from and to inform next steps for potentially evolving the implementation of the pan-Canadian standards on a system-wide basis.

This report presents and discusses the findings of the *Readiness Assessment of the Electronic Synoptic Surgery Quality Initiative* (ESSQUI), and offers recommendations to assist decision-makers about the options to evolve or not to evolve ESSQUI in priority jurisdictions across Canada. The *Readiness Assessment of the Electronic Synoptic Surgery Quality Initiative* has been conducted on behalf of the Canadian Partnership Against Cancer (the Partnership) by BBMD Consulting Inc.

The objectives of this Readiness Assessment were to examine and identify:
  o The outcomes of implementing pan-Canadian Synoptic Surgery Standards in several provinces on a small scale over the past 10 years;
  o Value and benefits of using Synoptic Surgery Reporting (SSR) standards by early adopters
  o Priority provinces ready or not ready to implement the pan-Canadian SSR standards across Canada;
  o Roles of key parties (at the local, regional, provincial and national levels) in supporting a system-wide implementation of SSR standards
  o Recommendations and a road map to enable to build the case for standardizing high quality surgical cancer care for patients across the country
  o Consequences of not taking action to standardize surgical cancer care in Canada

The results of the readiness assessment outline:
  o Strengths and opportunities for scaling up;
  o Key priorities to address information needs of funders and decision-makers;
  o Roles of key parties to spread and scale; and
  o Opportunity cost for not taking action.

The recommendations highlight:
  • Conditions that need to occur to evolve the implementation for the national standards in priority jurisdictions across Canada
  • The role for: CPAC and surgeons; medical societies; jurisdictions, provincial cancer agencies, CIHI and others

2.0   About the Electronic Synoptic Surgery Quality Initiative (ESSQUI)

The ESSQUI program provides pan-Canadian standards for oncology surgeons to capture essential core elements in inter-operative reports electronically and receive feedback reports on 69 indicators to measure surgical quality of care, inter-operative adverse events, cancer recurrence rates, and variation in practice. This initiative advances high quality cancer diagnosis and clinical care—one of the key priorities of the National Cancer Control Strategy (2012-2017).

Surgery is a cornerstone of treatment for malignancy, however, variation in surgical oncology care is often reported. The pan-Canadian synoptic surgery reporting standards, can help promote consistent standards of care to patients with cancer, regardless of what province or region patients live in.

Synoptic reporting is the electronic capture of clinical information in a standardized and structured way for structuring healthcare reports. The benefits of Synoptic Surgery Reports are to:

- o Embed evidence-based guidelines in surgical oncology care;
- o Standardize the format of reporting that allows consistent for consistent communication of surgical procedures;
- o Provide a comprehensive operative report to direct downstream patient care; and
- o Generate feedback reports to clinicians and surgeons, building communities of best practices and informing quality improvement initiatives.

Since 2007, the Canadian Partnership Against Cancer (the Partnership) has been collaborating with surgeons across the country to embed evidence in practice and capture core elements of cancer surgery by transitioning from narrative to electronic synoptic reports in the areas of breast, colorectal, lung, prostate, ovarian, thyroid and endometrial cancers.[2]

In 2007, the objectives were to:
- o Convene a group of experts in oncology surgery and to develop evidence-based standards for cancer operations
- o Assess the feasibility to implement pan-Canadian standards on a small scale

Challenges in developing and implementing Synoptic Surgery Reporting were:

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[2] ESSQUI Meeting, Scaling it Up, November 4, 2015

Standards

- Developing, and later updating and maintaining, standards for reports that are consistent with good practice; and
- Developing, and later updating and maintaining, the reporting templates and systems that align with jurisdictional systems including version control.

Funding

- Securing additional funding to update existing tools and implement the tools to expand the reach and scale of the initiative at a provincial level.

Adoption

- Demonstrating the value of Synoptic Surgery Reporting compared to other alternatives, including narrative reports; and
- Promoting the spread (across jurisdictions and cancer sites) and adoption (by surgeons and practitioners).

Starting in September 2011, and partnering with Canada Health Infoway, the Partnership has led the ESSQUI Program. The purpose of ESSQUI was to "advance the development and implementation of pan-Canadian standards for surgical cancer reporting and to promote adoption across the country."[3]

From 2012 onwards, the work on synoptic surgery reporting focused on expanding implementation in provinces participating in the SSRI (Alberta, Manitoba, Ontario and Nova Scotia), through co-funding with Canada Health Infoway and the jurisdictions. Up to the end of October 2016, implementation of breast, head and neck, colorectal, ovarian and endometrial synoptic surgical reporting templates had been expanded to include additional users and sites in these provinces, though not every disease site template was implemented in all the provinces. Further expansion added lung, prostate and generic discharge summary templates to the previously developed standards and templates.

Work took place on standards development and maintenance. Values of a set of data elements that were tied to calculate quality indicators for breast, colon, rectal, thyroid, lung, prostate and ovarian cancer were mapped to **S**ystematized **NO**menclature of **MED**icine **C**linical **T**erms (SNOMED CT) in 2014. Approximately 40% of the values required extensions to the pan-Canadian SNOMED CT dataset, as the terms did not exist within the SNOMED CT terminology at time of mapping.

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[3] Ibid

Community engagement and knowledge transfer and exchange (2012-13 and 2013-14) initially focused on planning for engagement with the surgical community. In 2014-15, following engagements concerning Knowledge Transfer and Exchange (KTE) needs, a strategy was developed which emphasized demonstrating value through outcomes reporting.

Pan-Canadian clinical content standards were implemented on a small scale and plans developed for on-going development, updating and maintenance of the standards. In 2014-15 a pan-Canadian network was convened to "drive" the overall strategy to scale up the implementation of standards, which included finalizing clinical content standards, getting endorsement from medical societies, and enabling clinical and e-health leaders to build partnerships with key decision-makers in their respective provinces, and making the case for a system-wide adoption of the pan-Canadian standards.

The Partnership also provided funding to enable surgeons and e-health leaders to implement clinical analysis and outcomes reporting. Work took place to engage stakeholders on surgical outcomes indicators, and a pan-Canadian pilot analysis was completed using data derived from synoptic reports. The funded projects clearly demonstrated that electronic synoptic reporting is a viable mechanism for documenting operative reports and facilitates the secondary use of data for research and quality assessment of clinical measures. Synoptic operative reporting allows for the consistent and efficient collection and extraction of data and enables reproducible collaborative studies between various centres. Data collected through synoptic operative reporting supports the meaningful analysis of surgical and survival outcomes that may inform and change clinical practice.

Between March 2015 and October 2015, expert panels had been convened and finalized standards for eight cancer sites, which included content standards and indicators. In addition, in November 2015, clinical and e-health leaders set out a six-year national vision for ESSQU as follows:

By 2021, surgeons and e-health leaders envisioned that synoptic surgical reporting will:

- o Be based on national operative reporting standards for eight cancer sites
- o Have representation from 100 % of surgeons
- o Integrate with other data systems and serve as a health learning system that will generate comparative benchmarking reporting to drive quality improvement and inform health system planning
- o Provide performance feedback reports for surgeons to increase patient-centered care, reduce clinical variation and improve outcomes
- o Provide patients with access to information about surgical care

In support of this national vision, between November 2015 and February 2017:

o   Eight medical societies endorsed the pan-Canadian standards
o   Clinical and e-health leaders engaged with key provincial cancer agency decision-makers and funders to share information about the value of implementing the pan-Canadian standards;
o   Newfoundland and Labrador secured funding to pilot the pan-Canadian standards;
o   In Nova Scotia, Manitoba, Alberta and Ontario, project teams have started to give feedback reports to surgeons and produce real world clinical evidence;
o   Two clinical and one e-health leader presented to the Council of Deputy Ministers (CDMs) on July 28, 2016, and a follow-up presentation was made to the CDMs on Feb 2, 2017;
o   At the CDM's meeting, there was strong interest from four jurisdictions to initiate or scale up the implementation of the pan-Canadian standards.

The evolution of ESSQUI described above is illustrated in Exhibit 2.1.

Exhibit 2.1 - ESSQUI Evolution
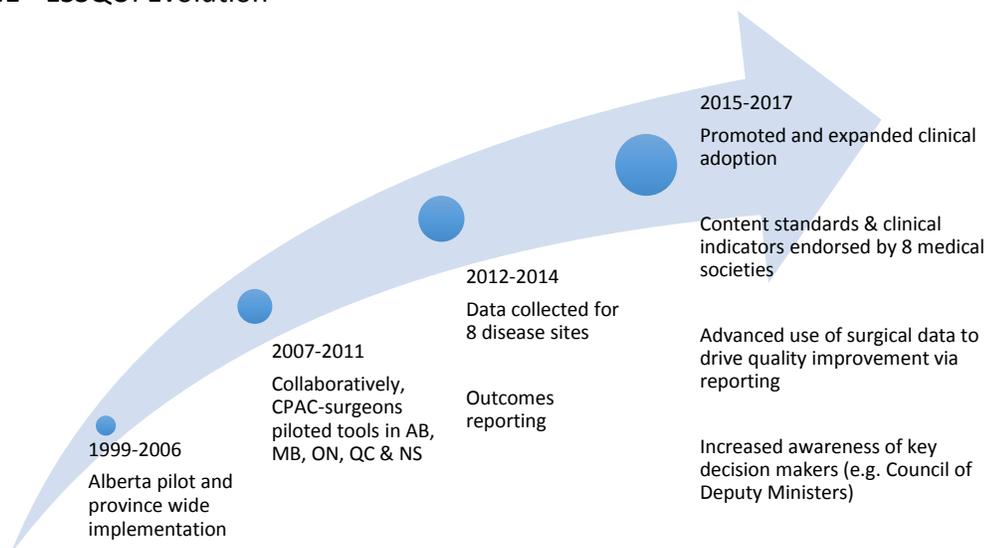
Surgeons and e-health leaders in BC, Alberta, Ontario, and Manitoba are continuing to dialogue with key decision-makers and are planning to present a business case to funding agencies. In parallel, the Partnership is working closely with existing networks of surgeons, e-health leaders, medical societies and cancer agencies to co-design and define the 2017-2022 scope of work that will place focus on maximizing the use of synoptic surgery data in practice to reduce surgical oncology care variation. The 2017-2022 scope of work will support two key themes of the Canadian Strategy for Cancer Control (2017-2022), maximizing data impact and improving the quality of cancer care.

3.0 Objectives of the Readiness Assessment, and the Methodologies Used

3.1 Objectives

The ESSQUI Readiness Assessment was designed to collect, evaluate and synthesize information related to a number of themes:

1. The provincial needs and priorities related to surgical oncology care;

2. The current state of clinical adoption and ESSQUI implementation;

3. The current state of ESSQUI e-solution tools (i.e., architecture, clinical classification system, and interoperability) and their alignment to standards for electronic health records;

4. The current ability of the information systems to provide feedback reports for surgeons and enable performance measurement;

5. The Gaps and Opportunities and potential value for clinicians, health system decision makers and other key stakeholders;

6. The key considerations for establishing a sustainable approach and solution for implementing ESSQUI in priority jurisdictions across Canada; and

7. The key considerations for integrating ESSQUI standards with electronic health records infrastructure

3.2 Methodologies Used in the Readiness Assessment

There were a variety of lines of evidence that were used in the conduct of this assessment - document and data review; literature review; a stakeholder survey; and, key informant interviews.

Document Review

Twenty-seven documents and presentations were reviewed and analyzed that were provided by the Partnership and the ESSQUI Network as part of the Document and Data Review (see Annex A). The document and data review was conducted in accordance with the framework outlined in the Project Plan and Readiness Assessment Matrix document (see Annex C), and is based upon data and documentation provided by the Partnership's Project Authority as well as public sources and past evaluations relevant to the Partnership's synoptic surgery reporting initiatives.

Literature Review

The Literature Review analyzed 32 Scientific Papers and Journal articles (See Annex B). The literature review was also conducted in accordance with the Project Plan and Readiness Assessment Matrix document and is based upon literature references provided by the Partnership's Project Authority.

Stakeholder Survey

A stakeholder survey was conducted with a sample of 413 participants. The sample was obtained through a contact list provided by the Partnership as well as by direct distribution by the Gynecologic Oncology Society of Canada and the Canadian Association of Thoracic Surgeons to their members. A total of 140 completed surveys were obtained resulting in a 34% response rate.

The breakdowns of the survey respondents by province and by area of practice are shown in the following two figures.

Exhibit 3.1 - Distribution of Survey Respondents by Province and Area of Practice (N=140)

Distribution by Province

Province	Percentage
NL	3%
PEI	3%
NS	6%
NB	2%
QC	14%
ON	33%
MB	13%
SK	4%
AB	15%
BC	6%

Distribution by Area of Practice

Area of Practice	Percentage
Other	3%
Health Records User	5%
University Professor	17%
Management/Administration	6%
Chief/Department Head	13%
Urologist	1%
Medical Oncologist	2%
Gynecological Oncologist	4%
Other Surgeon	1%
Thoracic Surgeon	12%
General Surgeoon	16%
Cancer Surgeon	78%
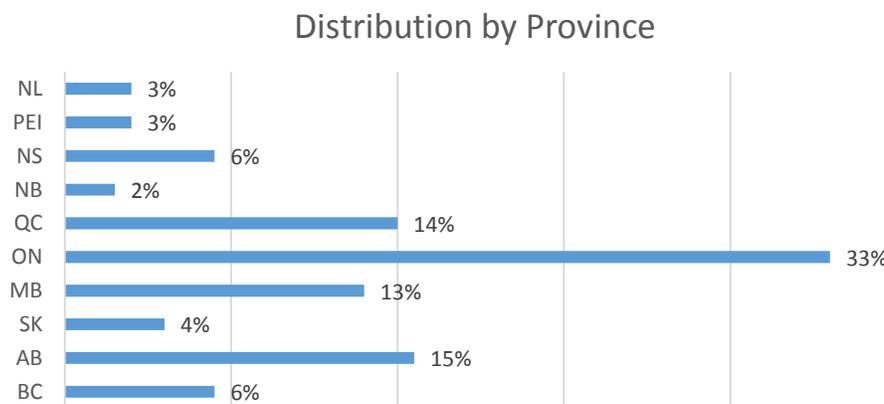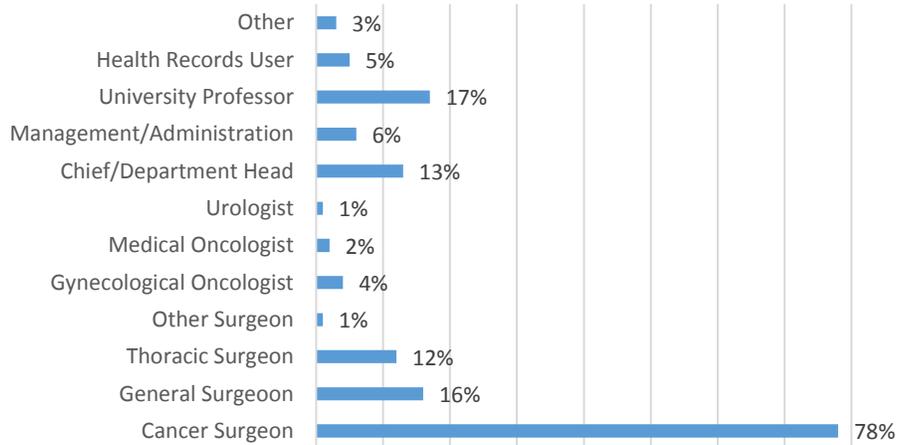
Note: Distribution by Area of Practice exceeds 100% as multiple entries were allowed.

Key Informant Interviews

Thirty-seven interviews were conducted with key informants. The interview guides used for the conduct of the key informant interviews are provided in Annex D and were intended to address ten overarching questions as follows:

1. What are the key priorities of provinces related to surgical oncology care?
   a. How is quality of surgical oncology care measured?
   b. What are a few gaps in surgical care?
2. What is the level of interest in provinces to measure surgical clinical care processes and patient outcomes related to cancer?
3. What is being used in the provinces or hospitals to measure quality of surgical care?
   a. What is being collected by whom and what is being reported?
   b. How are surgeons, hospital administrators and health system planners using these reports for decision-making?
4. What is being considered by the provinces to improve the quality of surgical cancer treatment?
   a. Which provinces are aware about the pan-Canadian synoptic surgery reporting standards and are considering the option to fund and establish an infrastructure so that surgeons can have access to a tool to capture synoptic surgery reporting?
5. What are the technical and implementation requirements to enable systematic structured operative surgical care data capture and performance measurement reporting?

6. Which national or provincial organizations are the provinces willing to work with to arrange data collection that can facilitate comparative feedback reports to clinicians, hospitals and health system decision-makers?
7. What are the existing barriers to getting participation from surgical oncologists and how can these barriers be overcome?
8. What is the Partnership's role in the context of system-wide adoption?
9. What is the cost-benefit analysis of implementing the pan-Canadian standards?
10. What is the cost by province to implement the pan-Canadian standards incrementally vs. on a large scale?

The distribution of completed interviews by category of key informant was as follows:

CPAC Management	4
Diagnosis and Clinical Care Group	20
Federal Partners	2
Provincial Partners	4
Cancer Agencies	3
Medical Associations	2
Synoptic Surgery Report Vendors	2

4.0   Findings and Observations

This section presents the major findings from the Readiness Assessment, organized by the following topics:

- Provincial Needs and Priorities;
- Current state of Synoptic Surgery Reporting adoption;
- Current state of ESSQUI e-solution tools;
- Current ability of information systems to provide feedback reports and enable performance measurement;
- Gaps and opportunities for clinicians, health system decision makers and key stakeholders;
- Key considerations for implementing ESSQUI in priority jurisdictions across Canada; and
- Key considerations for integrating ESSQUI standards with electronic health records infrastructure.

4.1   What are the provincial needs and priorities related to surgical oncology care?

4.1.1   What are the key priorities of the province related to surgical oncology care?

Overview

Alberta, British Columbia, Manitoba, Ontario, and Quebec have cancer strategy documents that mention key priorities specifically relating to cancer surgery. Outcomes analysis and reporting is discussed as a priority in each of these jurisdictions. Alberta, British Columbia, and Manitoba specifically address standardized and structured surgical outcome reports.

Newfoundland and Labrador, Prince Edward Island and Saskatchewan have strategy documents which do not make specific mention of key priorities relating to cancer surgery. Applicable strategy documents were not available for New Brunswick and Nova Scotia. However, a key informant knowledgeable about Nova Scotia indicated that the province had dedicated funding to synoptic surgical reporting and a full time resource to ESSQUI, suggesting some level of priority.

British Columbia

The Surgical Oncology Network (SON) was established in 2001 by the BC Cancer Agency to promote and advance quality cancer surgery across BC through an effective network of surgical oncology care providers.

British Columbia's Surgical Oncology Network identifies as its key strategic priorities:

- Priority 1: Strengthen relationships with the BC Cancer Agency, PHSA [Provincial Health Services Authority] and other health authorities, Ministry of Health, universities and hospitals, and enhance SON's profile provincially and nationally
- Priority 2: Evaluate and improve patient outcomes through research, quality data and reporting
- Priority 3: Develop and implement educational programs and knowledge transfer mechanisms to support surgical oncology practice improvement
- Priority 4: Promote best practice guidelines and standards and enhance access to multidisciplinary assessment

Priority 2 includes "Develop synoptic operative report templates and minimal datasets for cancer surgeries (cancer surgery checklists)." It should be noted that the cancer surgery checklists (synoptic operative report templates) developed by SON are for use when dictating the operative report, and are not tied to an electronic data capture system.

Alberta

Cancer Surgery Alberta was established in 1998 by Alberta Health Services to address the lack of readily available cancer treatment guidelines and outcomes data for cancer surgery in consultation with health regions, the Alberta Association of General Surgeons, the Alberta Medical Association, Alberta Health and Wellness, and the College of Physicians and Surgeons of Alberta. The stated goals of Cancer Surgery Alberta are:

1. To ensure that all Albertans diagnosed with cancer have access to appropriate surgical intervention that is delivered:
   ◦ using a multidisciplinary approach when indicated
   ◦ in a timely manner
   ◦ with appropriate resources
   ◦ and as close to home as possible.
2. To address the need for treatment standards development and implementation for cancer surgery.
3. To improve cancer surgical outcomes by measuring and reporting on predetermined and meaningful outcome indicators.
4. To facilitate the professional growth of surgeons by establishing a continuing education program in cancer surgery that is open to innovation and implements best practices.
5. To provide leadership in conducting research that enables knowledge transfer to achieve better outcomes.

The document provides targets, performance measures, and anticipated outcomes for these objectives, and notes that performance measurement will be done via the province's WebSMR (now Synoptec™).

Alberta's Cancer Plan to 2030 includes "wait times to cancer surgery" as one of its strategic measures to be tracked over the coming decades.

Saskatchewan

The Saskatchewan Cancer Agency 2015-2020 Strategic Plan does not indicate any priorities specific to surgical oncology care. Among its strategies is: "Better Care: In partnerships with patients and families, improve the individual's experience, achieve timely access and continually improve the quality and safety of care." One goal under this strategy is: "Treatment Programs: Ensure treatment programs are effective and provide the highest quality of care and safety to our patients."

Saskatchewan will be piloting the Breast cancer templates and standards in 1 hospital in October 2016.

From the key informant interviews it was noted that wait times for access to cancer surgery is the main priority for the province. Currently this is reported on by the Ministry of Health. The Saskatchewan Cancer Agency has no involvement in this initiative.

Manitoba

According to the 2016-2021 Manitoba Cancer Plan, Strategic Direction 1 is "Toward State-of-the-Art Patient Care," and Objective 4 under this strategic direction is "Achievement of province-wide leadership in cancer surgery." The priorities mentioned under this objective include:

- Improving quality of care and reducing wait times
- Standardizing practices with the help of surgical leaders
- Outcomes analysis and reporting
- Increasing formal relationships with surgical leaders

The Plan lists several Operational Strategies under this objective:

- Assign a surgical leader to each Regional Cancer Program Hub.
- Establish a Surgical Executive Committee representing specialty leaders from each major surgical disease site group to spearhead quality improvement activities in their areas as well as to develop clear policies and guidelines.

- Undertake a provincial quality improvement project in each major surgical disease site.
- Build outcome and wait time measurements that are provincial, regional and disease site group-based.

Ontario

Cancer Care Ontario's Surgical Oncology Program (SOP) includes two strategy areas[4]:

- Quality & Access Improvement Strategy
- Access to Care and Wait Times Strategy

The Quality & Access Improvement Strategy has as its priorities (the following are direct quotes):

- Identifying areas for quality and access improvement strategies/projects
- Developing evidence-based and consensus-driven guidelines and standards
- Initiating knowledge transfer strategies/projects
- Creating and supporting strategic funding initiatives (Cancer Surgery Agreements) to support quality and accessibility improvement strategies
- Measuring and providing feedback on performance indicators

From the key informant interviews, opinions were expressed that electronic surgical synoptic reporting has not been a priority for Cancer Care Ontario to date as the province has not provided discrete funding for this initiative. There is recognition that implementation would require significant resources to do it right.

Quebec

Quebec's Direction générale de cancérologie (DGQ) has as one of its priorities, "Ensure the quality of care and services."[5] Initiatives under this priority include "Utilization of standardized reports and structures," and the initiative description includes surgery. The DGQ has published guidelines on synoptic oncology reporting.

The DGQ has also placed priority on access to surgical oncology and reducing wait times.

New Brunswick

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[4] Cancer Care Ontario. Surgical Oncology Program web page. Accessible at: https://www.cancercare.on.ca/ocs/clinicalprogs/surgonc/

[5] Santé et services sociaux Québec. Lutte contre le cancer: Assurer la qualité des soins et des services. Accessible at: http://www.msss.gouv.qc.ca/sujets/organisation/lutte-contre-le-cancer/priorites/qualite-soins-et-services. Last accessed: June 30, 2016.

New Brunswick has recently amalgamated their health delivery system into 2 provincial entities, an Anglophone and a Francophone health authority. From the key informant interviews, it was noted that, at the moment, there are no standards - there is some data related to cancer care, cancer survivorship, etc., but no standards to measure the quality of surgical oncology care are in place, and there is no synoptic surgery reporting data collected in NB.

In NB, the recent study published by Dr. Finley on High Risk Regionalization of cancer operations[6] has attracted some attention within the provincial health ministry. However, there are no current commitments to funding and resourcing electronic surgical synoptic reporting.

Nova Scotia

There were no provincial strategy documents that defined the priorities of the provincial government or Cancer Care Nova Scotia related to surgical oncology. It was identified through the key informant interviews that the province has dedicated funding to surgical synoptic reporting and has 1 full time resource dedicated to ESSQUI.

Prince Edward Island

PEI's Cancer Strategy 2016-2019 does not indicate any priorities specific to surgical oncology care. A recommended action under Objective # 8 is to "Advance standardized reporting for medical procedures and diagnosis to foster best practices".

Newfoundland and Labrador

Newfoundland and Labrador's 2010 document *Gaining Ground: A Provincial Cancer Control Policy Framework for Newfoundland and Labrador* does not indicate any priorities specific to surgical oncology care.

4.1.2   How is the quality of surgical oncology care currently measured?

A review of the literature did not identify readily available information on the methods used to measure the quality of surgical oncology care or the quality indicators used across the provinces. Rather literature sources were focused more upon the need for data to support quality improvement initiatives and the gaps in traditional data gathering approaches (e.g., narrative operative reports).

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[6] Approaches to High-Risk, Resource Intensive Cancer Surgical Care in Canada, ISBN 978-1-988000-04-6

The majority of the key informants expressed a view that there are limited standards and quality indicators related to surgical oncology care at a pan-Canadian level and where standards are available, there are variations across the provinces where standards have been tailored, creating difficulties in measuring surgical outcomes across and between provinces. It was also identified that this is not restricted to surgical oncology but encompasses all aspects of surgery.

4.1.3   What is being considered by the province to improve the quality of surgical oncology care?

BC's Surgical Oncology Network identifies "cancer surgery checklists (synoptic reports)" among its initiatives, noting the variability in quality of dictated reports and the advantages of standardized reports for system planning. However, the "checklists" were developed for narrative reporting and are not linked to an electronic data capture system at the provincial level.

Key informants noted that surgery is now one of five priorities in BC. BC is now rewriting the health care strategy to include surgery (including cancer surgery) within the continuum of care. This is now tied to the 3-year surgery strategy at the provincial level.

As well, there is a new President of the BC Cancer Agency who has previously been supportive of synoptic surgery reporting.

Key informants indicated that Saskatchewan is piloting Breast cancer standards and templates in one city, led by the Ministry of Health and e-Health Saskatchewan

Key informants indicated that Manitoba is now at the point where the data being collected is now aligned with 70 quality indicators and will start producing reports on the quality of surgical oncology within the next few months.

A key informant from the Ministry of Health and Long Term Care suggested that the Ministry would support the concept of rolling out further the current surgical synoptic reporting, standards and templates that fit with the needs of Ontario.

The same informant from the Ontario government suggested that the province could consider an incremental implementation, starting with small cancer centres and then gradually rolling it out to all hospitals. The roll-out could be tied to the funding metrics in the Quality Based procedural funding model in use within Ontario.

Newfoundland and Labrador are currently supporting the implementation of surgical synoptic reporting at one teaching hospital in St. Johns and there are plans to roll it out

to a second hospital in the near future. They are starting with breast cancer but will roll it out for prostate and colon cancer in the near future.

4.1.4   What are some of the current gaps in surgical oncology care?

In BC there are five regional health authorities plus a sixth provincial health authority that are responsible for provincial programs and specialized programs. Surgical oncology is largely delivered by surgeons outside the cancer agency and is funded through the regional health authorities. There is no provincial level funding for SSR. This leaves the individual health authorities to fund the implementation of synoptic surgery reporting. There are also significant IT issues with each of BC's health regions having different IT platform.

Key informants in Alberta reported that, up until recently surgeons were able to receive feedback reports but an IT change has suspended this option. It was noted that surgeons were very interested in using this data to review and improve clinical practices. It was also reported that there has not been much use of the data (while it was available) on the part of health care administrators.

In Saskatchewan key informants noted that there is no formal oversight of cancer surgery and there are no current standards in place (other than the pilot Breast cancer project).

In Manitoba, key informants noted that the system is fragmented. There is a need for better coordination and standardization between all the organizations involved with cancer care. Data is being used for some research and analysis but little evidence it is being used by administrators.

Cancer Care Ontario interviewees stated that there are overall gaps around the lack of specific high quality information and data in support of surgery (pre, during and post) to assist in the development of management plans for patients given a large number of cancer surgeries are still using narrative dictated cancer surgery reports.

4.2   What is the current state of clinical adoption and SSR implementation?

4.2.1   Provincial Breakdown

The assessment of the current state is based on the opinions expressed by the key informants. The provincial breakdowns are based on an amalgamation of the opinions of the various representatives from each group (e.g. Ministries, Cancer Care organizations etc.) within each province.

British Columbia

Synoptic surgical reporting in electronic format has not been implemented in BC, although a few surgeons are using the synoptic format to capture narrative notes. Surgeons and e-health leaders have made several attempts to show the value of implementing synoptic surgery reporting standards to decision makers. Key informants stated that there have been a few attempts at implementing synoptic surgical reporting but they have not been very successful. In BC, the decision-making structure for funding initiatives is complex. The BC Cancer Agency for example sets the strategic direction but is not responsible for funding related to cancer surgery. The authority to fund initiatives for cancer surgery currently rests with six regional health authorities.

Alberta

Alberta has implemented synoptic surgical reporting since the early 2000s. Interviewees estimated that about 60 templates have been developed. They also estimate that about 90% of breast cancer surgeries and 60% of colorectal surgeries use synoptic reporting; and that about 80 to 90 cancer surgeons in the province make use of synoptic reporting.

Since December 2014, Alberta has increased the number of sites generating SSRs from 5 hospitals to 18 hospitals and clinics.

However, general surgeons also do cancer surgery and they are generally not using synoptic reporting. As noted later in the report, one of the barriers to widespread adoption of SSR among general surgeons is that they would prefer not to use mixed methods for reporting, i.e., SSR for cancer surgery and narrative reporting for all of the other surgeries they perform.

Saskatchewan

Saskatchewan has implemented the breast cancer templates as a pilot project in October 2016 at the Saskatoon Regional Hospital.

Manitoba

Manitoba has a synoptic surgical reporting system which is housed in Manitoba e-health. It is functional for 6 disease sites (breast, colon, rectal, ovary, thyroid/endocrine and paratid/parathyroid). They will also be introducing the lung templates in 2017.

The system is being used by between 10 and 20 surgeons out of 140 surgeons in Manitoba. Interviewees noted that general surgeons also perform many cancer surgeries.

Ontario

As part of the initial ESSQUI program, Ontario has implemented on a very limited scale six templates in two hospitals and the discharge summary in a third hospital, all within the University Health Network in Toronto.

Within UHN in fiscal year 2015/2016, 100% of all breast and prostate cancer surgeries and 70% of all ovarian and endometrial cancer surgeries used Synoptic Surgery Reporting.

Key informant interviews also noted the implementation of surgical synoptic reporting manual checklists at McMaster Health Science in Hamilton (lung template) and electronic synoptic reporting at the Ottawa Hospital (lung template), however the Ottawa Hospital synoptic reports are not integrated electronically with the respective Hospital Information Systems (HIS).

 It was noted that in Ontario there are 14 regional cancer centres and 151 acute hospitals of which 70-80 also do cancer surgeries. However, cancer surgery is not integrated as part of the provincial cancer strategy set out by Cancer Care Ontario (CCO). Cancer surgeries are organized by LHINS and funded by the Ontario MOHLTC and not CCO.

Quebec

Interviewees noted that there has been no implementation of surgical synoptic reporting implemented in Quebec province wide. At the provincial level there are very separate English and French systems and trying to get the two to work together is a challenge. It was noted that there are pockets where limited implementation of synoptic reporting has occurred (e.g. Jewish General Hospital).

New Brunswick

According to interviewees, there has been no implementation of electronic surgical synoptic reporting.

Nova Scotia

Nova Scotia have implemented electronic surgical synoptic reporting in 9 hospitals and have generated 576 synoptic surgery reports between January 2016 and October 2016. A further 670 SSRs were generated between January 2015 and December 2015.

Prince Edward Island

There has been no implementation of electronic surgical synoptic reporting in PEI.

Newfoundland and Labrador

The breast cancer templates and standards have been rolled out in one teaching hospital in St. Johns and there are plans to roll that out more broadly to a second teaching hospital in the near future. They are starting with breast cancer (7 templates) but there are plans to roll it out for prostate and colon cancer as well in the near future.

4.2.2   Survey Results

The results of the online survey of 140 health care professionals confirmed the major findings from the key informant interviews reported above. A goal of the online survey was to gather feedback from the broad community of surgeons who are an important user group for SSR. Of the sample of 140 respondents, a vast majority were surgeons, including cancer surgeons and general surgeons. The survey found that the sample had a fairly high knowledge of SSR, as 88 (63%) had personal experience with synoptic surgery reporting (SSR) at some point in the past. However, only about one-quarter of respondents were currently using SSR. About one-third had used SSR in the past but no longer do so.

The vast majority of those who are currently using SSR are located in four provinces: Alberta, Ontario, Manitoba and Nova Scotia. This corresponds with the fact that these provinces have implemented the pan-Canadian disease site templates, and several hospitals in these provinces are known to have implemented an SSR system.

When current non-users of SSR (98 of the 140 respondents) were asked why they are not currently using this technology, the most common response (70% of non-users) was that they did not have access to an SSR system. About one in five stated that they preferred traditional narrative reporting. Several also stated that they had experienced issues in using an SSR system in the past. This helps to explain why one-third of the sample had used SSR in the past but no longer do so.

4.2.3   Number of cancer disease sites for which data is electronically collected and stored in a repository

As of March 2016, updated pan-Canadian standards were available for eight cancer sites: breast, colon, rectal, prostate, ovary, endometrial, lung and thyroid. Standards are in use in Alberta, Manitoba, Ontario, and Nova Scotia. Saskatchewan and Newfoundland and Labrador have begun implementation of breast standards. Manitoba and Nova Scotia are upgrading to incorporate the new standards.[7]

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[7] The Partnership's report *A Coordinated Approach to Improve Consistency in Surgical Care Across Canada 2016*

Exhibit 4.1 - Numbers of indicators and data elements for the eight cancer sites

Cancer Site	Indicators	Total Number of Data Elements	# Mandatory Data Elements	# Optional Data Elements
Breast	16	171	152	19
Colon	4	140	83	57
Rectal	9	162	101	61
Thyroid	9	234	198	36
Lung	9	186	81	105
Prostate	7	161	113	48
Ovary	9	190	133	57
Endometrial	6	148	113	35

Exhibit 4.2 - Distribution of provinces implementing templates (October 2016)

Disease Site	AB	SK	MB	ON	NS	NL
Breast	🗑	🗑	🗑	🗑	🗑	🗑
Colon	🗑		🗑		🗑	
Rectal	🗑		🗑		🗑	
Ovarian	🗑		🗑	🗑	🗑	
Endometrial	🗑			🗑		
Thyroid	🗑		🗑		🗑	
Lung	🗑		Jan. 2017	🗑	🗑	
Prostate	🗑			🗑	🗑	
Paratid and Parathyroid			🗑			
Melanoma	🗑					
Discharge Summary	🗑			🗑	🗑	

4.2.4   Number of hospitals using data for outcomes reporting

As of February 2017, synoptic reporting systems have been implemented and are available at 18 sites in Alberta, 1 site in Saskatchewan, five sites in Manitoba, 4 sites in Ontario, 9 sites in Nova Scotia, and 1 site in Newfoundland/Labrador.

Exhibit 4.3 – Sites at which synoptic surgical reporting systems are available (October 2016)

Province	# of sites	Synoptic Reporting System	Sites
Alberta	18	Synoptec™	- Alberta Children's Hospital - Cross Cancer Institute - Foothills Medical Centre - Grey Nuns Community Hospital - John P. Arlette Dermatological Surgery and Aesthetic - Medicine Hat Regional Hospital - Misericordia Community Hospital - Peter Lougheed Centre - Queen Elizabeth II Hospital - Red Deer General Hospital - Rockyview General Hospital - Royal Alexandra Hospital - South Health Campus - St. Mary's Hospital - Sturgeon Community Hospital - Tom Baker Cancer Centre - Total Skincare Centre - University of Alberta Hospital
Saskatchewan	1		Saskatoon City hospital
Manitoba	5	GE Centricity	- Health Sciences Centre, Winnipeg - St. Boniface Hospital, Winnipeg - Seven Oaks Hospital, Winnipeg - Grace Hospital, Winnipeg

			• Victoria General Hospital, Winnipeg

Ontario	5	eCancer	• University Health Network:
			  o Princess Margaret Cancer Centre (PMCC)
			  o Toronto General Hospital (TGH)
			• Toronto Western Hospital (TWH)

		TSQIC (manual checklist)	• McMaster Health Sciences-Hamilton
		(electronic capture-not linked to HIS)	• The Ottawa Hospital
Nova Scotia	9	OpNote	• Dartmouth General Hospital Halifax • VG Hospital, Halifax • QEII, Halifax • IWK Health Centre, Halifax St. Martha's • Cumberland Regional Health Centre, Amherst • Colchester East Hants Health Centre, Truro • St. Martha's Hospital, Antigonish • Valley Regional Hospital, Kentville • Yarmouth Regional Hospital, Yarmouth
Newfoundland/Labrador	1		Health Sciences Centre

4.2.5   Number of electronic synoptic surgical patient reports

In Alberta, 5573 reports were submitted between January 1, 2016 and October 31, 2016. Since 2006, over 45,000 reports have been generated with synoptic reporting.

In Manitoba, 471 reports were submitted between May 1, 2016 and October 31, 2016.

In Ontario, 1206 reports were submitted between April 1 2015 to March 31, 2016 within the university Health Network.

In Nova Scotia, 576 reports were submitted between January 1, 2016 and October 31, 2016.

The breakdown by disease site and province is shown in the following exhibit.

Exhibit 4.4 - Number of synoptic surgery reports generated by province and disease site

Disease Site	Alberta Jan. 1 – Oct. 31 2016	Manitoba May 1- Oct.31 2016	Ontario (UHN only) Apr. 1 2015 – Mar. 31 2016	Nova Scotia Jan. 1-Oct. 31 2016	Total (All provinces)
Breast	2277	212	560	327	3376
Colon	509	40		52	601
Rectal		56		40	96
Thyroid	549	59			608
Ovary	348	52	185		585
Endometrial	296		133		429
Lung	85			102	187
Prostate			328	11	339
Paratid and Parathyroid		52			52
Melanoma	219				219
Discharge Summary			Not available	44	44
Total	3734	471	1206	576	5987

4.2.6   Familiarity with the work that the Partnership is doing

All of the provincial representatives (Ministries, Cancer Care organizations) are aware of the work that the Partnership is doing on synoptic surgery reporting. Further work, however, is needed to expand the current awareness beyond provincial organizations and cancer agencies of the benefits of SSR to surgeons with respect to improvements in clinical outcomes and quality of care for their patients.

From the survey respondents (n=140), of those who had no experience with SSR, virtually all (97%) had heard of SSR and 60% of survey respondents were familiar with the Partnership's ESSQUI initiative.

4.3 What is the current state of ESSQUI e-solution tools and their alignment to standards for electronic health records?

4.3.1 Architecture, clinical classification system and interoperability

Implementation of synoptic surgery reporting software platforms has taken place over several stages. From January 2008 to March 2011, five provinces (Alberta, Manitoba, Ontario, Nova Scotia, and Quebec) piloted synoptic reporting software platforms under the Synoptic Reporting Tools Project (STRP). Four disease site templates were implemented: breast, colorectal, head and neck, and ovarian. The Surgical Synoptic Reporting Initiative (SSRI) began in September 2011 and developed pan-Canadian templates for breast, colorectal, head and neck, lung, ovarian, endometrial, prostate and surgical discharge summaries. SSRI projects were completed in Alberta, Manitoba, Ontario, and Nova Scotia.

Alberta's SynoptecTM platform allows interfaces with Alberta Netcare (provincial electronic health record system), the College of Physicians and Surgeons Alberta's listing of physicians, the Provincial Client Registry, and Lightning fax.

Manitoba's GE Centricity platform allows interfaces with Winnipeg Regional Health Authority's Hospital Information Systems (HIS).

Nova Scotia's OpNote platform uses HL7 interfaces to connect to institutions and the Nova Scotia Hospital Information System. Reports are also sent to designated family physicians and to Cancer Care Nova Scotia.

In Ontario, two different platforms are currently in use. The University Health Networks' eCancer platform was developed internally and is fully integrated with the Electronic Patient Record (EPR) within the UHN.

At the Ottawa Hospital the synoptic surgery reporting system (TSQIC) being used was developed internally.   The system does not link directly into the Hospital Information System (HIS) and requires duplicate entry (cut and paste) from the TSQIC system into the HIS.

McMaster Health Sciences-Hamilton is also using a manual checklist based on the data elements of TSQIC.

4.3.2 Alignment to standards for electronic health records

Exhibit 4.5 - Interfaces implemented to other systems in each province

Province	Interfaces

Alberta	• Alberta Netcare: Electronic Health Record (EHR) — a secure and confidential electronic system of Alberta patients' health information.
	     ○ Completed operative reports are sent to Alberta Netcare in real time
	     ○ Reports are available to healthcare providers
	 • College of Physicians and Surgeons Alberta (CPSA) has a link used to upload the current listing of physicians in Alberta to a dropdown list on SynoptecTM. The list is used to select the physicians the reports will be sent to.
	 • Client registry – the patient registration function requires the interface to the Provincial Client Registry (CR) system so that up-to-date patient information can be obtained through lookup
	 • Lightning fax – reports are distributed to physicians, health records, and other authorized stakeholders through fax

Manitoba	At the Winnipeg Health Science Center (HSC), there is an interface from the Admission, Discharge and Transfer (ADT) system, to CPM (slating) to CPA (the synoptic reporting system) and then to the RDAT system (transcription system) for distribution. At the other sites within the Winnipeg Regional Health Authority, the interface is from the ADT system, to Allscripts (Electronic Health Record System), to CPA and then to the RDAT system for distribution.
Nova Scotia	OpNote is hosted by the Health Information Technology Services, Nova Scotia (HITS-NS) and is connected to the Capital District Health Authority Hospital Information System, the IWK Health Centre Hospital Information System and the Nova Scotia Hospital Information System (NSHIS) through HL7 interfaces: • Admission, Discharge and Transfer (ADT) messages from McKesson Star (CDHA), MEDITECH Magic (IWK) and MEDITECH Client / Server (NSHIS) • Scheduling messages from MEDITECH Client / Server (NSHIS) When a surgeon completes an Operative Report, OpNote will send the report to the appropriate Hospital Information System via an HL7 interface: • Machine readable Portable Document Format (PDF) for McKesson Horizon Patient Folder (CDHA) • MEDITECH formatted text document for MEDITECH Magic (IWK) and MEDITECH Client / Server

	Additionally, a fax copy of the report is sent to the family physician, specialists or other healthcare providers identified by the surgeon.
	Cancer Care Nova Scotia (CCNS) receives a copy of each report through an HL7 interface to the OncoLog Cancer Registry.
	Surgeons can access OpNote from within the NS Health network. Access to the system is controlled through NS Health Active Directory membership.
Ontario	eCancer is launched directly from and is fully integrated with the Electronic Patient Record (EPR) within the University Health Network.
	In McMaster Health Science-Hamilton and at the Ottawa Hospital, TSQIC is a checklist of items for synoptic reporting, however the system is not integrated with the Hospital Information Systems (HIS) and data input is performed manually.

4.4 What is the current ability of the information systems to provide feedback reports for surgeons and enable performance measurement?

4.4.1 What data are being used in your province or hospital to measure quality of surgical care?

There was general agreement from the interviews that there are many small pockets of data being collected by various groups (e.g. Cancer Care Agencies, Provincial Ministries, Health administrative data sets, clinical information within hospitals etc.).

The difficulty identified by key informants is that the majority of organizations involved in Cancer Care within provinces work in silos with little cross action between the various groups.

It was noted that where electronic synoptic reporting had been implemented within the pilot projects, surgeons were receiving some information in feedback reports.

In Manitoba, key informants indicated that Manitoba is now at the point where the data being collected is now aligned with 70 quality indicators and will start producing reports on the quality of surgical oncology within the next few months.

26% (N=36) of the survey respondents are using SSR: entering operative data and are accessing a system for various purposes: research, accessing patient information and generating reports on cancer system performance, etc.

The majority of interviewees expressed a view that the scale and depth of adoption and clinical availability of the data currently collected was extremely limited and could not lend itself to meaningful analysis for use by hospital administrators and health system planners.

4.4.2 What data are being collected by whom and what is being reported?

There is limited standardized data collection currently in place across the provinces. As noted previously, other than the organizations participating in the pilot projects, there is limited use of electronic synoptic reporting.

From the interviews it was noted that currently the systems that do exist have been designed for data capture and not very well designed for reporting out. For those that have implemented SSR, the data exists but requires high IT technical skills and data mining expertise.

The situation in the provinces that participated in the pilot projects is summarized below.

- Alberta used to have the IT capacity to provide the data to surgeons but a recent change in the IT system resulted in this no longer being possible. The province is working on resolving this since there was, according to some interviewees, a demand from surgeons who had previously been receiving feedback reports. There is limited evidence that administrators were using this data.

- In Manitoba, some data is being shared with surgeons but not on any consistent basis. Data collection is very "fragmented". There is a need for better coordination and standardization to make data sharing possible.

- In Ontario, the University Health Network has implemented electronic synoptic surgery reporting and are providing data and feedback to surgeons.

- In Nova Scotia, where breast and colorectal data collection has been implemented, the data is fed back to surgeons and clinicians. There is nominal if any data sent to hospitals and health planners

4.4.3 How are surgeons, hospital administrators and health system planners using these data reports for decision-making?

Key informants noted that currently the depth and reach of electronic reporting has not achieved the critical mass required to support the use of the data in a consistent fashion. Without greater implementation and adoption, it is not possible to extract the lessons learned from analysis of the data to draw meaningful conclusions.

Some initiatives have taken place to demonstrate the potential use of data reports for decision-making:

- A September 2015 CPAC report provided outputs for 12 clinical indicators based on ESSQUI data which was collected over six months in 2013. This was an exercise used to illustrate how ESSQUI data could be employed beyond "clinical practice". Alberta, Manitoba, Ontario, and Nova Scotia provided data towards these indicators (e.g. "Breast Indicator: Percent operative breast cancer patients diagnosed via preoperative core biopsy").

- The Performance Measurement Working Group Case Study in Ovarian Cancer compared outcomes from neoadjuvant chemotherapy, limited cytoreduction, and aggressive surgical cytoreduction. The analysis concluded that primary cytoreductive surgery has a "survival advantage" over neoadjuvant chemotherapy, and that aggressive surgery has an advantage over limited surgery.

- The Performance Measurement Working Group Case Study in Lung Cancer compared outcomes from different procedures, which provided a collaborative means of quality improvement and ultimately lead to a reduction in targeted outcomes.

- The Alberta Rectal Cancer initiative has concluded a 3 yearlong study (2010-2013) looking at synoptic surgery reports where discipline specific goals and quality measures were identified and personalized clinician feedback on quality measures (individual and aggregate) were generated. This has led to the Implementation of a provincial care pathway for rectal cancer and has improved:
    - Preoperative staging;
    - Pathologic reporting; and
    - Surgical outcomes.

    This initiative also demonstrated that this model is sustainable and adaptable for other tumour groups

4.5   What are the Gaps and Opportunities and potential value for clinicians, health system decision makers and other key stakeholders?

Although a relatively small group, current users who were survey respondents have a positive view towards Synoptic Surgical Reporting (SSR). The main benefits cited were increased efficiency (i.e., decreased turnaround times compared to narrative reporting), improved communications among members of the health care team, and decreased

costs in producing reports. The vast majority of users (89%) said they would recommend an SSR system to other health care providers.

Survey respondents cited that the main barriers to implementing SSR were a lack of funding in hospitals to implement SSR followed by a lack of knowledge of the benefits and costs of SSR among hospital management. Based on survey results, preference for narrative reporting was not viewed as a barrier to SSR.

From the key informant interviews, it was noted that many surgeons doing cancer surgery are general surgeons. It would help if SSR templates could be prepared for the major types of surgery. Surgeons realize this is beyond the mandate of the Partnership, but they will be frustrated by having a mix of synoptic and narrative reporting.

Several surgeons commented that it would be helpful if the synoptic report had an ability to add a narrative component via dictation.

It was noted by key informants that SSR systems require numerous improvements, e.g., some of the data fields are unnecessary, need easier data entry, permit data entry on mobile devices, improve reporting capabilities, provide web-based training.

Key informants also noted that provinces may have to mandate use of SSR in order to increase depth and scope of electronic synoptic surgery reporting in order to achieve the critical mass of adoption and use that makes the data meaningful and available for comparisons within and across provinces.

Looking at all surgeons in the survey sample, i.e., both SSR users and non-users, 77% stated they would be interested in receiving an individualized physician-level report that would provide information on quality indicators. 91% of surgeons said they would be comfortable if aggregate hospital-level reports were shared with a funding agency.

4.5.1 Which provinces are aware about the pan-Canadian synoptic surgery reporting standards and are considering the option to fund and establish an infrastructure so that surgeons can have access to a tool to capture synoptic surgery reporting?

From the interviews undertaken, it is apparent that the majority, if not all, provinces are aware of Electronic Synoptic Surgical Reporting.

All interviews noted that provincial funding is highly dependent on the priorities within each province, usually driven by public scrutiny and requirements (e.g., priority accorded to wait times compared to a quality improvement initiative).

4.5.2 What are existing barriers to getting participation from surgical oncologists and how can these barriers be overcome?

From the literature and key informants, a number of barriers to getting participation were identified.

- Most surgeons are very reluctant to change and are either unaware of the benefits of synoptic reporting or do not believe their current practice and processes would be improved by adopting synoptic reporting. These opinions are further entrenched because some previous attempts to implement synoptic reporting have not been seen as successful and so surgeons have become resistant to additional attempts (difficult to get them interested again after previous failures).
- The reporting burden on surgeons is already quite high and growing and so anything that adds to or is perceived to add to this is met with resistance unless it clearly has value. Further, in the case of general surgeons, many also do cancer surgery and so using synoptic reporting for some surgeries and not others is seen as inconvenient by these surgeons. It was suggested that extending synoptic reporting to surgeries beyond the cancer domain would address this issue.
- There are major technical issues from the IT perspective and the lack of funding to support the training of surgeons in the use of the technology. To date, generally it has been 1 on 1 training provided by the vendors of the platforms and this is not scalable across the entire surgical community.

In contrast, the survey of 140 health care professionals conducted for this study suggests that familiarity with synoptic surgery reporting and its benefits among those performing cancer surgery does not appear to be a barrier. The major barrier to use was reported to be access to a synoptic surgery reporting system. It should be noted that the survey sample included a large percentage of health care professionals who had personal experience with synoptic surgery reporting, even if they were not now using such system. For example:

- The survey of 140 health care professionals found that 88 (63%) had personal experience with synoptic surgery reporting at some point in the past. However, only 36 (26%) of respondents were currently using synoptic surgery reporting.
- Of those who had no experience using synoptic surgery reporting, virtually all (97%) had heard of synoptic surgery reporting.
- Although a relatively small group, current users who were survey respondents have a positive view towards Synoptic Surgical Reporting (SSR). The main benefits cited were increased efficiency (i.e., decreased turnaround times compared to narrative reporting), improved communications among members of the health care team, and decreased costs in producing reports. The vast majority of users (89%) said they would recommend an SSR system to other

health care providers. Only 20% of respondents indicated they preferred traditional narrative reporting.

- Survey respondents reported that their main reason for not using synoptic surgery reporting was lack of access to a synoptic surgery reporting system. Users were mainly based in the four provinces - Alberta, Ontario, Manitoba and Nova Scotia - that have implemented systems.

The survey findings suggest that once a health care professional has had exposure to synoptic surgery reporting, they form an opinion about it, and do not need to be convinced of its value/benefits. They are also not reluctant to obtain feedback or be part of aggregate reporting. For example, looking at all surgeons in the sample, i.e., both synoptic surgery users and non-users, 77% stated they would be interested in receiving an individualized physician-level report that would provide information on quality indicators. 91% of surgeons said they would be comfortable if aggregate hospital-level reports were shared with a funding agency.

Survey respondents noted that the main barriers to implementing synoptic surgery reporting were a lack of funding in hospitals followed by a lack of knowledge of the benefits and costs of synoptic surgery reporting among hospital management.

4.5.3 What is the cost-benefit analysis of implementing the pan- Canadian standards?

To date, there have been no long term demonstrable studies on the overall cost benefit of implementing SSR.

The theoretical benefits of surgical synoptic reporting, as described in the literature, and by key informants include comprehensiveness, efficiency, and the ability to inform quality of care and cancer system planning. For example, studies for specific implementations have shown:

- Synoptic reports capture more necessary content on average, on the order of 89-96%, versus 46-59% for dictated reports;
- Dictated reports require 1500 words on average, whereas synoptic reports involve 25 to 50 items;
- Synoptic reports have a turnaround time of 5-15 minutes, versus 5 days or more for traditional reports; and
- 97% of synoptic reports are transmitted to a patient's chart within 24 hours, versus a lapse of 30 to 90 days for traditional reports.

On the cost side, Nova Scotia was the only province able to provide cost estimates for the initiative. In Nova Scotia, the average cost per year of the program has been $255,644, with a total cost over eight years of $2,045,158.

For Nova Scotia, projected annual savings by replacing transcription with electronic synoptic reporting are $114,961.50. The 2014 SSR Benefits Evaluation provides further estimates of potential cost savings, estimating $663,173.35 in annual savings from replacing transcription with synoptic reporting in existing contracted centres in Alberta, Manitoba, Ontario, and Nova Scotia.

Exhibit 4.6 - Projected Annual Savings by Replacing Transcription with Synoptic Reporting for implemented templates in contracted centres (2014)[8]

Province	Cost per Case	Estimated Number of Cases in Contracted Centres	Total Annual Projected Savings
Alberta	$94.44	3479	$328,556.76
Manitoba	$82.03	2273	$186,454.19
Ontario	$23.20	1431	$33,200.90
Nova Scotia	$88.50	1299	$114,961.50

4.6 What are the key considerations for establishing a sustainable approach and solution for implementing ESSQUI in priority jurisdictions across Canada?

Key informants pointed to a number of key considerations. Some reflect the reality of the context and landscape within which ESSQUI would be implemented:

- In many provinces cancer surgery is not integrated in the overall continuum of cancer care with the provincial cancer agencies. Surgery (including cancer) sometimes rests within the Ministries of Health or the regional health authorities within a province.
- Commitment, funding and resources need to come from the provinces.
- Need to have flexible implementation tailored to provincial requirements (e.g. IT systems, available funding, etc.)
- Need to include and engage the broader surgical community (e.g. general surgeons) who also perform cancer surgery.

Others provided suggestions for the implementation approach:

- A more formal governance approach is required in the development, maintenance and updating of standards and templates. Interviewees expressed

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[8] Synoptic Surgery Reporting Initiative Benefits Evaluation, Intelligent Improvement Consultants, Dec. 2nd 2014

an interest in seeing the respective national representative associations take on this function for their respective cancer fields.

- Roughly half the interviewees expressed an opinion that the implementation and adoption of SSR would be facilitated by making its use mandatory. One jurisdictional key informant suggested that surgeons are generally averse to changes in clinical practices and procedures. The reluctance to change could be offset by tying the use of synoptic reporting as a metric in the funding allocation formula for clinicians.
- Endorsements by chiefs of surgery, and surgeons acting as leaders/co-leaders is critical to gaining acceptance by the broader cancer surgery community.
- Increased awareness and information on the benefits of surgical synoptic reporting among the surgical and clinician communities in terms of improving patient outcomes is required to support implementation and use amongst cancer surgeons and general surgeons who also perform some cancer surgeries.

4.6.1 What is the cost by province to implement the pan-Canadian standards incrementally vs. on a large scale?

As was stated in section 4.5.3, in Nova Scotia, the average cost per year of the program has been $255,644.75, with a total cost over eight years of $2,045,158. This was for a limited number of templates and a limited number of sites (4).

4.6.2 Which national or provincial organizations are provinces willing to work with to arrange data collection that can facilitate reports to clinicians, hospitals and health system decision-makers?

The Canadian Institute for Health Information (CIHI) was identified as a national organization with the potential to be a collaborator on ESSQUI. CIHI is the only agency mandated to hold personal health data and is the custodian of national data sets for use by others. More specifically, key informants suggested that:

- CIHI could provide advice to the Steering committees on the structure and the format of data requirements in line with the broader health data bases that CIHI maintains.
- Cancer care organizations and hospitals could feed data to CIHI as pan Canadian data.
- CIHI could then do comparative reporting at the pan Canadian level and provide analytical feedback to the provinces, cancer care organizations and the surgeons, perhaps generating analytical reports every couple of years.

4.7 What are the key considerations for integrating ESSQUI standards with electronic health records infrastructure?

4.7.1 What are the technical and implementation requirements for systematic structured operative surgical care data capture and performance measurement reporting?

Key informants identified several key success factors related to systematic structured operative surgical care data capture and performance measurement reporting:

- Data standards and the front end design need to be driven by user requirements (i.e. surgeons) and focus on discrete data which is useful to individual improvements in surgical practices and procedures.
- There also is a need to have extreme flexibility in product design to accommodate the variety of diverse EHR systems and legacy systems currently in operation across the provinces.
- There must be strong engagement from the IT implementation and support group within the provincial ministries and agencies.

4.8 What should be the Partnership's role in the context of system wide adoption?

CPAC as the national organization looking at national cancer strategies has a role to play in communicating the benefits of synoptic reporting to provinces, surgical communities, Cancer Care organizations and other stakeholders. In particular, CPAC has a continuing role to play in increasing awareness and knowledge, working with health leaders and surgeons.

More specifically, the Partnership, with its networks of partners at the system level, has a role to play in terms of continuing knowledge transfer activities with the provincial organizations (cancer surgeons, general surgeons, Ministries of Health, Medical Associations etc.) in order to increase awareness of the benefits of electronic surgical synoptic reporting.

5.0　　　Discussion

Strengths

As a result of ESSQUI, there has been a substantial increase in the awareness of the benefits of SSR within provinces for cancer surgery outcomes analysis, leading to quality improvements in cancer surgery practices, improved patient outcomes and reducing the overall health care costs associated with cancer surgery.

Pan-Canadian standards have been developed and are available for eight cancer sites. These standards are the key underpinning for implementation of SSR across Canada.

They have been endorsed by the eight medical societies and are in use in six provinces - Alberta, Saskatchewan, Manitoba, Ontario, Nova Scotia and Newfoundland and Labrador, where synoptic reporting systems have now been implemented.

Small scale implementations in participating provinces have shown that, compared to narrative reports, synoptic surgery reports are:

- Completed in 15 minutes versus 5 days;
- Are brief, yet comprehensive (capturing all necessary surgical data); and
- Directing patient care in real time (97% of SSR transmitted to patient charts within 24 hours vs. 30-90 days) [9].

A recent evaluation[10] of variation in clinical processes of surgery for breast cancer, colon, rectal and thyroid clearly identified the use of SSR in support of improvements in clinical practices.

Significant progress has been achieved in the four provinces initially involved in ESSQUI.

- In Alberta, the number of sites using synoptic reporting has increased from 5 facilities to 18 facilities since 2014;
- 10-20 surgeons in Manitoba are using synoptic reporting and synoptic surgery reporting is now at a point where the data being collected is now aligned with 70 quality indicators; and
- Nova Scotia has increased the number of sites using synoptic reporting from 4 to 8 facilities since 2014.

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[9] Electronic Synoptic Surgery Quality Initiative: Opportunity to Scale Up, Meeting with the Council of Deputy Ministers, Deputy Minister Bob Bell, February 2, 2017
[10] Variations in Oncologic Surgery in Canada: Project report, Iresha Ratnayake, Charlene Muzyka, Richard Nasson, December 2016

- In Ontario's University Health Network, 100% of breast and prostate cancer surgeries and 70% of ovary and endometrial cancer surgeries are reported synoptically. As well, the Ottawa Hospital has developed a synoptic surgery reporting system (TSQIC) for the lung template and standards where data is captured electronically, however it does not interface directly with existing hospital information systems. McMaster Health Sciences Hamilton is using the data elements from the TSQIC in the form of a manual checklist for surgical reporting.

Other provinces not involved in the original provinces participating in ESSQUI have also come on board.

- Saskatchewan is currently piloting the breast cancer templates and standards at the Saskatoon Hospital; and
- Newfoundland and Labrador are implementing the breast cancer templates and standards at a teaching hospital in St. Johns, with plans to add a second hospital. As well, they plan to roll out prostrate and colon templates and standards in the near future.

Furthermore, the number of Synoptic Surgery Reports generated has increased through the expansion in the number of facilities and the more consistent use of SSRs in cancer surgery in participating provinces. The following table identifies the annual number of reports generated in 2013/14 compared to 2015/16:

Exhibit 5.1– Number of Annual reports generated

Disease Site	Total (Canada) 2013/2014	Total (Canada) 2015/2016
Breast	1702	3376
Colon	168	601
Rectal	123	96
Thyroid	392	608
Ovary	185	585
Endometrial	149	429
Lung	104	187
Prostate	118	339
Total	2,941	6,221

Opportunities for scaling up

In all provinces, priorities for surgical oncology care or cancer care in general include the following: access to care including improved wait times; improving quality, safety and outcomes of care; practice and treatment standards; and practice improvement.

Given the extent to which many provinces have placed priority upon outcomes analysis and reporting, in support of improved patient outcomes and quality improvement, and other priorities such as practice improvement, there appears to be a significant level of interest in many provinces to measure surgical clinical care processes and patient outcomes related to cancer.

Building on the progress achieved in implementing SSR, a key opportunity is to increase the number of provinces using the pan-Canadian standards and templates to support a national analysis of quality metrics to measure cancer system performance and variation from the standards. As well, there is a need expand the reach and number of facilities and surgeons using SSR within provinces to allow for regional and local analysis within provinces.

This requires further awareness of the benefits of SSR amongst cancer surgeons to create a ground swell of demand for access to SSR systems at point of care. As noted in the survey results, the prime reason for surgeons not using SSR is access to a system and the lack of awareness amongst hospital administrators of the benefits of SSR.

There is also an opportunity to further the objectives of ESSQUI by forming strategic alliances with medical societies and e-health organizations (e.g. CIHI) to promote and demonstrate the benefits of SSR and how SSR fits with the broader policy agenda of provinces.

At the recent CPAC Council of Deputy Ministers meeting (February 2, 2017), 2 of the 250 surgeons using SSR and e-health leaders provided a presentation on how SSR made a difference in patient care, clinical accountability and the impact of SSR on improving the overall health care system.

As a result of the presentation, 3 provinces (AB, MB and ON) have expressed an interest in expanding the current implementation of SSR and increasing the number of surgeons using SSR within their provinces. BC has expressed an interest in joining the other jurisdictions in implementing SSR.

Key priorities to address information needs of funders and decision-makers

In order for provincial ministries and health care administrators to establish funding for the implementation of Synoptic Surgery Reporting, further awareness and knowledge of the benefits to the overall health system is required.

Aspects that should be highlighted include the following:

- Cost avoidance-lower readmission costs post-surgery related to complications as the level of quality outcomes improves due to evidence based decision making. Current research identifies that major complication rates are 7%-15.4% of cancer surgeries and that the cost of re-admission due to post surgery complications is $10,000 per patient;
- Cost reductions-no transcription costs related to narrative reporting ($100-$200/narrative report);
- Quantified improvements in patient care and patient outcomes related to the implementation of SSR; and
- Improved data for use in research and in resource allocation by hospital administrators and Health ministries.

In order for provinces to fully benefit from synoptic surgery reporting, there needs to be a critical mass of surgeons using synoptic surgery reporting for cancer surgeries. A major limitation cited by provinces was the current low level of participation by surgeons. Without a critical mass of surgeons from across the province routinely using the SSR the indicators are neither representative nor meaningful. There should be consideration for making SSR reporting mandatory especially if the jurisdiction wants to use the data to report quality indicators.

There is also a technical requirement that a variety of systems (new and legacy) be linked and function seamlessly in terms of data entry and retrieval within the provincial structures. The associated implementation requirements are for a high level of support from the IT groups within provincial ministries and significant provincial-level financial investments from the provinces. Sufficient resourcing needs to be planned and considered including analysis of the data quality and suitability for linkages between systems.

In many provinces cancer surgery is not integrated in the overall continuum of cancer care with the provincial cancer agencies. Surgery (including cancer) sometimes rests within the Ministries of Health or the regional health authorities within a province. There is a need for a centralized coordinated approach to cancer surgical care within the cancer care continuum in provinces.

Roles of key parties to spread and scale

In order to support the implementation of SSR across Canada and increase the level of adoption within provinces, ongoing provincial funding is required for:

- IT infrastructure;

- Capacity Building;
- Quality metrics reporting in real time; and
- Overall program management.

For surgeons and clinicians, further awareness and knowledge of the benefits of SSR from the perspective of improving the quality of surgical interventions and outcomes is required to increase the level of adoption and use of SSR.

This is an area that the provincial cancer agencies can play an important role. Through their membership, networks and learning events, awareness and knowledge can be increased of the benefits of SSR. Use of demonstrated results, such as the Alberta Rectal Cancer Initiative and its findings can clearly demonstrate the clinical advantages in terms of improving patient outcomes.

There is a need for champions as clinical leaders to visibly support and advocate for SSR amongst their peers at the local level, within the province and within institutions within the province.

In order to have pan-Canadian comparisons of the standards and indicators, there is an implementation requirement to have a national repository of anonymized electronic synoptic surgery data. The Canadian Institute for Health Information (CIHI) was identified as a national organization with the potential to be a collaborator on ESSQUI.

A number of issues were identified resulting from changes of the templates at both the national (CPAC) and local (provincial) levels. There is a need to find the balance between the desirability of having information versus the costs of collecting and reporting it. This is emphasized when fields are optional. A recent project report[11] showed that there is low compliance to completing optional fields, making the data irrelevant but costs have been incurred throughout the collection and analysis process. Costs are also incurred when question or answer sets are moved to different locations in the templates.

Changes to the templates can also affect indicator reporting if the necessary information to generate an indicator changes from one template version to another (e.g. included/not included or mandatory/optional).

The need for and importance of national version control processes for CPAC SSR templates was identified. Lack of version control makes it difficult for comparing across jurisdictions, time and templates.

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[11] Informing Practice Through Enhanced Feedback and Data Linkages: Project Report, February 6, 2017

Beyond endorsing the current pan-Canadian standards and templates, the eight medical societies could play a role in ensuring the standards and templates remain current and relevant by assuming the responsibility for the maintenance and revisions to the standards and templates as well as ensuring a rigorous process for version control. This should be supported by the mandatory use of the standards and templates being built into regular clinical practices for cancer surgery.

There is a continuing need for CPAC and clinical thought leaders to continue to support the existing networks and communities of practice and further the awareness of the benefits of synoptic reporting to provinces, cancer organizations and surgeons and clinicians. The focus for CPAC should move to outcomes reporting achieved through SSR data collection and showcase tangible results that have been achieved through the implementation of ESSQUI (economic, social and clinical benefits).

Opportunity cost.

To date, there have been no long term demonstrable studies on the overall cost benefit of implementing synoptic surgery reporting and supporting pan-Canadian standards.

The theoretical benefits of synoptic surgery reporting, as described in the literature review identifies that research has consistently demonstrated that synoptic reports greatly improve the quality of pathology and surgical reporting. Synoptic surgery reporting result in health system efficiencies and provide an effective mechanism to generate real-time data. They have been widely endorsed as a means of standardizing cancer reporting, and improving the availability and quality of clinical information for persons diagnosed with cancer.[12]

Surgeons who were survey respondents and key informants reported similar benefits. It can be expected that these benefits may be more effectively and efficiently attained in an environment with pan-Canadian standards.

In the longer term, the opportunity costs of not implementing SSR can be looked at from the perspective of patient outcomes. The literature review clearly demonstrates that outcomes analysis, supported by SSR, leads to improvements in clinical care pathways, which in turn reduces the associated surgical complications. Not implementing SSR would mean that patient outcomes would not improve. From a health care system perspective, additional costs may be incurred as provinces continue to provide funding for new systemic therapies with minor incremental gains in patient outcomes.

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[12] Multi-level factors influence the implementation and use of complex innovations in cancer care: a multiple case study of synoptic reporting, Urquhart et als. 2014, http://www.implementationscience.com/content/9/1/121

Without synoptic reporting, there is a lack of meaningful data to resolve quality gaps within and between provinces and be unable to provide meaningful surgical data to surgeons and key decision makers.

6.0   Conclusion and Recommendations

Over the past 10 years, surgeons, e-health leaders and project teams have made remarkable accomplishments in transitioning 250 surgeons from narrative to electronic operative reporting for breast, colon, rectal, endometrial, ovarian, thyroid and prostate cancer cases. In Alberta, roughly 90% of breast cancer surgeries and 60% of colorectal cancer surgeries are now reported electronically to direct downstream patient care in real time. In Manitoba, all surgeons using synoptic reporting will be receiving feedback reports on 70 quality of care indicators to reflect and inform their clinical practice. In addition, in areas where there is large number of surgeons using synoptic surgery reporting, surgeons have been able to draw on the data to identify best practices to improve patient survival, as well areas of variation in practice. This data has not as yet been used to inform program initiatives at the regional or provincial level, although synoptic cancer surgery data would offer value from the perspective of reducing complications, readmissions, cancer recurrence, and variation in clinical practice.

Regional and provincial funding decision-makers as well as prospective oncology surgeons are not fully aware of the value and benefits of synoptic surgery reporting. They need to know more about how synoptic surgery reporting can improve patient care and outcomes, clinical processes, management and accountability, standards of care, and health system sustainability. This information will help prospective surgeons join ESSQUI and extend support for initiating or scaling up the implementation of the standards by decision-makers across all provinces.	**Recommendation #1:** Share and showcase the value of synoptic surgery reporting and benefits for patient care and clinical management with prospective surgeons, funding decision-makers and key stakeholders in the cancer system.
As noted from the evidence, surgical care is based on the preferences of individual surgeons and as a result, surgical practice can vary widely among surgeons. Research suggests that if this unwanted variation could be reduced, quality of care would rise dramatically and health care costs could be lowered significantly. Synoptic surgery data has been demonstrated to identify variations in clinical	**Recommendation #2:** Leverage synoptic surgical data and provide indicator measures for surgeons to direct: a) clinical practice, b) conversations with peers, and c) best practices.

practices, analyze patient outcomes in relation to clinical practices and identify best practices.

A number of issues were identified in the implementation of Pan Canadian templates at both the national (CPAC) and local (provincial) levels. Provinces have adapted and modified the standards and templates making national comparative analysis of the data collected very difficult.

The need for and importance of national version control processes for CPAC SSR templates was identified. Lack of version control also makes it difficult for comparing across jurisdictions, time and templates.

Recommendation #3:

Medical societies should consider expanding their role from endorsement of standards and templates to include the revisions, maintenance and version control for their respective cancer types (e.g. breast, colorectal, lung etc.)

This should be supported by the mandatory use of the standards and templates being built into regular clinical practices for cancer surgery.

In many provinces cancer surgery is not integrated in the overall continuum of cancer care with the provincial cancer agencies.

For this reason, services for cancer surgery is often not coordinated by cancer agencies—who set the provincial direction and priorities for cancer services.

There is a need for a centralized coordinated approach to cancer surgical care within the cancer care continuum in provinces.

Recommendation #4:

Provinces should consider improving the coordination/communication between organizations involved in the provision of cancer services and cancer surgery to ensure a coordinated approach to cancer care within provinces with the capacity for establishing systematic evaluation and the provision of sufficient resources to enact change.

The synoptic surgical reporting information infrastructure is a standalone system and in some provinces these systems don't have a built in capacity to expand user-base.

There is also a technical requirement that a variety of systems (new and legacy) be linked and function seamlessly in terms of data entry and retrieval within the provincial structures. The associated implementation requirements are for a high level of support from the IT groups within provincial ministries and significant provincial-level financial investments from the provinces. Sufficient resourcing needs to be planned and considered including analysis of the data quality and suitability for linkages between systems.

> **Recommendation #5:**
>
> Provincial funding is necessary to develop new systems, integrate existing systems and also establish a central database repository to easily produce provider level feedback reports as well as cancer system level performance measurement. Clinicians, e-health leaders, cancer agencies and regional bodies have an opportunity to collaborate on putting and presenting a business case to decision-makers.

Linking individual local/regional/provincial SSR data to other local/regional/provincial SSR data datasets contributes to a better understanding of the relationship of surgical activity to other key aspects of cancer management and ultimately to outcomes that are beyond the endpoint of the surgical event. These quality indicators and pan-Canadian comparisons are essential for monitoring clinical practices and identify changes in clinical practices that result in improved patient outcomes. They are also required to ensure the ability of national comparative analysis.

> **Recommendation #6:**
>
> Consider partnering with CIHI to leverage their expertise in establishing a pan-Canadian anonymized electronic synoptic surgery data repository. This will assist with inter-provincial, pan-Canadian comparisons of key indicators to measure access to oncology surgical care, complications, readmission, cancer recurrence, and other patient outcomes.

As previously stated, many organizations are involved in cancer care across Canada. There is a need for awareness of the existing state of SSR implementation and the factors to be considered in implementing or expanding the current use of SSR.

Recommendation #7:
Ensure all parties involved in Cancer Care in Canada have access to and use the contents of this report in furthering the implementation of SSR.

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Annex C: Readiness Assessment Matrix

Readiness assessment Issues, Questions and indicators	Methods / Data Sources								
	Document and Data Review	Literature Review	Stakeholder Survey	Key Informant Interviews					
				CPAC mgmt., Senior Science Leads, Expert Leads	Members of the Diagnosis and Clinical Care Group	Federal / Provincial governments/ RHAs/ LHINs	Cancer Agencies/ CIHI/ Canada Health Infoway	Medical Assn's, Societies and Funders	Vendors
1.0 Provincial needs and priorities related to surgical oncology care									
1.1. What are the key priorities of the province related to surgical oncology care?	✓	✓	✓			✓	✓		
1.2 How is the quality of surgical oncology care currently measured?	✓	✓	✓	✓	✓	✓	✓		
1.3 What is being considered by the province to improve the quality of surgical oncology care?			✓			✓	✓		
1.4 What are some of the current gaps in surgical oncology care?	✓	✓	✓	✓	✓	✓	✓		
2. The current state of clinical adoption and ESSQUI implementation									
2.1 number of cancer disease sites for which data is electronically collected and stored in a repository	✓	✓	✓	✓		✓	✓		
2.2 Number of hospitals using data for outcomes reporting	✓		✓	✓	✓	✓	✓		
2.3 Number of electronic synoptic surgical patient reports by hospital, region or province	✓		✓		✓	✓	✓		
2.4 Are you familiar with the work that CPAC is doing with surgeons to improve the standard of care for			✓			✓	✓		✓

Readiness assessment Issues, Questions and indicators	Methods / Data Sources								
	Document and Data Review	Literature Review	Stakeholder Survey	Key Informant Interviews					
				CPAC mgmt., Senior Science Leads, Expert Leads	Members of the Diagnosis and Clinical Care Group	Federal / Provincial governments/ RHAs/ LHINs	Cancer Agencies/ CIHI/ Canada Health Infoway	Medical Assn's, Societies and Funders	Vendors
patients with breast, colon, rectal, lung, prostate, thyroid, ovary and endometrial cancer?									
3.The current state of ESSQUI e-solution tools (i.e., architecture, clinical classification system, and interoperability) and their alignment to standards for electronic health records									
3.1 Architecture, clinical classification system and interoperability	✓	✓		✓	✓	✓	✓		✓
3.2 Alignment to standards for electronic health records	✓	✓		✓	✓	✓	✓		✓
4. The current ability of the information systems to provide feedback reports for surgeons and enable performance measurement									
4.1 What data are being used in your province or hospital to measure quality of surgical care?			✓			✓	✓		
4.2 What data are being collected by whom and what is being reported?			✓			✓	✓		
4.3 How are surgeons, hospital administrators and health system planners using these data reports for decision-making?			✓	✓	✓	✓	✓		
5. Gaps and Opportunities and potential value for clinicians, health system decision makers and other key stakeholders									
5.1 Which provinces are aware about the pan-Canadian synoptic surgery reporting standards and are considering the option to fund and establish an infrastructure so that						✓	✓		

Readiness assessment Issues, Questions and indicators	Methods / Data Sources								
	Document and Data Review	Literature Review	Stakeholder Survey	Key Informant Interviews					
				CPAC mgmt., Senior Science Leads, Expert Leads	Members of the Diagnosis and Clinical Care Group	Federal / Provincial governments/ RHAs/ LHINs	Cancer Agencies/ CIHI/ Canada Health Infoway	Medical Assn's, Societies and Funders	Vendors
surgeons can have access to a tool to capture synoptic surgery reporting?									
5.2 What are existing barriers to getting participation from surgical oncologists and how can these barriers be overcome?	✓	✓	✓	✓	✓	✓	✓	✓	
5.3 What is the cost-benefit analysis of implementing the pan-Canadian standards?	✓	✓		✓	✓	✓	✓		
6. Key considerations for establishing a sustainable approach and solution for implementing ESSQUI in priority jurisdictions across Canada									
6.1 What is the cost by province to implement the pan-Canadian standards incrementally vs. on a large scale?						✓	✓		
6.2 Which national or provincial organizations are provinces willing to work with to arrange data collection that can facilitate reports to clinicians, hospitals and health system decision-makers?						✓	✓		
6.3 Are there organizations that provinces are less interested in working with to implement system-wide standards?						✓	✓		

Readiness assessment Issues, Questions and indicators	Methods / Data Sources								
	Document and Data Review	Literature Review	Stakeholder Survey	Key Informant Interviews					
				CPAC mgmt., Senior Science Leads, Expert Leads	Members of the Diagnosis and Clinical Care Group	Federal / Provincial governments/ RHAs/ LHINs	Cancer Agencies/ CIHI/ Canada Health Infoway	Medical Assn's, Societies and Funders	Vendors
6.4 What should be the Partnership's role in the context of system-wide adoption?			✓	✓		✓	✓		
7. Key consideration for integrating ESSQUI standards with electronic health records infrastructure									
7.1 What are the technical and implementation requirements to enable systematic structured operative surgical care data capture and performance measurement reporting?	✓	✓				✓	✓		✓

Annex D: Key Informant Interview Guides

The following introduction was presented in each of the interview guides.

A. Introduction

Thank you for agreeing to be interviewed as part of the readiness assessment of the Electronic Surgical Synoptic Quality Initiative.

Synoptic reporting refers to a systematized method for structuring health-care reports and gives users the ability to incorporate evidence-based best practices and scientifically-validated data elements that influence outcomes through clinical decision making.

Synoptic reporting is particularly useful for cancer pathology and surgery reporting, since the information captured in discrete data fields facilitates outcomes analysis for diagnosis, system planning, quality improvement, system control and population-based research.

The purpose of the Electronic Surgical Synoptic Quality Initiative Readiness Assessment is to gather lessons from multiple jurisdictions as well as key players and stakeholders to examine, evaluate and synthesize information related to:

- The current state of clinical adoption and ESSQUI implementation (i.e., the number of cancer disease sites for which data is electronically collected, stored in a repository and used for outcomes reporting) across hospitals within a province and across Canada.
- The current state of ESSQUI e-solution tools (i.e., architecture, clinical classification system, and interoperability) and their alignment to standards for electronic health records.
- The current ability of the information systems to produce feedback reports for surgeons and enable performance measurement.
- Gaps and opportunities; and potential value for clinicians, health system decision makers and other key stakeholders.
- Key considerations for establishing a sustainable approach and solution for implementing ESSQUI in priority jurisdictions across Canada.
- Key considerations for integrating ESSQUI standards with electronic health records infrastructure.

The readiness assessment involves a number of data collection activities, including interviews with senior management and executives at the Partnership, Partnership Board members, Advisory Group members, Senior Scientific and Expert Leads, representatives from provincial governments, representatives from provincial/territorial cancer agencies, representatives from medical associations, and vendors.

Your views will be kept strictly confidential by BBMD (the readiness assessment team), and only aggregated results will be included in the report. Although we may use quotes in reporting they

will not be attributed. The names of those interviewed will not be included in the readiness assessment report.

Your interview is expected to last up to one hour. With your permission, the interview may be recorded.

Please review the following questions in advance of your interview. If you have no opinion on a particular question, feel free to skip it.

Partnership Representatives – Interview Guide

B. Interview Questions

Provincial needs and priorities related to surgical oncology care

1. In general terms, what is the status of the standards to measure the quality of surgical oncology care at the provincial level? Have there been any recent developments? (EQ1.2)

2. Are there provincial variations in the measurement of surgical oncology standards? What is the extent of this variation? Are there some provinces that are doing a particularly good job (i.e., best practices)? Please explain. (EQ1.2)
   a. Considering the variation in surgical oncology care standards, what role might electronic synoptic surgery reporting play in addressing this? (EQ1.3)

The current state of clinical adoption and ESSQUI implementation

3. To your knowledge, what is the current state of clinical adoption and ESSQUI implementation across Canada? (EQ2.1)

4. To your knowledge are surgeons, hospital administrators and health system planners provided with data related to quality of surgical care?
   a. If yes, are you able to comment on whether these groups (surgeons, hospital administrators, health system planners) are using these data? How are they using these data?
   b. If no, why are they not using the data? (EQ4.3)

Gaps and opportunities and potential value

5. What, if any, are the key barriers or challenges to getting participation in surgical synoptic reporting from cancer surgeons? What would be the key factor(s) to enable / promote participation in surgical synoptic reporting from cancer surgeons?
   a. How can these barriers be overcome? Are you able to point to any lessons learned or best practices? (EQ5.2)

6. Have there been any analysis of the benefits of implementing surgical synoptic reporting standards? Are there any resulting report/analysis that you are able to share? What are the results and implications of these analysis? (EQ5.3)

7. Do you have any further comments?

Members of the Diagnosis and Clinical Care Group – Interview Guide

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B. Interview Questions

Provincial needs and priorities related to surgical oncology care

1. In general terms, what is the status of the standards to measure the quality of surgical oncology care across Canada?

2. Are there provincial variations in the measurement of surgical oncology care standards? What is the extent of this variation?
    a. Are there some provinces that are doing a particularly good job? (i.e., best practices) Please explain. (EQ1.2)

3. Considering the variation in surgical oncology care standards, what role might electronic synoptic surgery reporting play in addressing this? (EQ1.3)

The current state of clinical adoption and ESSQUI implementation

4. To your knowledge, what is the current state of clinical adoption and ESSQUI implementation? (EQ2.1)

5. To your knowledge are surgeons, hospital administrators and health system planners provided with data related to quality of surgical care?
    a. If yes, are you able to comment on whether they are using these data? How are they using these data? How does this vary by province?
    b. If not, why do you believe they are not using the data? (EQ4.3)

The current state of ESSQUI e-solution tools

6. Are you able to describe the current state of ESSQUI e-solution tools (i.e., architecture, clinical classification system, and interoperability)? (EQ3.1)

7. To what extent do the ESSQUI e-solution tools align with provincial standards for electronic health records? (EQ3.2)

Gaps and opportunities and potential value

8. What, if any, are the key barriers to getting participation in surgical synoptic reporting from cancer surgeons?
    a. How can these barriers be overcome? Are you able to point to any lessons learned or best practices?
    b. What, if any, are the key enablers to getting participation in surgical synoptic reporting from cancer surgeons? (EQ5.2)

9. Have there been any analysis of the benefits of implementing surgical synoptic reporting standards? Are there any resulting report/analysis that you are able to share? What are the results and implications of these analysis? (EQ5.3)

10. Do you have any further comments?

Federal Partners – Interview Guide

B. Interview Questions

Interviewee background

1. Please briefly tell us about your involvement or interest with respect to electronic synoptic surgery reporting and the Electronic Surgical Synoptic Quality Initiative (ESSQUI).

2. Are you familiar with the work that the Canadian Partnership Against Cancer is undertaking with surgeons to improve the standard of care for patients with breast, colon, rectal, lung, prostate, thyroid, ovary and endometrial cancer? What is your assessment of the value add of these efforts (i.e., to patients, providers/clinicians, the healthcare system)? (EQ2.4)

Provincial needs and priorities related to surgical oncology care

3. Are there standards in place to measure the quality of surgical oncology care? If yes, are these standards the same throughout Canada? If yes, how is quality being measured? (EQ1.2)

The current state of clinical adoption and ESSQUI implementation

4. The focus of ESSQUI is on breast, lung, prostate, rectal, colon, ovarian, thyroid and endometrial cancers. For which cancer disease sites is data related to the quality of surgical oncology care currently being collected and stored in a repository in your province? Are there plans to roll this out further? (EQ2.1)

The current state of ESSQUI e-solution tools

5. To what extent do the ESSQUI e-solution tools align with standards for electronic health records? (EQ3.2)

6. What are the key technical requirements to enable systemic structured operative surgical oncology care data capture and performance measurement reporting? What are the key technical considerations in implementing such a system? (EQ7.1)
    a. What are the implementation requirements to enable systemic structured operative surgical care data capture and performance measurement reporting? What are the key considerations in implementing such a system?

Ability of the information systems to provide feedback reports for surgeons and enable performance measurement

7. To your knowledge are surgeons, hospital administrators and health system planners provided with data related to quality of surgical care?
    a. If yes, are you able to comment on whether these groups (surgeons, hospital administrators, health system planners) are using these data? How are they using these data?
    b. If no, why are they not using the data? (EQ4.3)

Gaps and Opportunities and potential value

8. To what extent is there awareness of the pan-Canadian surgery reporting standards on the part of provincial governments and other stakeholders? To your knowledge, is there a willingness to consider the option to fund and establish or expand an infrastructure so that surgeons have access to a synoptic surgery reporting tool? (EQ5.1)
    a. What are some of the key considerations on the part of provincial governments on whether to move ahead with implementing or expanding an infrastructure for surgical synoptic reporting? (EQ5.1)
9. Based on your experience with other initiatives involving physicians (e.g., orthopedic surgeons, cardiologists), what, if any, are the likely barriers to getting participation in surgical synoptic reporting from surgical oncologists?
    a. Again, based on your experience with other physician/surgeon groups, how can these barriers be overcome? Are you able to point to any lessons learned or best practices? (EQ5.2)

10. What are the requirements to implement a data base for synoptic surgery reporting?
    a. How does this fit with CIHI's goals and strategic priorities? (EQ5.3)

11. Have there been any assessments of the costs of implementing pan-Canadian surgical synoptic reporting standards? Have there been any assessments of the costs of incremental implementation versus large scale roll-out/implementation? Please explain. (EQ6.1)

Key considerations for establishing a sustainable approach and solution for implementing ESSQUI in priority jurisdictions across Canada

12. From your perspective, is there a role for the Partnership in the context of facilitating system-wide adoption? Please explain. (EQ6.3)

13. Do you have any further comments?

Provincial Governments, RHNs, LHINs – Interview Guide

B. Interview Questions

Interviewee background

1. Please briefly tell us about your role or interest with respect to electronic synoptic surgery reporting and the Electronic Surgical Synoptic Quality Initiative (ESSQUI).

2. Are you familiar with the work that the Canadian Partnership Against Cancer is undertaking with surgeons to improve the standard of care for patients with breast, colon, rectal, lung, prostate, thyroid, ovary and endometrial cancer? What is your assessment of the value add of these efforts (i.e., to patients, providers/clinicians, the healthcare system)? (EQ2.4)

Provincial needs and priorities related to surgical oncology care

3. Are you able to describe the key priorities of your province with respect to surgical oncology care? How have these evolved in recent years? What, if any changes, do you anticipate in the short term (i.e., next one or two years)? (EQ1.1)

4. Are there standards in place to measure the quality of surgical oncology care in your province?
   a. If yes, how/where were these standards drawn from (e.g., professional bodies/associations, cancer agencies, disease site groups, etc.)?
   b. If yes, are these standards the same throughout the province? How is quality being measured? (EQ1.2)

5. What, if any, gaps currently exist in surgical oncology care your province/RHA/LHIN? (EQ1.4)

6. Is your province/RHA/LHIN considering any improvement to the quality of surgical oncology care? If yes, can you describe the changes being considered? What is the timeline for implementing these changes? (EQ1.3)

The current state of clinical adoption and ESSQUI implementation

7. The focus of ESSQUI is on breast, lung, prostate, rectal, colon, ovarian, thyroid and endometrial cancers. For which cancer disease sites is data related to the quality of surgical oncology care currently being collected and stored in a repository in your province/RHA/LHIN? Are there plans to roll this out further? (EQ2.1)
   a. How many/what proportion of hospitals are currently using ESSQUI data for outcomes reporting?
      i. Are there plans to roll this out further?
      ii. Have some RHAs/LHINs been more successful at rolling out ESSQUI than others? Please explain. (EQ2.2)
   b. What proportion of surgical oncology reports are electronic?
      i. Are there plans to roll this out further?

      ii.   Have some RHAs/LHINs been more successful than others? Please explain. (EQ2.3)

The current state of ESSQUI e-solution tools

8. ***(Interviewees in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Nova Scotia, Newfoundland)*** Are you able to describe the current state of ESSQUI e-solution tools (i.e., architecture, clinical classification system, and interoperability) in your province? (EQ3.1)

    a.   What software is your province using/planning on using to capture synoptic data? (e.g., SynopticTM, GE Centricity, eCancer, OpNote.)

9. ***(Interviewees in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Nova Scotia, Newfoundland)*** To what extent do the ESSQUI e-solution tools align with provincial standards for electronic health records? (EQ3.2)

Ability of the information systems to provide feedback reports for surgeons and enable performance measurement

10. What data are being used in your province/RHA/LHIN to measure the quality of surgical oncology care? Is the data collected consistently? (EQ4.1)

11. Who is responsible for collecting this data? How is the data being reported? With what frequency? (EQ4.2)

12. To your knowledge are surgeons, hospital administrators and health system planners provided with data related to quality of surgical care? If yes, are you able to comment on how they are using these data? (EQ4.3)

Gaps and Opportunities and potential value

13. To what extent is there awareness of the pan-Canadian surgery reporting standards within your provincial government? To your knowledge, is there a willingness to consider the option to fund and establish or expand an infrastructure so that surgeons have access to a synoptic surgery reporting tool? (EQ5.1)

    a.   What are some of the key considerations on the part of your provincial government on whether to move ahead with implementing or expanding an infrastructure for surgical synoptic reporting? What are the timelines for making a decision/moving ahead? (EQ5.1)

14. What, if any, are the key barriers or challenges to getting participation in surgical synoptic reporting from cancer surgeons? How can these barriers be overcome?

a. What, if any, are the key enablers to getting participation in surgical synoptic reporting from cancer surgeons?
b. Are you able to point to any lessons learned or best practices? (EQ5.2)

15. Have there been any analysis of the benefits of implementing surgical synoptic reporting standards? Are there any resulting report/analysis that you are able to share? What are the results and implications of these analysis? (EQ5.3)

16. Has your province/RHA/LHIN assessed the costs of implementing the pan-Canadian surgical synoptic reporting standards? Please explain. (EQ6.1)
a. What are the benefits at the provincial level of incremental versus large scale roll-out?
b. What are the risks / challenges to incremental vs large scale?

Key considerations for establishing a sustainable approach and solution for implementing ESSQUI in priority jurisdictions across Canada

17. What are the key technical requirements to enable systemic structured operative surgical care data capture and performance measurement reporting? What are the key technical considerations in implementing such a system? (EQ7.1)
a. What are the implementation requirements to enable systemic structured operative surgical care data capture and performance measurement reporting? What are the key considerations in implementing such a system?

18. From your perspective, is there a role for the Partnership in the context of facilitating system-wide adoption in your province? Please explain. (EQ6.3)
a. What other agencies/organizations can play a role in facilitating system-wide adoption of the pan-Canadian standards in your province?

19. Do you have any further comments?

Cancer Agencies – Interview Guide

B. Interview Questions

Interviewee background

1. Please briefly tell us about your involvement with respect to electronic synoptic surgery reporting and the Electronic Surgical Synoptic Quality Initiative (ESSQUI).

2. Are you familiar with the work that the Canadian Partnership Against Cancer is undertaking with surgeons to improve the standard of care for patients with breast, colon, rectal, lung, prostate, thyroid, ovary and endometrial cancer?
   a. What is your assessment of the value add of these efforts (i.e., to patients, providers/clinicians, the healthcare system)? (EQ2.4)

Provincial needs and priorities related to surgical oncology care

3. Please describe the key priorities of your province and your cancer agency with respect to surgical oncology care?
   a. What are the drivers behind these priorities? How have these priorities evolved in recent years?
   b. What, if any changes, do you anticipate in the short term (i.e., next one or two years)? (EQ1.1)

4. Are there standards in place to measure the quality of surgical oncology care in your province?
   a. If yes, how/where were these standards drawn from (e.g., professional bodies/associations, cancer agencies, disease site groups, etc.)?
   b. If yes, are these standards the same throughout the province? How is quality being measured? (EQ1.2)

5. Is your province considering any improvement to the quality of surgical oncology care? If yes, can you describe the changes being considered? What is the timeline for implementing these changes? (EQ1.3)

6. What, if any, gaps currently exist in surgical oncology care your province? (EQ1.4)

The current state of clinical adoption and ESSQUI implementation

7. The focus of ESSQUI is on breast, lung, prostate, rectal, colon, ovarian, thyroid and endometrial cancers. For which cancer disease sites is data related to the quality of surgical oncology care currently being collected and stored in a repository in your province? Are there plans to roll this out further? (EQ2.1)

a. How many/what proportion of hospitals are currently using ESSQUI data for outcomes reporting?
   i. Are there plans to roll this out further?
   ii. Have some RHAs/LHINs been more successful at rolling out ESSQUI than others? Please explain. (EQ2.2)
b. What proportion of surgical oncology reports are electronic?
   i. Are there plans to roll this out further?
c. Have some RHAs/LHINs been more successful than others? Please explain. (EQ2.3)

8. To your knowledge are surgeons, hospital administrators and health system planners provided with data related to quality of surgical care?
   a. If yes, are you able to comment on whether these groups (surgeons, hospital administrators, health system planners) are using these data? How are they using these data?
   b. If no, why are they not using the data? (EQ4.3)

The current state of ESSQUI e-solution tools

9. *(Interviewees in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Nova Scotia, Newfoundland)* Are you able to describe the current state of ESSQUI e-solution tools (i.e., architecture, clinical classification system, and interoperability) in your province? (EQ3.1)
   a. What software is your province using/planning on using to capture synoptic data? (e.g., SynopticTM, GE Centricity, eCancer, OpNote.)

10. *(Interviewees in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Nova Scotia and Newfoundland)* To what extent do the ESSQUI e-solution tools align with provincial standards for electronic health records? (EQ3.2)

Ability of the information systems to provide feedback reports for surgeons and enable performance measurement

11. What data are being used in your province to measure the quality of surgical oncology care? Is the data collected consistently? (EQ4.1)
    a. Who is responsible for collecting this data? How is the data being reported? With what frequency? (EQ4.2)

Gaps and Opportunities and potential value

12. To what extent is there awareness of the pan-Canadian surgery reporting standards within your provincial government? To your knowledge, is there a willingness to consider the option to fund and establish or expand an infrastructure so that surgeons have access to a synoptic surgery reporting tool? (EQ5.1)

     a. What are some of the key considerations on the part of your provincial government on whether to move ahead with implementing or expanding an infrastructure for surgical synoptic reporting? What are the timelines for making a decision/moving ahead? (EQ5.1)

13. What, if any, are the key barriers to getting participation in surgical synoptic reporting from cancer surgeons?

     a. How can these barriers be overcome? Are you able to point to any lessons learned or best practices? (EQ5.2)

Key considerations for establishing a sustainable approach and solution for implementing ESSQUI in priority jurisdictions across Canada

14. Have there been any analysis of the benefits of implementing surgical synoptic reporting standards? Are there any resulting report/analysis that you are able to share? What are the results and implications of these analysis? (EQ5.3)

15. Have there been any assessments of the costs of implementing pan-Canadian surgical synoptic reporting standards? Have there been any assessments of the costs of incremental implementation versus large scale roll-out/implementation? Please explain. (EQ6.1)

16. Which national or provincial organizations are province most willing to work with to arrange data collection that can facilitate reports to clinicians, hospitals and health system decision-makers? (EQ6.2)

     a. Are there organizations that provinces are less interested in working with to implement system-wide standards? (EQ6.3)

17. From your perspective, is there a role for the Partnership in the context of facilitating system-wide adoption? Please explain. (EQ6.3)

     a. What other agencies/organizations could play a role in facilitating system-wide adoption of the pan-Canadian surgical synoptic reporting standards in your province.

Key consideration for integrating ESSQUI standards with electronic health records infrastructure

18. What are the key technical requirements to enable systemic structured operative surgical care data capture and performance measurement reporting? What are the key technical considerations in implementing such a system? (EQ7.1)

      a. What are the implementation requirements to enable systemic structured operative surgical care data capture and performance measurement reporting? What are the key considerations in implementing such a system?

19. Do you have any further comments?

Medical Associations, Societies and Funders – Interview Guide

B. Interview Questions

Interviewee background

1. Please briefly tell us about your association's role with respect to electronic synoptic surgery reporting and the Electronic Surgical Synoptic Quality Initiative (ESSQUI). What has been your involvement?

2. Are you familiar with the work that the Canadian Partnership Against Cancer is undertaking with surgeons to improve the standard of care for patients with breast, colon, rectal, lung, prostate, thyroid, ovary and endometrial cancer? What is your assessment of the value add of these efforts (i.e., to patients, providers/clinicians, the healthcare system)? (EQ2.4)

Gaps and opportunities and potential value

3. To what extent is there awareness of the pan-Canadian surgery reporting standards within your organization? To your knowledge, is there a willingness to consider the option to fund and establish or expand an infrastructure so that surgeons have access to a synoptic surgery reporting tool? (EQ5.1)
   a. What are some of the key considerations on the part of your organization on whether to move ahead with implementing or expanding an infrastructure for surgical synoptic reporting? What are the timelines for making a decision/moving ahead? (EQ5.1)

4. Are there provincial variations in the measurement of surgical oncology care standards? What is the extent of this variation?
   a. Are there some provinces that are doing a particularly good job? (i.e., best practices) Please explain. (EQ1.2)

5. Considering the variation in surgical oncology care standards, what role might electronic synoptic surgery reporting play in addressing this? (EQ1.3)

Key considerations for establishing a sustainable approach and solution for implementing ESSQUI in priority jurisdictions across Canada

6. Have there been any analysis of the benefits of implementing surgical synoptic reporting standards? Are there any resulting report/analysis that you are able to share? What are the results and implications of these analysis? (EQ5.3)

7. Has your organization assessed the costs of implementing the pan-Canadian surgical synoptic reporting standards? Please explain. (EQ6.1)

a. What are the benefits at the provincial level of incremental versus large scale roll-out?

b. What are the risks / challenges to incremental vs large scale?

8. What, if any, are the key barriers or challenges to getting participation in surgical synoptic reporting from cancer surgeons? What would be the key factor(s) to enable / promote participation in surgical synoptic reporting from cancer surgeons?

a. How can these barriers be overcome? Are you able to point to any lessons learned or best practices? (EQ5.2)

9. Do you have any further comments?

Vendors – Interview Guide

B. Interview Questions

Interviewee background

1. Please briefly tell us about your role with respect to electronic synoptic surgery reporting and the Electronic Surgical Synoptic Quality Initiative (ESSQUI). How long have you been in this role?

2. Are you familiar with the work that the Canadian Partnership Against Cancer is undertaking with surgeons to improve the standard of care for patients with breast, colon, rectal, lung, prostate, thyroid, ovary and endometrial cancer? What is your assessment of the value add of these efforts (i.e., to patients, providers/clinicians, the healthcare system)? (EQ2.4)

The current state of ESSQUI e-solution tools

3. Please describe your assessment of the current ESSQUI e-solution tools (i.e., architecture, clinical classification system, and interoperability)? (EQ3.1)

4. To what extent do the ESSQUI e-solution tools align with the various provincial standards for electronic health records? What are the areas where there is greater alignment? (EQ3.2)
    a. Are there areas for improvement?

Key consideration for integrating ESSQUI standards with electronic health records infrastructure

5. What are the key technical requirements to enable systemic structured operative surgical care data capture and performance measurement reporting? What are the key technical considerations in implementing such a system? (EQ7.1)
    a. What are the implementation requirements to enable systemic structured operative surgical care data capture and performance measurement reporting? What are the key considerations in implementing such a system?

6. Do you have any further comments?