

PAN-CANADIAN STANDARDS

Breast Cancer Surgery



CANADIAN PARTNERSHIP
AGAINST CANCER



PARTENARIAT CANADIEN
CONTRE LE CANCER

RUBY 

reducing the burden of breast cancer in young women



CANADIAN ASSOCIATION
of GENERAL SURGEONS



CANADIAN SOCIETY OF
SURGICAL ONCOLOGY

MARCH 2019



Breast cancer is the most commonly diagnosed cancer among Canadian women and is the second leading cause of cancer death.

CONTENTS

EXPERT PANEL 6

SCOPE 9

INTRODUCTION 10

METHODOLOGY 12

Literature Review and
Environmental Scan 13

Expert Discussions 13

STANDARDS 14

Surgeon Criteria 15

Requisite Training and
Competency for Practice 15

Diagnosis 16

Surgery and Management 17

Practice Settings 19

Organizational Criteria 19

Quality Processes 22

Data Collection and Continuous
Quality Improvement 22

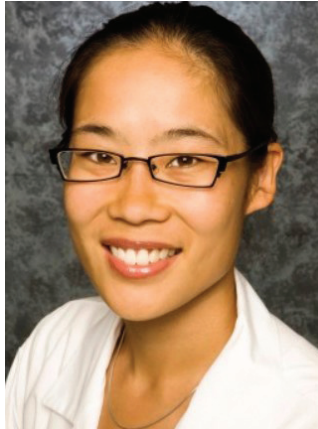
Survivorship 24

Survivorship and Surveillance 24

FUTURE DIRECTIONS 25

REFERENCES 26

MESSAGE FROM CO-CHAIRS



DR. MAY LYNN QUAN
Associate Professor of Surgery



DR. CHRISTIAN FINLEY
Expert Lead, Clinical Measures,
Canadian Partnership Against Cancer

Breast cancer is the most commonly diagnosed cancer among Canadian women and is the 2nd leading cause of cancer death.¹

In 2017, it was expected that some 26,300 women would be diagnosed with breast cancer (approximately 25% of new female cancer cases; 1 in 8 females are expected to receive this diagnosis in their lifetime) and 5,000 would die of the disease.¹ With the advent of population-based screening programs and multimodal treatment, most women are diagnosed with early stage breast cancer and have a very good prognosis. In the majority of cases, treatment involves surgery in addition to systemic therapy and radiation.²

National data shows that the management of breast cancer in Canada varies considerably in terms of both care delivery and patient outcomes.³ The diagnosis and treatment of breast cancer in a contemporary context requires significant support from a multi-disciplinary group of healthcare providers, as well as appropriate

equipment and facilities, to ensure that patients undergoing breast cancer surgery receive safe, timely and high-quality care. Thus, a deliberate approach must be taken to improve the organization of breast cancer care delivery in a way that optimizes patient outcomes and reduces the burden on healthcare resources.

It is our hope that this document will serve as a decision-making resource to support the delivery of consistent, high-quality care to all Canadians requiring breast cancer surgery.

The document provides high-level guidance on and discussion of the foundational resources and requirements that need to be in place to improve cancer surgical care and outcomes. It is our goal that the actionable recommendations discussed here will help address current gaps, be forward-thinking (serve as a map for the future) and elevate the delivery of breast cancer surgical care in Canada.

Development of the standards has been informed by environmental scans, a literature review and evidence-informed expert consensus. The document emphasizes several key areas including the Royal College of Physicians and Surgeons of Canada's (RCPSC) system for evaluating and formally certifying training, the importance of systems of care, and maintaining competencies by

devoting a significant portion of practice to breast cancer surgery.

Optimal breast cancer care requires more than the breast cancer surgeon; the supporting healthcare team should be well-trained and adequately resourced to provide timely access to care. In particular, there is a heavy reliance on timely coordination of diagnostic imaging, surgery, radiotherapy, chemotherapy, pathology and other ancillary recovery and survivorship services whose resource allocation and governance falls to regions and institutions. As such, implementation of any standard depends on the successful collaboration of breast cancer surgeons with those bodies. The document also highlights the importance of advanced human resource support, allied health professionals, and comprehensive and systematic manpower planning to meet targets for care.

Quality processes, such as routine data collection and population of a national database, should be thoughtfully embedded into existing healthcare processes to catalyze self-evaluation and continuous quality improvement. In addition, careful consideration should be given to regionalizing specialized services for patients with complex breast cancer to improve patient outcomes while considering patient choice and travel

time. Healthcare planners and providers can utilize this information to organize care in a way that maximizes patient outcomes while maintaining reasonable access to care. This report is one of a family of reports to be developed for disease-site specific national standards of surgical cancer care.

We look forward to working with you to improve the quality of complex surgical cancer care in Canada.

Dr. May Lynn Quan

Co-Chair, Breast Cancer Surgery Standards
Associate Professor of Surgery, Oncology
and Community Health Sciences
University of Calgary

Dr. Christian Finley

Co-Chair, Breast Cancer Surgery Standards
Expert Lead, Clinical Measures,
Canadian Partnership Against Cancer;
Associate Professor, Department of Surgery,
McMaster University

BREAST CANCER SURGERY EXPERT PANEL MEMBERS

Dr. Alexander Poole

General Surgeon, Yukon Surgical Clinic, Yukon

Dr. Angel Arnaut

Regional Director of Breast Surgical Oncology and Oncoplastic Surgery, Ottawa Hospital Cancer Centre; Associate Professor, University of Ottawa, Ottawa, Ontario

Dr. Christian Finley

Co-Chair Breast Cancer Surgery Standards, Expert Lead, Clinical Measures, Canadian Partnership Against Cancer; Associate Professor, Department of Surgery, McMaster University; Thoracic Surgeon, St. Joseph's Healthcare, Hamilton, Ontario

Dr. Christopher Cox

Clinical Associate Professor of Surgery, Memorial University of Newfoundland, St. John's, Newfoundland

Dr. Elaine McKevitt

Associate Clinical Professor, Department of Surgery, University of British Columbia; Canada Chair, Continuing Medical Education, Surgical Oncology Network, British Columbia Cancer Agency (BCCA), Chair, Surgical Breast

Tumour Group, Surgical Oncology Network, BCCA; Surgeon, Providence Breast Clinic, Mt. St. Joseph Hospital, Vancouver, British Columbia

Dr. Frances Wright

Professor of Surgery, University of Toronto; Temerty Chair of Breast and Melanoma Surgery, Louise Temerty Breast Cancer Centre, Sunnybrook Hospital; Program Director of General Surgery Oncology Fellowship, University of Toronto, Toronto, Ontario

Dr. Jean-Francois Boileau

Associate Professor of Surgery, Gerald Bronfman Oncology, McGill University, Quebec

Dr. Julie Lemieux

Hemato-oncologist, Centre Hospitalier Universitaire de Québec; Clinical professor, Laval University School of Medicine; Clinical researcher, CHU Research Center, Québec, Québec

Dr. Kelly Dabbs

Clinical Professor, Department of General Surgery, Division of Surgery, University of Alberta, Edmonton, Alberta

Dr. Louise Provencher

Surgical Oncologist, Associate professor, CHU de Québec/Université Laval, Quebec City, Québec

Dr. Lucy Helyer

Assistant Professor, Division of General Surgery, Dalhousie University, Halifax, Nova Scotia

Dr. Marianna Kapala

Surgeon and Medical Director Breast Diagnostic Assessment Program, Betty Wallace Women's Health Centre, Trillium Health Partners, Mississauga, Ontario

Dr. May Lynn Quan

Co-Chair, Breast Cancer Surgery Standards, Associate Professor of Surgery, Oncology and Community Health Sciences, University of Calgary, Calgary, Alberta

Dr. Muriel Brackstone

Surgical Oncologist, London Regional Cancer Program; Medical Director, London Breast Care Clinic and London Tumour Biobank; Associate Professor of Surgery and Oncology, Western University, London, Ontario

Dr. Nancy Down

Medical Director, Breast Integrated Care Collaborative and Division Head of General Surgery, North York General Hospital, North York, Ontario

Dr. Pamela Hebbard

Assistant Professor, General Surgical Oncologist, University of Manitoba, Winnipeg, Manitoba

Dr. Pamela Meiers

Surgical Director, Irene and Leslie Dubé Centre of Care, Breast Health Centre; Director of High-Risk Breast Cancer Clinic, Saskatoon, Saskatchewan

Dr. Renee Hanrahan

Assistant Professor, McMaster University; Lecturer, University of Toronto; Oncologic and Reconstructive Breast Surgeon; Lead, Division of General Surgery, Royal Victoria Regional Health Centre; NSM Regional Surgical Oncology Lead, Cancer Care Ontario, Toronto, Ontario

Dr. Robert Olson

Associate Professor, Head, Division of Radiation Oncology and Developmental Radiotherapeutics, University of British Columbia; Associate Professor, Research Lead, Northern Medical Program, University of Northern British Columbia; Department Head, Radiation Oncologist, BC Cancer – Centre for the North, Prince George, British Columbia

Dr. Sara Rask

Head, Medical Oncology, Simcoe Muskoka Regional Cancer Program, Barrie, Ontario

ACKNOWLEDGMENTS

The Breast Cancer Surgery Expert Panel was instrumental in the development of standards through a comprehensive review of academic literature, objective analysis, in-person discussions and document review.

The production of this report was made possible through the dedicated efforts of many individuals. We express our gratitude to them for their contributions and assistance in the development of these recommendations.

The Breast Cancer Surgery Expert Panel was instrumental in the development of standards through a comprehensive review of academic literature, objective analysis, in-person discussions and document review. We would like to acknowledge the contribution of **Laura Banfield**, Librarian at McMaster University, who conducted a comprehensive literature search at the onset of this project. In addition, we express our gratitude to the **Canadian Association of General Surgeons (CAGS)**, the **Reducing the Burden of Breast Cancer in Young Women (RUBY)** network and **Canadian Society of Surgical Oncology (CSSO)** for their invaluable contributions in the development and endorsement of this document.

Strategic oversight of the development of this document was provided by the Canadian Partnership Against Cancer (CPAC) by **Dr. Craig Earle**, Vice-President, Cancer Control. Process development, report production and dissemination were led by the Quality Initiatives, Diagnosis and Clinical Care team at CPAC: **Dr. Mary Argent-Katwala**, Director; **Anubha Prashad**, Program Manager; **Michele Mitchell**, **Natasha Camuso**, Analysts; and **Zahrah Khalid**, Delivery Manager.

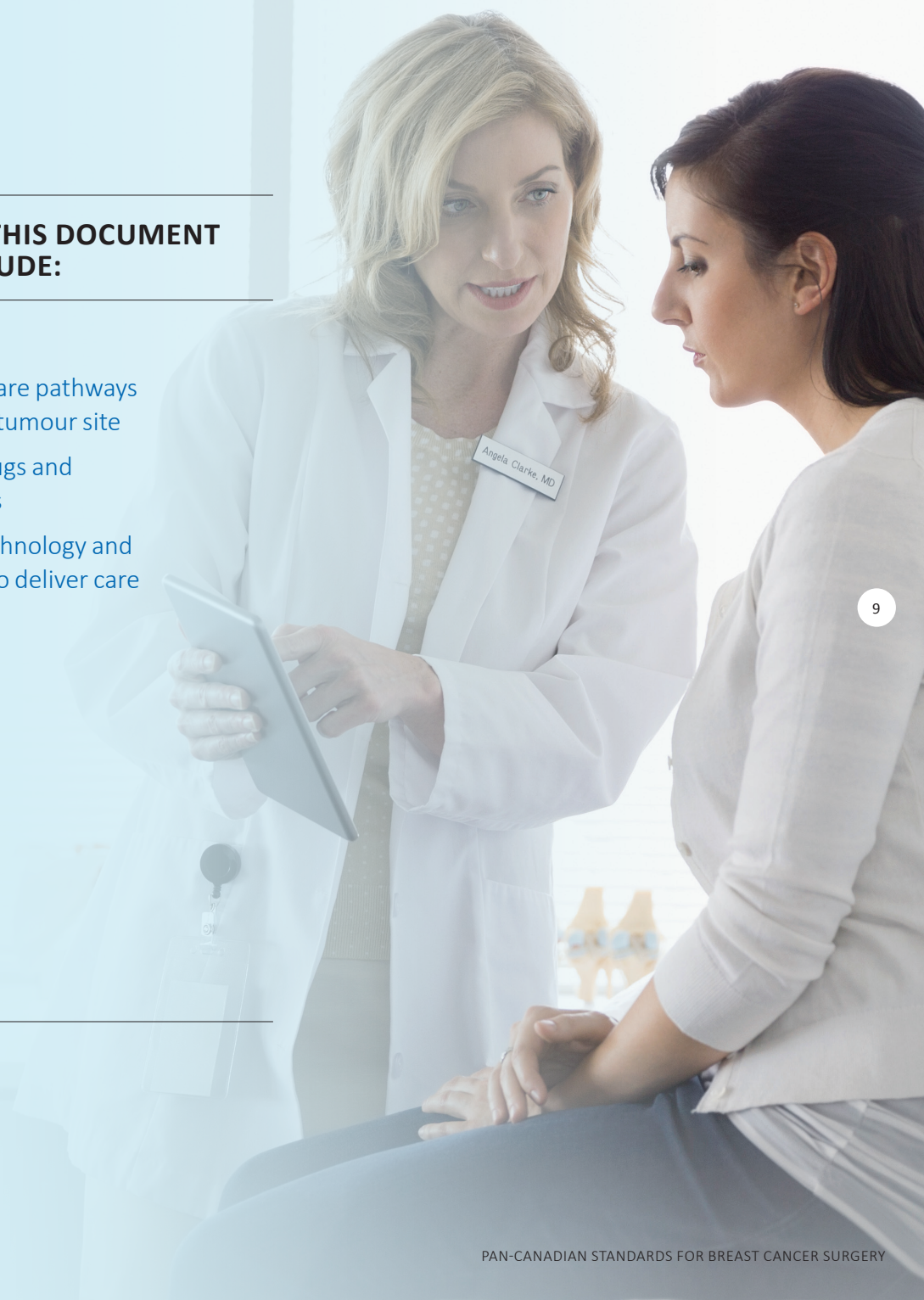
SCOPE

THE SCOPE OF THIS DOCUMENT INCLUDES:

- Management of breast cancer from work-up of initial abnormality to completion of active treatment
 - Timely access to care from a pre-, peri- and post-operative perspective
 - Training and maintenance of competencies for surgeons who perform breast cancer surgery
 - Access to services and equipment
 - Access to oncologists, radiation oncologists, pathologists, plastic surgeons, other physicians, and allied health professionals
 - Education and supportive care resources for patients and families
 - Quality processes, including multi-disciplinary tumour board rounds
 - Surveillance and survivorship
-

THE SCOPE OF THIS DOCUMENT DOES NOT INCLUDE:

- Screening
- Management of care pathways by cancer type or tumour site
- Assessment of drugs and treatment options
- Assessment of technology and equipment used to deliver care



INTRODUCTION

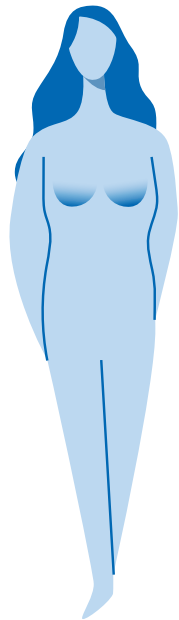
A photograph of two women in a laboratory or clinical setting. The woman in the foreground is wearing a grey hijab, glasses, and a blue lab coat. She is looking intently at a computer monitor. The woman behind her is also wearing a blue lab coat and is looking at the same monitor. The background is slightly blurred, showing laboratory equipment and a white wall.

Breast cancer is the most commonly diagnosed cancer among Canadian women and is the second leading cause of cancer death. Although men can be diagnosed with breast cancer, it is far less common.

In **2017**, an estimated **26,300** new breast cancer cases were expected, representing approximately **25%** of all new cancer cases in women.

26,300

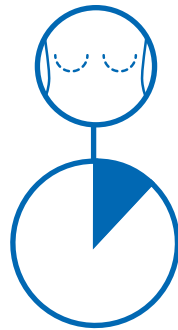
NEW CASES



ADDITIONALLY,
AN ESTIMATED

13%

of cancer deaths in women were caused by breast cancer.¹



With advances in breast cancer treatments, the 5-year overall survival rate is high at approximately **87%** (estimates for 2006-2008).⁴

However, similar to other cancers, research has shown significant variation in the management and outcomes of this patient population.³ In the context of diverse settings with variable access to resources and services, there is a pressing need for the appropriate health services to support breast cancer management across the country. The quality of breast cancer surgery and subsequent management is particularly important in reducing re-operative rates, local recurrence, the risk of morbidity and potentially mortality.^{5,6}

Treatment decision-making for breast malignancies can be complex and often involves a multidisciplinary group of physicians, including not only the general/breast surgeon, but radiologists, pathologists, medical oncologists, and radiation oncologists. In addition to plastic surgeons, geneticists and fertility specialists are also among other allied supports. Surgeons are often the first physicians to diagnose and then subsequently co-ordinate or refer patients on to adjuvant or neoadjuvant treatments. A coordinated system that supports seamless handoffs and communication among physicians is needed to ensure the optimal treatment of the patient. With a move toward increased neoadjuvant therapy, particularly in cases of advanced disease, this coordinated approach is essential.

Despite advances in care that have significantly increased survival rates, variation in practice and care settings prevails across the country.³ Given the multiple stakeholders, as well as the disparities in care across the country, there is a need for a set of pan-Canadian standards to ensure consistent, high-quality care for all Canadians requiring breast cancer surgery. As such, this document seeks not only to define appropriate training for surgeons performing breast surgery but also highlight the critical features of a facility treating breast cancer patients, the importance of coordination of care among treatment decision-makers and the processes needed to elevate the delivery of high-quality care in a contemporary Canadian context.

METHODOLOGY



The expert panel members reviewed literature search findings for relevance and identified key evidence to be evaluated and incorporated to support the standards, where appropriate.

Literature Review and Environmental Scan

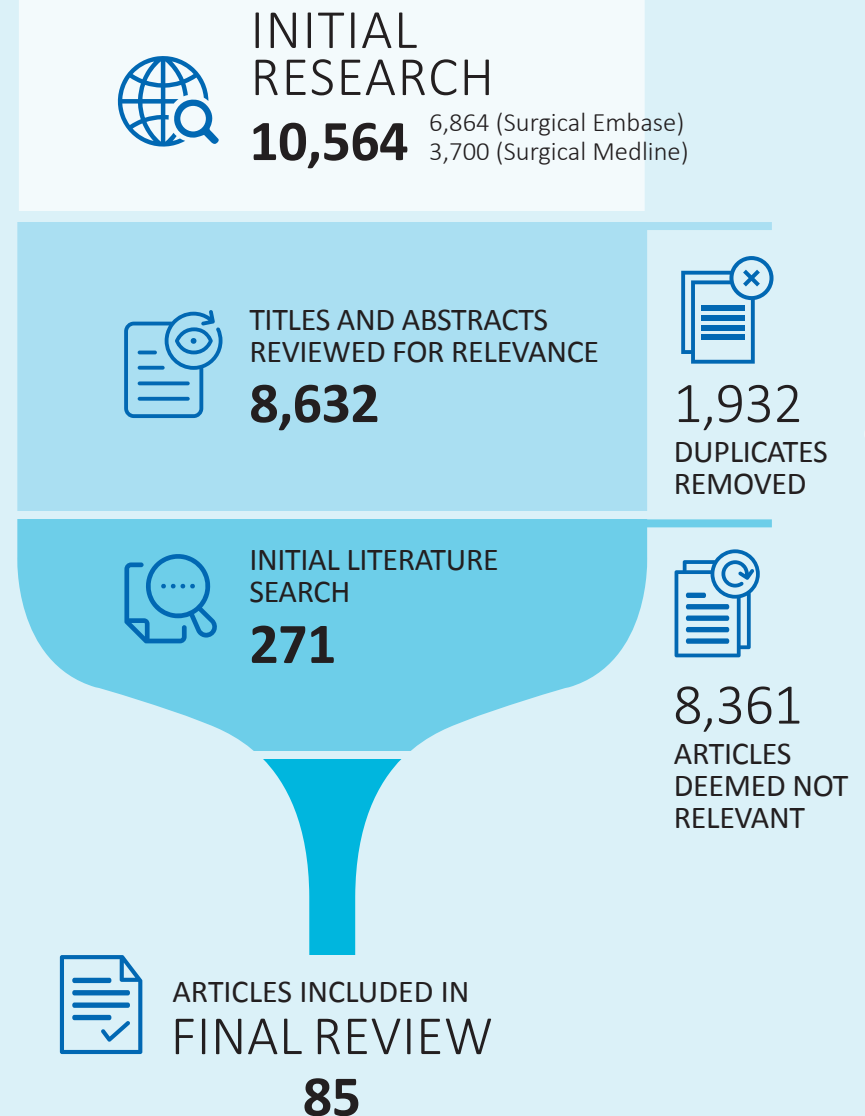
A literature search was performed using Surgical Embase and Medline, with the search restricted to publications between 1996 to June 2016 and 1946 to June 2016, respectively. A comprehensive search strategy was developed to assess the literature to examine evidence. The search strategy incorporated medical subject headings (MeSH), Boolean operators and wild cards. Results were excluded if they were duplicate findings or were not deemed relevant after review (Fig. 1).

Expert Discussions

The standards herein were developed through consultation with an expert panel of breast cancer surgeons and oncologists from across Canada. The expert panel members reviewed literature search findings for relevance and identified key evidence to be evaluated and incorporated to support the standards, where appropriate. An in-person meeting was held to develop standard statements and achieve consensus on standard statements to be included, followed by an electronic survey to validate and vote on the results from the in-person meeting. Altogether, 36 standards were included in this document. A targeted review period was scheduled to seek additional feedback from a wider community and endorsement from the Canadian Association of General Surgeons (CAGS).

FIGURE 1

Flow chart of search results and article inclusion



STANDARDS

As the field is constantly advancing, anyone performing breast surgeries will need to ensure that they are keeping up with contemporary standards to ensure that patients are receiving optimal care.



Surgeon Criteria

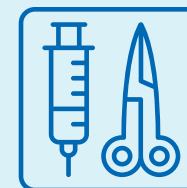
1.1 REQUISITE TRAINING AND COMPETENCY FOR PRACTICE

- 1.1.1 A surgeon treating breast cancer should adhere to the maintenance of certification requirements for general surgery and must be in accordance with provincial and national standards.
- 1.1.2 Surgeons treating breast cancer should perform breast cancer surgery regularly. Surgeons performing breast surgery should devote a proportion of their yearly Continuing Medical Education (CME) to time in breast cancer to maintain competency (e.g., update courses, Breast Education and Self-Assessment Program, etc.).
- 1.1.3 Surgeons treating breast cancer should have completed training, hold formal certification in general surgery and have interest/expertise in breast surgery, or fellowship training in breast surgery, or surgical oncology. For those not trained in Canada, a similar regimented and accredited training program must be completed and certified.

The technical skills and knowledge to safely and competently conduct breast surgery requires that the practitioner complete comprehensive training in the full scope of breast cancer surgery. It is acknowledged that surgeons conducting breast surgeries often start and/or continue their practice in general surgery. Research has shown improved outcomes for patients receiving surgery at high-volume centres and involving a surgeon with specialized skills for the surgery they are performing.^{3, 7-10} It is imperative that breast surgeons regularly maintain and update their skills and knowledge and devote a significant amount of time to the practice to maintain competency in breast surgery. As the field is constantly advancing, anyone performing breast surgeries will need to ensure that they are keeping up with contemporary standards to ensure that patients are receiving optimal care. While expert technical skills are required for surgeons who are conducting breast surgeries, appropriate systematic evaluation and patient support systems are also essential for optimal patient outcomes.

Surgeons should maintain competence and expertise through ongoing education in available Continuing Professional Development programs, such as the Maintenance of Certification program of the Royal College of Physicians and Surgeons of Canada. Routine Continuing Medical Education (CME) is considered necessary to ensure contemporary and complete care delivery.

Regardless of the level of training or the experience of a surgeon, occasionally the institution in which they practice may not have access to the most advanced technology and equipment required for the treatment of every case. It is ideal that patients having breast surgery be treated at centres with access to all of the appropriate facilities and associated resources of a contemporary breast surgery practice.¹¹



1.2 DIAGNOSIS

1.2.1 Patients with abnormal breast imaging or a clinically suspicious breast finding should be worked up in a timely fashion, with 90% of breast cancer patients having a diagnosis or resolution of that concern within 6 weeks of the date of the abnormal imaging.¹²

1.2.2 Evaluation of breast imaging abnormalities should be performed at facilities that provide nationally accredited digital mammography, breast ultrasound and percutaneous image-guided core biopsy. If a single facility does not offer or is not nationally accredited to carry out all tests, a patient should be referred to an appropriately accredited facility that offers all tests.¹³

1.2.3 Only minimally invasive biopsy should be performed when possible. Percutaneous needle core biopsy of both benign and malignant disease is the expected standard. Primary diagnosis using open surgical biopsy must be considered the exception.

Where not available, it is the joint responsibility of the region, institution, radiologist and surgeon to provide appropriate supports and facilitate timely access to services.

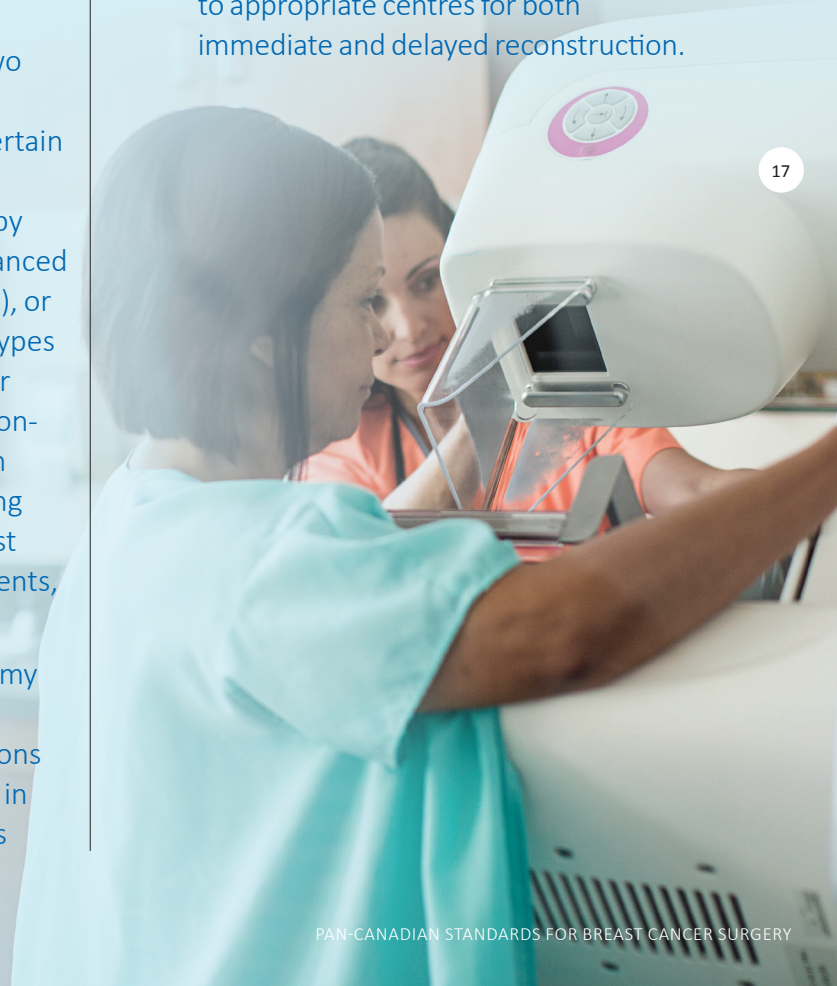
1.2.4 Breast imaging reporting should adhere to standards set by the Canadian Association of Radiologists and include concordance statements with pathology post-biopsy.

1.2.5 Pathology should adhere to standards set by the Canadian Association of Pathologists for required elements.^{14, 15}

The timeliness and accuracy of diagnosis in breast cancer is crucial to initiating the appropriate treatment in a timely manner to ensure the best possible patient outcomes. The diagnosis of breast cancer can be a complex, multi-stage process, involving many tests and specialty physicians. In the diagnostic phase, there is a heavy reliance on diagnostic imaging, pathology and other ancillary services. All facilities and specialists involved in the diagnosis of breast cancer should follow the standards and guidelines set forth and/or endorsed by their respective national associations to ensure an accurate, high-quality diagnosis. If a specific testing facility is not accredited to perform all required testing, patients should be referred to a facility that is appropriately accredited to perform diagnostic testing. Additionally, testing should be as minimally invasive as possible; open surgical biopsy is always considered the exception and only performed when necessary. Many of the delays in diagnosis and failed transfers of care can be mitigated by strong pathways and networks of care that ensure the fastest and most robust evaluation process of care. All critical timeframes should be centrally tracked to ensure that the expected bottlenecks and variations in access are known, and responsible parties should have the authority to act on those challenges.

1.3 SURGERY AND MANAGEMENT

- 1.3.1 Breast cancer surgeries should only be performed in centres that are compliant with the needs defined by this document and should be adequately resourced to provide or facilitate timely access to care either in person or via telemedicine.
- 1.3.2 All patients with non-metastatic breast cancer should be evaluated by a surgeon early in the care process to determine resectability, ideally prior to the initiation of chemotherapy and radiation therapy.
- 1.3.3 Patients in all jurisdictions should have access to multidisciplinary treatment decision-making.
- 1.3.4 Surgeons treating breast cancer should participate in multidisciplinary cancer conferences (MCC) via telemedia, virtually or in person.
- 1.3.5 Centres providing breast surgery should present all complex (i.e., neoadjuvant, very young, etc.) and ideally most newly diagnosed cancer patients in an MCC and be documented as part of the patient record.
- 1.3.6 Surgeons treating breast cancer should have experience or up-to-date training to perform breast conserving surgery with and without image guidance localization, mastectomy, sentinel lymph node biopsy and axillary node dissection.
- 1.3.7 Where neoadjuvant therapy may be indicated, the majority of patients should be seen and assessed by medical oncology early (within two weeks of referral). Breast cancer surgeons should be aware that certain factors increase the need for or desirability of neoadjuvant therapy such as: patients with locally advanced disease (inflammatory, LABC, etc.), or for high response molecular subtypes (triple negative, HER2 positive), or to facilitate overall surgical decision-making (i.e., uncertainty between mastectomy and breast conserving surgery, downstaging of the breast and/or axilla, adjunctive assessments, such as genetics, plastics, etc.).
- 1.3.8 All patients undergoing mastectomy should be notified of their reconstructive options and surgeons must document that interchange in the patient chart. Eligible patients desiring reconstruction should have access to timely reconstructive surgery consultation/evaluation (plastics and breast surgeon) so that access to reconstruction does not adversely impact time to surgery. Resources should be available locally or via facilitated pathway/referral to appropriate centres for both immediate and delayed reconstruction.



All patients with breast cancer in Canada should be evaluated in a systematic and comprehensive way, with key decision-makers consulted prior to initiation of any specific treatment pathway.

In doing so, assessment and key information is considered prior to embarking on a specific treatment course. Within this model, breast surgeons have an early primary role in the diagnosis and decision-making process before other treatment options are initiated, especially in cases with curative intent (e.g., non-metastatic). Surgeons should also be familiar with cases that could benefit from neoadjuvant therapy and refer patients in a timely manner for medical oncology assessment.

Critical to successful patient care is the team involved in managing surgery.¹⁶ Breast surgeons recognize that while the role of the surgeon is one of leadership, knowledge and technical excellence, the entire care team executes prevention of mortality, morbidity and rescue from an adverse event. Failure of coordination and transition of care is a team/institutional failing as much as that of the physician. Although the breast surgeon has an integral role to play, collaboration with other specialties such as consultants and clinical nurse specialists is key to providing high-quality surgical care.^{8,17,18} The entire healthcare team should be well-trained and adequately resourced to provide timely, high-quality access to care either in-person

or virtually. Recognizing that not all regions have all of the required resources in their local jurisdictions, identification of required components and/or services must be coupled with establishing collaborations with those with resources in order to provide appropriate and timely care. Joint efforts on the part of physicians, institutions and regions with support at the provincial level are needed to provide comprehensive care for patients with breast cancer, irrespective of their place of residence.

Collaboration and knowledge-sharing are essential for those involved in patient care. Collaboration between specialties has been shown to enhance patient outcomes as well as significantly reduce the time from diagnosis to treatment.^{8,19,20} It is critical that radiologists, surgeons, medical oncologists, radiation oncologists and nurses formulate a unified, evidence-based management plan for patients. Communication between the members of the multidisciplinary teams needs to be timely to ensure compliance with agreed-upon patient pathways, including personalized case management and compliance with definitive treatment.^{8,21,22}

While not all patients may be discussed at an MCC, they should all have access to evaluation at an MCC to ensure they receive appropriate multidisciplinary care. All MCC results should be documented in the patients' charts and shared with the patient. Collaboration between specialties has been shown to enhance patient outcomes as well as significantly reduce the time from diagnosis to treatment.^{8,20,23} Key elements for discussion should include resectability, eligibility for adjuvant therapies including timing and coordination of neoadjuvant systemic therapy, in addition to adjunctive assessments like genetics, fertility and reconstruction, where appropriate. Additionally, all patients with metastatic disease should be evaluated and discussed with respect to all available therapies, including clinical trials.

The burden of discussing a large percentage of patients in an MCC must be acknowledged. The timing, coordination and financial support of this undertaking must be planned and budgeted for at the provider, institutional and provincial levels. The work flow of all participants (including surgeons, oncologists, pathologists and radiologists) must be understood and interfaced with to ensure optimal participation. As the patient's outcome is paramount, a nimble, innovative and responsive system must be adopted for this process to succeed.

Practice Settings

2.1 ORGANIZATIONAL CRITERIA

2.1.1 While the components identified in this document need not reside in a single centre or location, established formal networks or relationships should exist to ensure timely access for those who are suspected to have or are diagnosed with breast cancer.

2.1.2 The initial consultation after diagnosis with the appropriate breast cancer specialist should be within 2 weeks of referral.

The initial treatment (surgery performed, or systemic therapy and/or radiation therapy started) for 90% of breast cancer patients should be initiated within 4 weeks of consultation. Appropriate referrals should be made as early as possible. It is the joint responsibility of the surgeon, institution, region and healthcare team to coordinate care in a timely manner and resources should be applied appropriately to ensure timeframes are met.²⁴⁻³⁰

2.1.3 90% of initial core biopsy pathology should be reported within 7 days to facilitate treatment decision-making. ER/PR/HER2 should be reported and available on the final core biopsy result in a timely manner to facilitate treatment decision-making.

2.1.4 90% of final surgical pathology should be reported within 2 weeks of operation to facilitate adjuvant treatment decision-making. Key pathologic features including tumour size, grade, presence of LVI, margin status and nodal tumour burden (including extent of extranodal extension) should be reported as per current guidelines.^{14,15}

Access to care and timeliness of evaluation significantly affect a breast cancer patient's journey. The expert panel has defined appropriate timeframes for care based on consensus. These targets are the mutual responsibility of the surgeon and other disciplines, with direct responsibilities to the patient

and the facility. These targets also take into account that all patients may not move through the system seamlessly. Efforts need to be focused on providing timely care, so that delays in the process of evaluation and treatment do not have a negative impact on patient care and prognosis. Active monitoring and evaluation of pathology reporting and other wait times are essential to ensure that unacceptable delays are acted upon with appropriate policies put in place to motivate responsible parties.

Pathology assessment and reporting should be tracked and issued within an adequate timeframe with appropriate resourcing, including immunohistochemistry receptor reporting with in-situ hybridization as required for equivocal results.

2.1.5 Breast cancer surgery should be performed in institutions that provide or collaborate with appropriate facilities and resources to support breast surgery:

- Day surgery/short stay units
- Anesthetic services (including regional and general)
- Image guided localization as per radiology standards¹³
- Specimen radiography for confirmation of lesion retrieval and margin evaluation³¹
- Nuclear medicine for sentinel node radioisotope injection. Institutions/centres/provinces/territory should facilitate access to nuclear material for on-site injection if not available in a nuclear medicine licensed facility
- Appropriate fresh breast specimen grossing and processing as per CAP guidelines
- Access to pathologists with expertise in breast cancer
- Timely access to appropriate immunohistochemistry pathologic evaluation
- Access to reconstructive resources
- Cancer patient navigators/coordinators and cancer support networks.

2.1.6 All patients should benefit from formalized partnerships that ensure timely access to clinical trials where appropriate.

2.1.7 All patients should benefit from formalized partnerships that ensure timely access to resources including genetic counsellors. All patients with suspected hereditary malignancies should be referred for appropriate and timely genetic testing, as well as genetic counselling to ensure appropriate treatment and follow-up care. When surgical management decision-making may be impacted, testing should be expedited.

2.1.8 All patients should benefit from formalized partnerships that ensure timely access to resources including fertility experts where appropriate. Patients of childbearing age interested in fertility preservation should be offered initial consultation and assessment. Funding to support treatments should be facilitated.^{32, 33}

2.1.9 All patients should have timely access to medical oncology services including consultation, initiation and management after surgical resection. If indicated, 90% of patients having chemotherapy should start within 12 weeks of surgery.

2.1.10 All patients should have access to timely radiation oncology consultation, radiation therapy and facilities that provide:

- Whole/partial breast irradiation with or without boost
- Regional nodal irradiation
- Palliative radiation for bone or systemic metastasis
- Stereotactic radiation for isolated or limited brain metastasis.

Where radiation is indicated, 90% of patients should receive radiation therapy within 28 days of being ready to treat.

Breast cancer surgeries should be performed in institutions with the appropriate facilities and resources to ensure optimal patient outcomes, as outlined above. Expert and experienced surgeons may be capable of delivering exceptional care, but in the absence of key facilities and resources, patients could be put at risk of suboptimal care. For services not immediately available in the institution, knowledge and/or formal relationships with centres that can provide these services in the region are important.^{17, 23, 34} Formal working relationships include affiliation with a regional cancer centre that has access to radiation therapy equipment,

and where consultation with medical and radiation oncologists is also readily available.

Geographic barriers or availability of beds should not impede the necessary consultation or treatment. Geographic isolation, within the Canadian context, can prohibit the delivery of high-quality care to vulnerable populations.^{35,36}

A functional network of care including ready access to telehealth and other technological solutions can help mitigate the deficiencies and provide care closer to home. Thus, regionalization of services should take into consideration patient choice and the distance that patients are willing to travel as these patients often need ongoing healthcare services.^{37,38}

Research has shown a relationship between increased travel burden and more advanced cancer at diagnosis, inappropriate treatment, poor prognosis and quality of life.^{35,37,39-41} Innovative regional programs that leverage existing networks are important to ensure that patients get optimal care. Whether through diagnostic assessment pathways, integrated home care models, or active involvement of the patient's primary care team, many existing programs can bridge these potential care gaps.

2.1.11 **Mental health and psychological services for patients should be available throughout the diagnosis and treatment course, into survivorship.**

2.1.12 **Early access to palliative care services and supports preferably close to the patient home should be available.**

2.1.13 **Social/family support services should be provided, including awareness of financial and other supportive resources.**

A systematic and comprehensive plan should be in place to ensure that all breast cancer patients are regularly screened for signs of distress. This will help to measure the patient journey and ensure that they are coping well with their diagnosis and treatment. Patients showing signs of distress should receive appropriate support in a timely manner.

2.1.14 **Patient education along continuum of care (pre-, during, post-treatment) into surveillance and survivorship should be provided, including modifiable lifestyle factors (e.g., diet, exercise).**

- Patient education should be conducted in accordance with the institutional/provincial education standards for adults affected by cancer.

2.1.15 **Patients should be made aware of rehabilitation supports including:**

- Post-local-therapy rehab including physical therapy
- Lymphedema management
- Prosthetic and post-mastectomy bra.

Surgeons, as part of the healthcare team, should ensure that patients are aware of the rehabilitation supports available to them and facilitate access to these supports.



Quality Processes

3.1 DATA COLLECTION AND CONTINUOUS QUALITY IMPROVEMENT

3.1.1 Data collection and continuous quality improvement are integral to the provision of breast cancer care at the individual, local, regional and provincial levels and should be facilitated by those providing breast cancer care.

3.1.2 There should be a national, data-driven approach to deliver best practice care. Routine data collection on process and outcomes should be systematically and prospectively captured and benchmarked against national and international standards. This includes systematic classification of adverse events and periodic review of data to allow for self-evaluation and to promote continuous, cyclical improvement (through audit and feedback). Best practice approaches should be utilized and shared to ensure high-quality care. To fund, capture and coordinate this process, health authorities must provide appropriate supports and governance to institutions to achieve best practices.

- Institutions and regions that have regional cancer centres need to support quality processes so that financial barriers are not a limitation to participation in these initiatives.
- Regional/provincial authorities should be collecting relevant quality marker data for audit and feedback intervention in collaboration with surgeons. Efforts should be made to coordinate with national efforts.
- Institutions should support adequate collection and measurement of patient experience data.

3.1.3 It is expected that techniques and processes of care will change over time. Adoption should be done in a systematic manner to support standardized implementation, with a need for credentialing where significant changes in technologies and approaches are introduced. When adopting new technologies and techniques, active tracking of adverse events and outcomes should be completed.

3.1.4 Patients at high risk for negative outcomes, particularly those from vulnerable populations, should be identified at the federal, provincial, territorial and institutional levels in order to develop appropriate pathways and monitor compliance. Engagement with rural, remote and vulnerable populations to identify cultural and geographic barriers and enablers to optimal care should occur.



Although difficult to precisely define, quality improvement is often measured by the components of structure, outcomes and processes.

One way for breast surgeons to evaluate their practices is to compare them against evidence-based guidelines or defined quality indicators where available.^{42,43} Quality data is often generated from entry into large patient databases. This data, around quality care, process and outcome measures, can provide meaningful information regarding surgical outcomes and quality. With regular monitoring, it can help predict surgical morbidity and mortality. Routine collection of data will over time improve data quality and therefore lead to better patient care. However, outcomes not only depend upon surgeon and hospital volume, but also on surgical technique, patient factors (e.g., comorbidities) and multidisciplinary treatment decisions.^{44,45} Data collection at various points of the patient journey and benchmarking against provincial, national and international standards/targets can support the delivery of high-quality, patient-centred care and should be supported at provider, institutional and provincial levels.^{42,46}

The goal of data collection, evaluation and monitoring is to help improve surgical and hospital performance in a non-punitive manner and to steer away from a “blame and shame” approach. When adopting new techniques or technologies, risk to patients needs to be balanced against the amount and significance of that innovation. A review, regular audit of data and monitoring of adverse events in standardized ways have been shown to improve outcomes. Institution-level data should be fed back into the system to improve quality and minimize inter-provincial barriers, as well as to local participants providing services, to help improve quality. Monitoring outcome data can help clinicians identify which processes they have followed or not and which have directly impacted patient outcomes.

Recognizing that there is considerable variation in the evaluation of quality of care, the uniform use of well-defined quality of care indicators to measure and monitor performance holds the promise of improving outcomes in patients who undergo breast surgeries.



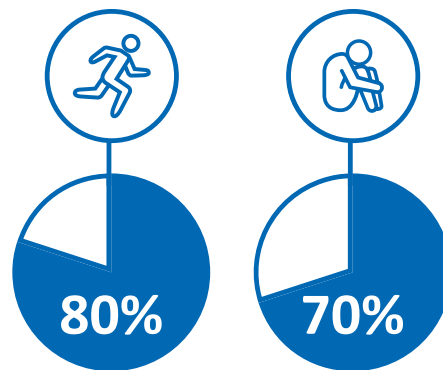
Survivorship

4.1 SURVIVORSHIP AND SURVEILLANCE

4.1.1 At the completion of active treatment, it is the responsibility of the managing physicians to ensure patients have access to structured, systematic and comprehensive surveillance and survivorship resources. A formalized survivorship plan after the acute treatment phase must be clearly articulated in transition to the most responsible primary care practitioner(s) outlining recommended surveillance practice.

A formalized transition plan to the primary care provider is important to ensure all patients receive appropriate follow-up, surveillance and continuity of care as they transition out of the cancer care system. This is particularly important as a recent report, *Living with Cancer: A Report on Patient Experience*, highlights gaps in care after cancer treatment.

The majority of patients reported having both physical and emotional struggles, 80% and 70%, respectively, after completing treatment.



Patients feel that they are increasingly able to access help with their concerns when they have a formal structure for their follow-up care. Collaboration among oncology specialists and family physicians is crucial to ensure effective transition to primary care. Resources for additional available supports, aside from the primary care provider or oncology specialist, such as mental health services, should also be provided to patients upon the completion of active treatment for breast cancer malignancies.

FUTURE DIRECTIONS



This document is intended to act as an informational and decision-making resource to elevate and standardize the delivery of breast surgery in Canada.

Following publication, future work will include wide dissemination and identification of strategies to catalyze systematic and comprehensive adoption. These strategies will help to narrow the gap and address current deficiencies and variability in care.

Efforts are underway to develop an evaluation framework to measure uptake and to explore the role of national societies and Accreditation Canada to promote and offer accreditation to enforce the standards.

REFERENCES

1. Canadian Cancer Society, *Breast Cancer Statistics*. 2017.
2. Canadian Institute for Health Information, *Breast Cancer Surgery in Canada, 2007–2008 to 2009–2010*. 2012. p. 1-63.
3. Finley, C., et al., *Approaches To High-Risk, Resource Intensive Cancer Surgical Care In Canada*. 2015.
4. Canadian Cancer Society. *Breast Cancer Statistics*. 2018; available from: <http://www.cancer.ca/en/cancer-information/cancer-type/breast/statistics/?region=on>.
5. Sawka, C., Olivotto, I., Coldman, A., Goel, V., Holowaty, E., Hislop, T.G., *The association between population-based treatment guidelines and adjuvant therapy for node-negative breast cancer*. British Columbia/Ontario Working Group. *Br J Cancer*, 1997; **75**(10): p. 1534-42.
6. Goel, V., Olivotto, I., Hislop, T.G., Sawka, C., Coldman, A., Holowaty, E.J., *Patterns of initial management of node-negative breast cancer in two Canadian provinces*. British Columbia/Ontario Working Group. *CMAJ*, 1997 **156**(1): p. 25-35.
7. Gooiker, G.A., et al., *A systematic review and meta-analysis of the volume-outcome relationship in the surgical treatment of breast cancer. Are breast cancer patients better off with a high volume provider?* *European Journal of Surgical Oncology*, 2010. **36**(SUPPL. 1): p. S27-S35.
8. Gort, M., et al., *Improvement of best practice in early breast cancer: Actionable surgeon and hospital factors*. *Breast Cancer Research and Treatment*, 2007. **102**(2): p. 219-226.
9. Guller, U., et al., *High hospital volume is associated with better outcomes for breast cancer surgery: Analysis of 233,247 patients*. *World Journal of Surgery*, 2005. **29**(8): p. 994-999.
10. Peltoniemi, P., et al., *The effect of hospital volume on the outcome of breast cancer surgery*. *Annals of Surgical Oncology*, 2011. **18**(6): p. 1684-1690.
11. Cataliotti, L., et al., *Guidelines on the standards for the training of specialised health professionals dealing with breast cancer*. *European Journal of Cancer*, 2007. **43**(4): p. 660-675.
12. Canadian Breast Cancer Screening Initiative, *Report of the Working Group on the Integration of Screening and Diagnosis for the Canadian Breast Cancer Screening Initiative*. 2000.
13. Canadian Association of Radiologists. *Practice Guidelines*. 2018; Available from: <https://car.ca/patient-care/practice-guidelines/>.
14. College of American Pathologists, *Protocol for the Examination of Specimens From Patients With Ductal Carcinoma In Situ (DCIS) of the Breast*. 2017.
15. College of American Pathologists, *Protocol for the Examination of Specimens From Patients With Invasive Carcinoma of the Breast*. 2017.
16. Rebecca Warburton, et al., *Current Surgical Management of Breast Cancer*. *BC Medical Journal*, 2018 **60**(2): p. 92-98.
17. Marshall, C.L., et al., *A multidisciplinary cancer center maximizes surgeons' impact*. *Journal of Surgical Research*, 2011. **171**(1): p. 15-22.
18. Bickell, N.A., et al., *Lost opportunities: Physicians' reasons and disparities in breast cancer treatment*. *Journal of Clinical Oncology*, 2007. **25**(18): p. 2516-2521.
19. Anderson, B.O., et al., *Interdisciplinary coordination for breast healthcare: A rational approach to detection, diagnosis, and treatment*. *Disease Management and Health Outcomes*, 2008. **16**(1): p. 7-11.
20. Gfrerer, L., et al., *Assessment of patient factors, surgeons, and surgeon teams in immediate implant-based breast reconstruction outcomes*. *Plastic and Reconstructive Surgery*, 2015. **135**(2): p. 245e-252e.
21. Ghaferi, A.A., J.D. Birkmeyer, and J.B. Dimick, *Hospital volume and failure to rescue with high-risk surgery*. *Medical Care*, 2011. **49**(12): p. 1076-1081.
22. Hopkins, M. and J. Andersen, *Breast cancer consultation service: A nurse navigator based community model*. *American Journal of Clinical Oncology: Cancer Clinical Trials*, 2010. **33**(5): p. 524-525.
23. Chao, A.H., et al., *Process outcomes in breast reconstruction and the impact of a comprehensive breast center*. *Plastic and Reconstructive Surgery*, 2014. **134**(5): p. 675e-681e.
24. Canadian Partnership Against Cancer, *Breast Cancer Screening in Canada: Monitoring and Evaluation of Quality Indicators—Results Report, January 2011 to December 2012*. 2017.
25. BC Cancer, *Screening Mammography Program 2017 Annual Report*. 2017.

26. BC Cancer. *Surgery Wait Times for “Adult - Mastectomy”*. 2018.
27. Health Quality Ontario. *Time from Decision to Having Cancer Surgery*. 2018; available from: <https://www.hqontario.ca/System-Performance/Wait-Times-for-Surgeries-and-Procedures/Wait-Times-for-Cancer-Surgeries/Time-from-Decision-to-Having-Cancer-Surgery>.
28. Manitoba Health, *In Sixty Cancer Action: Breast Cancer*. 2016.
29. Nova Scotia Department of Health and Wellness. *Healthcare Wait Times: Breast Cancer Surgery*. 2018; available from: <https://waittimes.novascotia.ca/procedure/breast-cancer-surgery>.
30. Saskatchewan Health. *Mastectomy (simple) in all Locations: Wait Time Report by Specialist for One-Year Period Ending October 07, 2018*. 2018; available from: <http://specialists.health.gov.sk.ca/specialist-directory/faces/Home.xhtml>.
31. Surgeons, T.A.S.o.B. *Official Statements: Consensus Statements*. 2016; available from: <https://www.breastsurgeons.org/about/statements/>.
32. Loren, A.W., et al., *Fertility Preservation for Patients With Cancer: American Society of Clinical Oncology Clinical Practice Guideline Update*. *J Clin Oncol*, 2013 **31**(19): p. 2500-10.
33. Roberts, J., *Fertility Preservation for Young Cancer Patients*. *BC Medical Journal*, 2018. **60** (4): p. 217-222
34. Knox, S., *The European patient advocacy perspective on specialist breast units and accreditation*. *Breast*, 2015. **24**(3): p. 287-289.
35. Holloway, C.M.B., R. Saskin, and L. Paszat, *Geographic variation and physician specialization in the use of percutaneous biopsy for breast cancer diagnosis*. *Canadian Journal of Surgery*, 2008. **51**(6): p. 453-463.
36. Goel, V., et al., *Patterns of initial management of node-negative breast cancer in two Canadian provinces. British Columbia/Ontario Working Group*. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne*, 1997. **156**(1): p. 25-35.
37. Ambroggi, M., et al., *Distance as a barrier to cancer diagnosis and treatment: Review of the literature*. *Oncologist*, 2015. **20**(12): p. 1378-1385.
38. Al-Sahaf, M. and E. Lim, *The association between surgical volume, survival and quality of care*. *Journal of Thoracic Disease*, 2015. **7**: p. S152-S155.
39. Craft, P.S., et al., *Variation in the management of early breast cancer in rural and metropolitan centres: Implications for the organisation of rural cancer services*. *Breast*, 2010. **19**(5): p. 396-401.
40. Kong, A.L., et al., *Socioeconomic and racial differences in treatment for breast cancer at a low-volume hospital*. *Annals of Surgical Oncology*, 2011. **18**(11): p. 3220-3227.
41. Boscoe, F.P., et al., *Geographic proximity to treatment for early stage breast cancer and likelihood of mastectomy*. *Breast*, 2011. **20**(4): p. 324-328.
42. Eck, D.L., et al., *Breast surgery outcomes as quality measures according to the NSQIP database*. *Annals of Surgical Oncology*, 2012. **19**(10): p. 3212-3217.
43. Arnaout, A., et al., *Use of Preoperative Magnetic Resonance Imaging for Breast Cancer: A Canadian Population-Based Study*. *JAMA Oncology*, 2015. **1**(9): p. 1238-1250.
44. Hall, G.M., et al., *Colorectal specialization and survival in colorectal cancer*. *Colorectal Dis*, 2016. **18**(2): p. O51-60.
45. Bickell, N.A., A.H. Aufses, Jr., and M.R. Chassin, *The quality of early-stage breast cancer care*. *Annals of Surgery*, 2000. **232**(2): p. 220-224.
46. Kaufman, C.S. and J. Landercasper, *Can we measure the quality of breast surgical care?* *Annals of Surgical Oncology*, 2011. **18**(11): p. 3053-3060.

This document provides high-level guidance on the foundational resources and requirements that need to be in place to improve breast cancer surgical care and outcomes. It will serve as a decision-making resource to support the delivery of consistent, high-quality care to all Canadians requiring breast surgery.
