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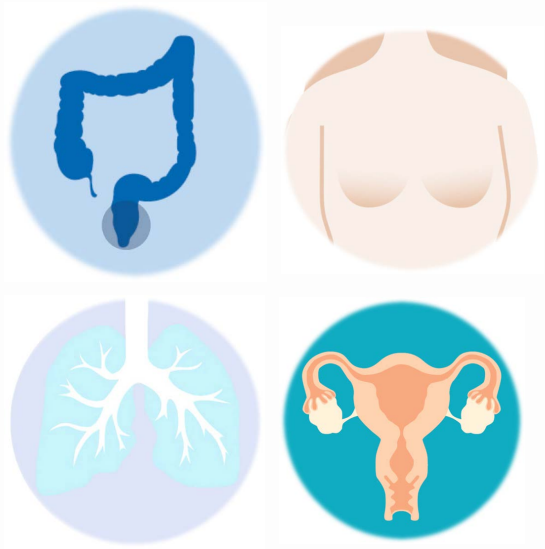
Pan-Canadian Standards for Cancer Surgery



Supplement

EDITORIAL

The importance of Canadian guidelines for cancer care

The views expressed in this editorial are those of the author and do not necessarily reflect the position of the Canadian Medical Association or its subsidiaries

For nearly 30 years now, clinical practice guidelines have been increasing in popularity. These documents often guide our practice of emergency general surgery, trauma care, surgical critical care, oncologic therapies, transplantation and even elements of scheduled general surgery. While many of these guidelines have traditionally been created under the banner of a specific subspecialty society by clinicians with a particular expertise and interest in the topic of choice, they are often limited in their potential applicability. More specifically, a broader view of all stakeholders (including patients) is frequently absent and, therefore, reduces our ability to extrapolate these frameworks into the care of specific patients within our own local clinical environments. As a result, we must pay particular attention to evidence-based guidelines that supersede these challenges.

The Canadian Partnership Against Cancer (CPAC) is a government-funded, independent organization that aims to improve cancer prevention, therapy and outcomes across all demographics within Canada. Racial, gender and economic equality stand at the forefront. To this end, CPAC has utilized a standard Delphi process of involved topic experts to construct 4 relevant guidelines for cancer care (rectal, breast, gynecologic and thoracic cancers). These standards each include commentary and recommendations on surgeon training, practice settings and quality processes. They may also be implemented in the arenas of program funding, surgeon credentialling, planning and recruitment and, of course, patient-focused care. While we hope that CPAC continues to develop, mature and implement their message via guidance for all Canadian surgeons across every oncologic subspecialty, for now we have an excellent opportunity to take note of these initial 4 oncologic standards and promote their usage within all of our environments.

Chad G. Ball MD, MSc

Co-editor in Chief, *Canadian Journal of Surgery*

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Pan-Canadian standards for cancer surgery

Anubha Prashad, MBA
Michele Mitchell, MPH
Mary Argent-Katwala, PhD
Corinne Daly, MSc
Craig C. Earle, MD, MSc
Christian Finley, MD, MPH

Correspondence to:
C. Finley
Cancer Control
Canadian Partnership Against Cancer
145 King Street West
Toronto ON M5H 1J8
christian.finley@
partnershipagainstcancer.ca

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About the Canadian Partnership Against Cancer

The Canadian Partnership Against Cancer (CPAC) is an independent organization funded by the federal government to accelerate action on cancer control for all Canadians. As the steward of the Canadian Strategy for Cancer Control (the Strategy), the Partnership works with Canada's cancer community to take action to ensure fewer people get cancer, more people survive cancer and those living with the disease have a better quality of life. This work is guided by the Strategy, which was refreshed for 2019 to 2029, and will help drive measurable change for all Canadians affected by cancer. The Strategy includes 5 priorities that will tackle the most pressing challenges in cancer control as well as distinct First Nations, Inuit and Métis Peoples–specific priorities and actions reflecting Canada's commitment to reconciliation. A specific action in the Strategy calls for reducing the differences in practice and service delivery by setting standards for high-quality care and promoting their adoption. The CPAC will oversee the implementation of the priorities in collaboration with organizations and individuals on the front lines of cancer care: the provinces and territories; health care professionals; people living with cancer and those who care for them; First Nations, Inuit and Métis communities; governments and organizations; and its funder, Health Canada. Learn more about the Partnership and the refreshed Strategy at www.cancerstrategy.ca.

The report titled *Approaches to High-Risk, Resource Intensive Cancer Surgical Care in Canada*, released in November 2015, highlighted tremendous variability in how each province delivers cancer care, resulting in disparities in patient outcomes.[1] A key finding of the report highlighted the need for deliberate approaches to improve the organization of complex care surgeries to optimize patient outcomes. In response, a suite of pan-Canadian standards of practice, including defining training and resource requirements, have been developed to elevate and standardize surgery practice in Canada.

The standards have been developed through environmental scans, a review of the literature and an evidence-informed expert Delphi consensus process. This was conducted by a panel of surgeons representing a diverse practice setting and geography. The standards underwent targeted review, seeking input and endorsement from national professional organizations. They are focused on 4 disease sites: rectal cancer, breast cancer, thoracic surgery and gynecologic oncology. The focus of the standards include surgeon criteria, which entail ensuring training and maintenance of competency; organizational resources that should be in place to support high-quality care, such as physical and human resources; and quality processes, including the importance of multidisciplinary cancer conferences and data collection to encourage continuous quality improvement. This supplement summarizes those standards,[2] which are available online at https://www.partnershipagainstcancer.ca/topics/surgical-standards-overview/.

IMPROVING THE QUALITY OF OUTCOMES OF CANCER SURGERY THROUGH NATIONAL STANDARDS

Surgeons have long been vocal advocates for their patients and innovative to their circumstances. The challenge is often how and when to coordinate a system around the patient who, in many ways, falls outside of our direct control. Ideally, the principal objective of health care is to deliver care that maximizes patient outcomes while balancing patient safety, satisfaction and timely access to care. We exist in a health care system that has grand intentions but often struggles to systematically structure, integrate and deliver on those ambitions.

Cancer and associated care place a tremendous burden on patients and on limited health care system resources. Increasingly, cancers are identified at earlier stages, positioning surgery as the optimal and often only chance for cure and/or management of the disease. While many patients fare well after surgery, with no complications and discharge home within expected timelines, some patients experience more complex postsurgical courses, with extended length of stay and adverse events that result in additional care, readmission to hospital or, ultimately, death. Contemporary literature would suggest that the ability to shepherd patients who are older and have more comorbidities through surgery successfully may drive improvements in survival for many cancers. Comparatively, surgery in many cases offers tremendous value to other therapies and supports.

Improving the access to and outcomes of surgical care has the potential to save lives, reduce the burden of disease on patients and caregivers, and reduce health care costs. There is tremendous variability in how each province in Canada delivers surgical cancer care services, however, resulting in disparities in patient outcomes that necessitate attention. At least some of these disparities can be attributed to the low population density in Canada and the need to provide services in geographically dispersed centres, not all of which can provide surgical resources. Surgical cancer care is facing particular challenges, with rising incidence rates for most cancers and an aging population increasing the demand for these surgeries.

Despite the important role of surgery in the cancer management pathway, cancer surgery is largely not integrated under the umbrella of provincial cancer agencies. In most provinces, there is no explicit systematic oversight of the provision, evaluation and regulation of cancer surgery. This results in a lack of accountability in most of the country and an inability to enact change or to initiate a formal process to track and evaluate our outcomes. In most provinces, there are few or no standards on which procedures surgeons or hospitals can offer within their specialty area, or what minimum human and physical resources and quality processes must be in place to support the patient optimally.

The significant variance in how surgical cancer care services are delivered among sites and provinces greatly affects access to care, efficiency, efficacy of the health care system itself and, ultimately, survival. Important gaps in resources, support for innovation and leadership within the continuum of cancer care have been reported. While much great work has been done by individuals and provinces, systematic standardized quality-monitoring programs depend on provincial and institutional prioritization, not on Canadian best practice consensus standards. These factors result in an environment where meaningful improvements in patient care are not realized to their full potential.

Clearly, optimal cancer care requires more than the surgeon. The supporting health care team should be well trained and adequately resourced to provide timely access to care. Also, there is a heavy reliance on regions and institutions for coordinating diagnostic imaging, surgery, radiotherapy, chemotherapy, pathology and other ancillary recovery and survivorship services. As a result, surgeons must successfully collaborate with different levels of care to implement any standard. Development of coordinated, uniform minimum standards and national benchmarks are essential for improving cancer surgery. Additionally, coordinating or integrating surgery within the cancer care continuum is a priority, and strong infrastructure and governance rely on collaboration among cancer administrators and physicians, while enforced policies may drive innovation. Effective improvement in the quality of cancer surgery requires surgeons and programs in each province to work with their ministries to create joint responsibility and accountability for surgical cancer planning and delivery where that is not already in place.

To address these needs, the Canadian Partnership Against Cancer (CPAC), working with national societies, produced pan-Canadian evidence-informed surgical standards for a suite of disease sites.[2] In these standards, general and cancer-specific requirements for optimal cancer care are described, including organization of care, the presence of certain facilities and the minimum quality-control processes needed to elevate the delivery of high-quality care at an institutional, regional and provincial level. The standards have all been formulated with sensitivity to the differences facing Canadian patients and surgeons, acknowledging that many practical considerations must come into their implementation. However, when the broader team and requirements are not addressed, substantial gaps exist. It is our role as surgeons to be the patients' voice and champion their cause.

The goal of this supplement is to share the recently published pan-Canadian surgical standards with a broad audience and mobilize their adoption in health care delivery systems in Canada. The suite of standards is intended to be contextualized within the local health context and adopted by surgeons, institutions, regions and health care teams to maximize patient outcomes and coordinate standardized, timely and efficient high-quality cancer care. We strive to continue to work with our partners to implement the standards, measure adherence and report to Canadians on progress starting in 2020.

PAN-CANADIAN STANDARDS FOR RECTAL CANCER SURGERY

Altogether, there are 41 standards with 3 overarching themes. Please visit partnershipagainstcancer.ca to access the standards.

1. Surgeon criteria

1.1. Requisite training and competency for practice

1.1.1. A rectal cancer surgeon is a general surgeon who has contemporary knowledge of the diseases of the colon, rectum and anus in adults, as defined by the Objectives of Training in the Royal College of Physicians and Surgeons of Canada (RCPSC) specialty of general surgery, and who continues to acquire such knowledge through continuing medical education (CME) and a sufficient volume of practice.

1.1.2. A rectal cancer surgeon should have complete training, hold formal certification in general surgery and have significant expertise/interest in rectal cancer surgery. For those trained outside of Canada, a similar regimented and accredited training program must be completed and certified.

1.1.3. A subspecialty rectal cancer surgeon, in addition to meeting the criteria for a rectal cancer surgeon, will have complete training and hold formal certification from the RCPSC in colorectal surgery or surgical oncology. For those trained outside of Canada, a similar regimented and accredited training program must be completed. For general surgeons without colorectal surgery or surgical oncology certification, expertise developed through a focused commitment to the treatment of "complex" rectal cancer may substitute for the above qualification.

1.1.4. A rectal cancer surgeon's participation in the maintenance of certification is mandatory and must be in accordance with provincial and national standards.

1.1.5. A rectal cancer surgeon should perform rectal cancer surgery as a regular part of their practice and dedicate regular CME time specifically to rectal cancer to maintain competency.

1.2. Surgery and management

1.2.1. All patients with rectal cancer should be evaluated by a rectal cancer surgeon early in the care process, before the initiation of chemotherapy and/or radiation therapy.

1.2.2. Although the majority of mid- and upper-rectal cancers are appropriate for treatment at any rectal cancer surgery centre, there is a recognized subgroup of "complex rectal cancer" patients who should be offered assessment and possible treatment in a referral centre for complex rectal cancer surgery. Complex rectal cancers include, but are not limited to, the following:

- The majority of rectal cancers where abdominoperineal resection is planned
- Rectal cancer where the main tumour transgresses the mesorectal or mesosigmoid radial margin, has a positive/suspicious mesorectal node, or a tumour deposit
- Rectal cancer invading adjacent organs (T4) and thus requiring multivisceral resection
- Rectal cancer in patients with a hereditary cancer syndrome (e.g., Lynch syndrome/hereditary nonpolyposis colorectal cancer [HNPCC], familial adenomatous polyposis)
- Recurrent rectal cancer
- Rectal cancer in a patient with synchronous pelvic malignancy (e.g., prostate, uterine)
- Rectal cancer in a patient with a prior pelvic cancer requiring surgery or radiation therapy
- Rectal cancer in a patient with previous rectal or left-sided colon surgery
- Rectal cancer that has been locally excised previously and requires subsequent completion proctectomy

1.2.3. A subgroup of rectal cancer patients with "early rectal cancer," defined as T1 lesions with favourable pathology, can be treated using transanal techniques with avoidance of radical resection. Although this treatment is not equivalent to total mesorectal excision (TME) with respect to recurrence, there is no apparent cancer-specific survival compromise in these patients. Patients with early rectal cancer who are candidates for local excision should be offered assessment at a transanal endoscopic surgery centre and reviewed at a multidisciplinary cancer conference (MCC) before and after treatment.

1.2.4. Rectal cancer surgeries should be performed in centres that are compliant with the needs defined by this document. Although a clear surgery volume threshold has not been established, the association between surgeon/hospital procedural volume and rectal cancer outcomes suggests that rectal cancer surgeons should have a focus on rectal cancer surgery in their practice. Furthermore, there should be sufficient hospital volume to optimize the care among allied health care providers.

1.2.5. All patients with rectal cancer should have access to an MCC. All patients should be discussed in an MCC and have the conclusions recorded as part of the patient record.

1.2.6. Surgeons treating rectal cancer should have experience in and training for TME surgery.

1.2.7. Cross-sectional imaging of patients with rectal cancer should be reviewed by an expert radiologist in consultation with a surgeon who performs rectal cancer surgery.

1.2.8. Patients with a good performance status and low-volume metastatic rectal cancer disease should be presented at an MCC with possible referral to a hepatic–pancreatic–biliary (HPB) surgeon, thoracic surgeon, or radiation oncologist (for stereotactic body radiation therapy) where appropriate.

2. Practice settings

2.1. Organizational criteria

2.1.1. The initial treatment (surgery conducted or chemotherapy and/or radiotherapy started) for 90% of rectal cancer patients should be initiated within 6–8 weeks of the date of biopsy. Appropriate referrals and investigations should be made as early as possible. It is the joint responsibility of the institution, region, surgeon and health care team to coordinate care in a timely manner, and resources should be applied appropriately to ensure time frames are met.

2.1.2. Pathology reporting time should be tracked and cases should be reported within 2 weeks with appropriate resourcing.

2.1.3. Rectal cancer surgery should be performed in a "rectal cancer surgery centre," defined as providing appropriate facilities, including the following resources:

- Expert physician care
  - At least 1 rectal cancer surgeon
  - On-site pathologist (for frozen section) and access to pathologist with experience and expertise in the Quirke method of TME assessment
  - Anesthesia support, including 24-hour access
  - Access to radiologist with expertise in magnetic resonance imaging (MRI) and computed tomograpy (CT) for rectal cancer
  - Access to interventional radiology
  - Access to urologist
- Medical support system for major complications of abdominal surgery
  - Intensive care and/or high dependency care unit
  - Access to CT with interventional capability
  - Access to rapid-response laboratory (i.e., biochemistry, cytology, hematology, transfusion and microbiology) services 24 hours a day
- Perioperative planning services
  - Timely access to CT, MRI and endoscopic rectal ultrasonography (ERUS)
  - Timely access to radiation and medical oncology assessment and treatment
  - Preoperative assessment clinic with anesthesia, nursing, enterostomal therapy (ET) nurse assessment
- Allied health care services
  - Enterostomal therapist
  - Dietary and nutritional support
  - Physical therapy
  - Home care and social work
  - Wound care service
- Postoperative support services
  - Access to cancer support networks
  - Timely access to medical oncology and genetic counselling

2.1.4. All rectal cancer patients with "complex rectal cancer" should be assessed at a "referral centre for complex rectal cancer surgery." These centres should meet all criteria for a "rectal cancer surgical centre" and have surgical capabilities and unique services required to address the specific needs of these complex cancer patients (e.g., requiring multivisceral resection or abdominoperineal resection). It is recognized that not all provinces/regions may be able to offer these services, and interprovincial relationships need to be established. Furthermore, not every "referral centre for complex rectal cancer surgery" will have the expertise/capacity to manage every patient with "complex rectal cancer"; multiple centres (with geographic accessibility considerations) should manage some or all of these patients in collaboration, depending on the mix of expertise/capacity at each centre.

2.1.5. "Referral centres for complex rectal cancer surgery" should meet all criteria for a "rectal cancer surgery centre" and provide the following:

- Expert physician care
  - At least 2 subspecialty rectal cancer surgeons
  - Access to pathologist with experience and expertise in the Quirke method of TME assessment
  - Urologist with expertise in cystectomy/reconstruction (at sites where pelvic exenteration is performed)
  - Orthopedic oncologist or neurosurgeon capable of sacrectomy, with expertise in resection of orthopedic malignancies (at sites where rectal cancers with concomitant sacrectomy/bone resection is performed)
  - Plastic surgeon with experience/expertise in pelvic floor reconstruction
- Medical support system for major complications of abdominal surgery
  - Intensive care unit and high-dependency care unit with experience managing complex pelvic surgery patients
  - Regional/provincial recognition of funding necessary to manage complicated rectal cancer patients.

2.1.6. Appropriate early-stage rectal cancer patients should be assessed at a "transanal endoscopic surgery centre." This may be colocated at a "rectal cancer surgery centre" or "referral centres for complex rectal cancer surgery" and provide additional services as follows:

- Expert physician care

  - At least 1 rectal cancer surgeon with advanced training/expertise in 1 of the transanal endoscopic surgery (TES) platforms
  - These platforms include, but are not limited to, transanal endoscopic microsurgery (TEM), transanal endoscopic operation (TEO) or transanal minimally invasive surgery (TAMIS) techniques
  - Access to a pathologist with experience and expertise in evaluating local excision specimens, including documentation of all factors known to influence the need for immediate radical resection (e.g., depth of cancer invasion, lymphovascular invasion, tumour budding, margin status)
- Postoperative support services
  - Access and experience with rigorous follow-up not typical of rectal cancer treated by radical resection

2.1.7. Transitions between most responsible physicians must be clearly articulated and documented, and transfers of care confirmed.

2.1.8. All rectal cancer centres should set targets to monitor and evaluate wait times and timely access to care.

2.1.9. Rectal cancer surgeons should participate in regionally and provincially integrated and established networks of care to ensure appropriate care is provided as close to home as possible.

2.1.10. Infrastructure should be in place to support the participation of patients in clinical research.

2.2. Physical resources and collaborating services

2.2.1. MRI should be protocolled correctly for rectal cancer staging, read by an experienced gastrointestinal (GI) radiologist and reported in a synoptic format within 2 weeks of the requisition.

2.2.2. Rectal cancer pathology, gross evaluation and processing of the specimen should be done using the Quirke method and should be reported using the College of American Pathologists (CAP) rectal cancer synoptic report within 2 weeks. All patients should have access to relevant immunohistochemistry/biomarker testing, including mismatch repair proteins (preferably reflex testing).

2.2.3. All rectal cancer patients who will receive a planned stoma and those who have a possibility of receiving a stoma should be referred to a qualified enterostomal nurse and/or ET nurse before surgery for preoperative counselling, education regarding care and management of stomas, and marking. All rectal cancer patients who have a stoma should be provided with information about the peer- and community-based supports for ostomy patients (e.g., United Ostomy Association of Canada peer support program) before surgery or before discharge if unplanned.

2.2.4. Patients with clinical or historical factors consistent with high risk of hereditary malignancy should have access to appropriate genetic testing in accordance with established guidelines as well as access to genetic counselling services.

2.2.5. All cancer centres should have well-maintained and adequately resourced equipment and facilities.

2.2.6. Capital expenditures must be available to provide contemporary equipment and be re-evaluated when there are changes in the workforce and evolving standards of care.

2.3. Human resources

2.3.1. The MCC should consist of health professionals with expertise/interest in GI cancers, including but not limited to:
- Rectal cancer surgeons
- Medical oncologists
- Radiation oncologists
- Pathologists
- Radiologists

2.3.2. All rectal cancer patients should be offered screening for and management of distress shortly after diagnosis and at key transition points (e.g., initiation of neoadjuvant therapy, preoperatively, adjuvant therapy, end of treatment).

2.4. Treatment at oncology centres and relationship with affiliated centres

2.4.1. All rectal cancer centres should have a relationship with a cancer centre with access to consultation from medical and radiation oncologists. There should be a mechanism in place to provide urgent consultation and treatment for inpatients.

3. Quality processes

3.1. Data collection and continuous quality improvement

3.1.1. Institutions and regions that have regional cancer centres need to support quality processes such that financial barriers are not a limitation to participation.

3.1.2. Regional authorities should collect relevant quality marker data for audit and feedback intervention in collaboration with rectal cancer surgeons, and coordinate with national efforts.

3.1.3. A national, data-driven approach to deliver best practice care should be implemented. 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, regular review of morbidity and mortality rounds, 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 used and shared to ensure high-quality care. Funding, capturing and coordinating this process is the responsibility of health authorities in order to provide appropriate supports and governance to institutions to achieve best practices.

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

3.1.5. It is the joint responsibility of the regional cancer centres and rectal cancer surgeons to actively monitor patient complications and for human resources to have quality processes in place to support quality improvement. Every regional cancer centre needs to have a system in place to identify adverse events and outcomes early in the patient's journey and rescue the patients to avoid further, more serious events.

3.1.6. Institutions should support adequate collection and measurement of data on patient experience (e.g., patient-reported outcomes, wait times).

3.1.7. There is an expectation 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 credentialling 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.

3.1.8. National, provincial and institutional organizations should identify patients at high risk for negative outcomes, particularly those from vulnerable populations, and develop appropriate pathways and monitor compliance with them.

3.1.9. At the completion of active treatment, patients should have structured, systematic and comprehensive surveillance and access to survivorship resources.

PAN-CANADIAN STANDARDS FOR BREAST CANCER SURGERY

Altogether, there are 36 standards with 4 overarching themes. Please visit partnershipagainstcancer.ca to access the standards.

1. 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 CME in breast cancer to maintain competency (e.g., update courses, Breast Education and Self-Assessment Program).

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 who trained outside of Canada, a similar regimented and accredited training program must be completed and certified.

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; 90% of breast cancer patients should receive a diagnosis or resolution of that abnormal imaging result within 6 weeks of the date of the imaging.

1.2.2. Evaluation of breast imaging abnormalities should be performed at facilities that provide nationally accredited digital mammography, breast ultrasonography 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 required tests.

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 minimally invasive biopsy is 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.

1.3. Surgery and management

1.3.1. Breast cancer surgeries should be performed only 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 nonmetastatic breast cancer should be evaluated by a surgeon early in the care process to determine resectability, ideally before 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 MCC via telemedia, virtually or in person.

1.3.5. Centres providing breast surgery should present all complex (i.e., neoadjuvant, very young) and, ideally, most newly diagnosed cancer patients in an MCC, and the MCC should be documented in 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 2 weeks of referral). Breast cancer surgeons should be aware that certain factors increase the need for or desirability of neoadjuvant therapy, such as locally advanced disease (e.g., inflammatory) or high response molecular subtypes (triple negative, *HER2* positive), or to facilitate overall surgical decision-making (e.g., uncertainty between mastectomy and breast-conserving surgery; downstaging of the breast and/or axilla; adjunctive assessments, such as genetics, plastics).

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 affect time to surgery. Resources should be available locally or via facilitated pathway/referral to appropriate centres for both immediate and delayed reconstruction.

2. Practice settings

2.1. Organizational criteria

2.1.1. Although 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.

2.1.3. Ninety percent of initial core biopsy pathology should be reported within 7 days to facilitate treatment decision-making. Estrogen (ER) and progesterone (PR) receptor and *HER2* testing should be reported and available on the final core biopsy result in a timely manner that facilitates treatment decision-making.

2.1.4. Ninety percent 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 lymphovascular invasion (LVI), margin status and nodal tumour burden (including extent of extranodal extension), should be reported as per current guidelines.

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 standards
- Specimen radiography for confirmation of lesion retrieval and margin evaluation
- Nuclear medicine for sentinel node radioisotope injection. Institutions/centres/provinces/territories 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 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 affected, testing should be expedited.

2.1.8. All patients should benefit from formalized partnerships that ensure timely access to 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.

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 treatment 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

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's home, should be available.

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

2.1.14. Patient education along the 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 rehabilitation, including physical therapy
- Lymphedema management
- Prosthetic and postmastectomy bra

3. 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/territorial 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 used 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 credentialling 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.

4. 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.

Pan-Canadian standards for thoracic surgery

Altogether, there are 25 standards with 3 overarching themes. Please visit partnershipagainstcancer.ca to access the standards.

1. Surgeon criteria

1.1. Requisite training and competency for practice

1.1.1. A thoracic surgeon should have contemporary knowledge of the diseases of the thorax and foregut as defined by the RCPSC Objectives of Training in thoracic surgery.

1.1.2. Thoracic surgeons' participation in the maintenance of certification is mandatory and must be in accordance with provincial and national standards.

1.1.3. Canadian thoracic surgeons will have complete training and hold formal RCPSC certification in general thoracic surgery. For those trained outside of Canada, a similar regimented and accredited training program must be completed and certified.

1.2. Surgery and management

1.2.1. Thoracic surgeons should be intimately involved in the diagnostic assessment and management of benign and malignant lung, esophageal and other thoracic tumours, where only the thoracic surgeon makes the decision of operability and resectability.

1.2.2. Resections for lung cancer and esophageal cancer should be performed only by thoracic surgeons in designated thoracic surgical centres.

2. Practice settings

2.1. Organizational criteria

2.1.1. Recognizing regional needs, a thoracic centre should have a minimum of 3 thoracic surgeons. Recruitment of additional surgeons and/or adequate human resource supports may be warranted based on certain factors/thresholds:

- Significant increase in surgeon workload that may compromise their ability to provide timely and effective patient care
- Nonclinical responsibilities of education, research or leadership
- Significant and sustained increase in the number of referrals, compromising the delivery of care
- Increased wait times for cancer patients

2.1.2. Thoracic centres should set targets to monitor and evaluate wait times and timely access to care.

2.1.3. Within the geographic limitations of a health authority, specialized services should be concentrated and regionalized.

2.1.4. Thoracic centres should participate in regionally and provincially integrated and established networks of care to ensure appropriate care is provided closer to the patient's home.

2.1.5. Infrastructure should be in place to support the participation of patients in clinical research.

2.2. Physical resources and collaborating services

2.2.1. All thoracic centres need timely access to diagnostics so that all testing (e.g., positron emission tomography (PET), CT, percutaneous biopsies, bronchoscopy and endobronchial ultrasonography (EBUS), cranial imaging) can be completed within defined wait times for cancers. It is the joint responsibility of the region, institution and surgeon to provide appropriate supports and timely access to services (from suspicion to diagnosis to treatment). A region with thoracic centres needs to be committed to supporting adequate workforce and resources to provide high-quality care.

2.2.2. The following resources and collaborating services are considered to be reasonable criteria for thoracic centres to provide comprehensive and timely care:

- Dedicated geographically defined thoracic surgical unit with a consolidated unit of dedicated beds to ensure an appropriate level of nursing, physiotherapy and respiratory therapy expertise with the expectation that all elective cases should be placed with dedicated thoracic beds so that their care is standardized
- Step-down beds when necessary to support the volume of patients treated
- Access 24 hours a day, 7 days a week to the operating room, interventional radiology and critical care

- Access to rapid-response laboratory (i.e., biochemistry, cytology, hematology, transfusion and microbiology) services
- Onsite pathology and frozen sections to support operating room
- Timely access to appropriate immunohistochemistry and genomics
- Access to advanced endoscopy (flexible and rigid, EBUS, endoscopic ultrasonography [EUS], stenting) and ambulatory services
- Access to interventional endoscopy with the inclusion of ablation and/or mucosal resection

2.2.3. All thoracic centres should have well-maintained and adequately resourced open, minimally invasive and advanced endoscopic equipment.

2.2.4. Capital expenditures must be available to provide contemporary equipment and be re-evaluated as there are changes in workforce.

2.2.5. As recommended by the pathology community, all thoracic-related pathology reports should be reported in a synoptic format and should be completed and communicated within 2 weeks of operation.

2.3. Human resources

2.3.1. Treatment of patients by a multidisciplinary team is extremely important. For every patient, availability of advanced health care professionals is mandatory. Thoracic surgery patients need access 24 hours a day, 7 days a week to intensive care unit services. Advanced human resource supports include, but are not limited to

- Respiratory therapists
- Dietary and nutritional support
- Home care and social work
- Allied health professionals, such as physician assistants, nurse practitioners and advanced practice nurses, at each thoracic centre, with adequate numbers to support care of patients
- Allied health support staff, including dedicated thoracic nurses and chest physiotherapists available 7 days a week
- Access to on-site palliative care services
- Thoracic anesthesiologists, pathologists and radiologists with an interest in thoracic surgery (preferably with thoracic fellowship training and/or mentorship by professionals with experience in thoracic cancer care)
- Formalized partnerships and access to oncology resources, including medical oncologists and radiation oncologists
- Timely access to other medical specialists, including gastroenterologists, infectious disease specialists, cardiologists, neurologists, pulmonary medicine specialists, intensivists, thoracic pathologists, and radiologists with a subspecialty interest in diagnostic and interventional procedures of the chest
- Cancer patient navigators/coordinators

2.4. Treatment at oncology centres and relationship with affiliated centres

2.4.1. A relationship with a cancer centre with access to consultation from medical and radiation oncologists should be in place to provide urgent inpatient consultation and treatment.

3. Quality processes

3.1. Multidisciplinary discussion and evaluation (of cases)

3.1.1. All complex lung and esophageal cancers and other thoracic malignancies should be discussed in a multidisciplinary format with an attending staff thoracic surgeon. Participation in an MCC should include medical and radiation oncologists, a pathologist, a radiologist and/or nuclear medicine physician, to achieve of optimal outcomes.

3.2. Data collection and continuous quality improvement

3.2.1. Institutions and regions that have thoracic centres need to support quality processes such that financial barriers are not a limitation to participation.

3.2.2. It is the joint responsibility of the thoracic centres and thoracic surgeons to actively monitor patient complications and for human resources to have quality processes in place to support quality improvement. Every thoracic centre needs to have a system in place to identify adverse events and outcomes early in the patient's journey and rescue the patients to avoid further serious events.

3.2.3. A national, data-driven approach to deliver best practice care should be implemented for health authorities to provide appropriate supports to institutions to achieve the best practice. Routine data collection on processes and outcomes should be systematically and prospectively captured and benchmarked against national and international standards in a risk-adjusted manner. This includes systematic classification of adverse events, regular review of morbidity and mortality rounds, 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 used and shared to ensure high-quality care.

3.2.4. Institutions should support adequate collection and measurement of patient experience data.

3.2.5. There is an expectation 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 credentialling where significant changes in technologies are introduced. It is the expectation that, when adopting new technologies and techniques, active tracking of adverse events and outcomes will be completed.

3.2.6. Institutions should have ready access to smoking cessation supports, and surgeons should actively encourage or refer patients to smoking cessation programs.

3.2.7. Federal and provincial/territorial governments and institutions should identify patients at high-risk for negative outcomes, particularly those from vulnerable populations, and develop appropriate pathways and monitor compliance.

PAN-CANADIAN STANDARDS FOR GYNECOLOGIC ONCOLOGY

Altogether, there are 31 standards with 3 overarching themes. Please visit partnershipagainstcancer.ca to access the standards.

1. Surgeon criteria

1.1. Training and maintenance of competency for practice

1.1.1. A gynecologic oncologist should have contemporary knowledge of the diseases of female genital tract cancers, as defined by the RCPSC Objectives of Training in the subspecialty of gynecologic oncology.

1.1.2. Gynecologic oncologists' participation in the maintenance of certification is mandatory and must be in accordance with provincial and national standards, preferably specific to gynecologic oncology.

1.1.3. Gynecologic oncologists should have complete formal training and RCPSC certification in gynecologic oncology. For those trained outside of Canada, a similar regimented and accredited training program must be completed and certified.

1.2. Surgery and management

1.2.1. Gynecologic oncologists should be intimately involved in the diagnostic assessment and management of gynecologic malignancies; the decision of operability and resectability is made only by the gynecologic oncologist.

- Surgical management of ovarian cancers, fallopian and peritoneal, including surgery, should be performed only by gynecologic oncologists.
- Patients with pelvic masses should be referred according to the published guidelines.
- All women with gynecologic malignancies should have access to multidisciplinary teams and should be operated on and/or have the treatment directed by a gynecologic oncologist.

2. Practice settings

2.1. Organizational criteria

2.1.1. Three gynecologic oncologists, at a minimum, are needed at each gynecology designated centre.

- Intraoperative collaboration is encouraged in gynecologic oncology and should be supported for complex cases.

2.1.2. Recruitment of additional gynecologic oncologists and/or adequate human resource supports may be warranted based on certain factors/thresholds:

- Increase in nonclinical responsibilities of education, research or leadership
- Significant increase in surgeon gynecologic oncologist's workload that may comprise their ability to provide timely and effective patient care; this is based on the assumption of < 60 work hours for gynecologic oncologists
- Significant and sustained increase in the number of referrals, compromising the delivery of care
- Increased wait times for cancer patients

Manpower planning depends on the level of involvement in delivering systemic treatment and conducting genetic evaluation.

2.1.3. Gynecologic oncology centres should set targets to monitor and evaluate wait times and timely access to care.

2.1.4. Within the geographic limitations of each province, gynecologic oncology services should be concentrated and regionalized.

2.1.5. Gynecologic oncology surgery should be delivered within designated gynecologic oncology centres.

2.1.6. Gynecologic oncology centres should be affiliated or involved in the assessment of hereditary gynecologic oncology syndromes and preinvasive disease.

2.1.7. The treatment and prognosis of patients with gynecologic malignancies largely depends on pathology, and the majority of cases referred often require review of pathological

specimens by specialized gynecologic pathologists or pathologists with an interest in gynecologic malignancies.

2.1.8. Gynecologic oncology centres should participate in regional and provincial integrated, established networks of care where appropriate to ensure care is provided closer to the patient's home.

2.1.9. All patients should have the opportunity to participate in clinical trials.

2.2. Physical resources and collaborating services

2.2.1. All gynecologic oncology centres need timely access to diagnostics so that all testing (e.g., CT, interventional radiology, biopsy) can be completed within defined wait times for advanced cancers. It is the joint responsibility of the region, institution and gynecologic oncologists to provide appropriate supports and timely access to services (from suspicion to diagnosis to treatment). A region with a gynecologic oncology centre needs to be committed to supporting adequate manpower to provide high-quality care.

2.2.2. The following resources and collaborating services are considered to be reasonable criteria for gynecologic oncology services to provide comprehensive and timely care:

- Dedicated, geographically defined gynecologic oncology surgical unit with consolidated unit of beds to ensure an appropriate level of nursing, gynecologic oncology, surgical oncology, gynecologic pathology, medical oncology, and palliative expertise, with the expectation that all cases should be placed with dedicated beds so that their care is standardized
- Step-down beds when necessary to support the volume of patients treated
- Access 24 hours a day, 7 days a week to the operating room, intensive care unit, interventional radiology and critical care
- Access to rapid-response laboratory (i.e., biochemistry, hematology, transfusion and microbiology) services
- On-site pathology and frozen sections to support operating room
- Timely access to appropriate immunohistochemistry and genomics
- Timely access to colposcopy services
- Timely access to inpatient gynecologic oncology services, particularly chemotherapy, such that the care is not compromised
- Timely access to gynecologic oncology for inpatient and outpatient chemotherapy oncology services

2.2.3. All gynecologic oncology services should have well-maintained and adequately resourced open and minimally invasive equipment.

2.2.4. Capital expenditures must be available to provide contemporary equipment and be re-evaluated regularly as there are changes in manpower to ensure adequate resourcing.

2.2.5. All gynecologic pathology reports should be reported in a synoptic format and should be completed within 2 weeks of operation.

2.2.6. Robotic surgery, if available, requires appropriate training and mentorship and should be well-maintained and adequately resourced.

2.2.7. Where systemic therapy is offered (chemotherapy and biologic agents), medical oncology, oncology pharmacy and nursing support for inpatient and outpatient services should be available.

2.3. Human resources

2.3.1. The multidisciplinary team at a gynecologic oncology centre should include

- Access to medical and surgical oncology services
- A radiation oncologist with training in gynecology
- Access to intracavitary brachytherapy
- General practitioners with training in oncology
- An adequate number of pathologists, preferably with a specialty or a special interest in gynecologic oncology pathology
- Access to geneticists and pathologists with gynecologic expertise
- Specialists in radiology, including those with expertise in gynecologic diagnostic imaging and interventional radiology
- Access to specialized oncology nursing and continued advanced practice nursing in the outpatient setting
- The following medical specialists should be available:
  - Psychosocial-sexual counselling and support
  - Palliative care physician or specialist, which may include assessment at the gynecologic oncology centre, with seamless linkage to and coordination with providers in the patient's home community
  - Access to dietitians
  - Access to medical specialists should be available as required
  - Geneticist/genetic oncology clinic where patients with hereditary predisposition to cancer can receive counselling and appropriate testing when indicated
  - Access to an expert in reproductive medicine
  - Access to an expert in obstetrics and preconception counselling
  - Access to stoma nurse, occupational therapy, rehabilitation, spiritual care, culturally appropriate support for First Nations, Inuit and Métis

- Access to translators, community liaisons, and screening experts
- Access to sexual medicine

2.4. Treatment at oncology centres and relationship with affiliated centres

2.4.1. In addition to surgical care, gynecologic oncologists and their teams should be equipped to provide radiation therapy and systemic therapy and have a formal relationship with a cancer centre.

3. Quality processes

3.1. Multidisciplinary discussion and evaluation (of cases)

3.1.1. An MCC should, at a minimum, include a gynecologic oncologist, a pathologist trained in gynecologic malignancy, and a radiation oncologist with an interest/training in gynecologic cancer to support achievement of optimal outcomes. Participation could also include a radiologist, geneticist, medical oncologist, nurse and pharmacist as well as community partners participating in care.

3.1.2. All complex gynecologic malignancies should be discussed in multidisciplinary format.

3.2. Data collection and continuous quality improvement

3.2.1. Institutions and regions that have gynecologic oncology centres need to support quality processes such that social and financial barriers are not a limitation to participation.

3.2.2. It is the joint responsibility of the gynecologic oncology centres and gynecologic oncologists to actively monitor patient complications and have quality processes in place to support quality improvement. Every gynecologic oncology centre needs to have a system in place to identify adverse events and outcomes early in the patient's journey and rescue the patients to avoid further serious events.

3.2.3. A national, data-driven approach to deliver best practice care should be implemented for health authorities to provide appropriate supports to institutions to achieve the best practice. 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, regular review of morbidity and mortality rounds, 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 used and shared to ensure high-quality care.

3.2.4. Institutions should support adequate collection and measurement of patient experience data.

3.2.5. There is an expectation that techniques and processes of care will change over time. It is the expectation that when adopting new technologies and techniques, active tracking of adverse events and outcomes will be completed.

3.2.6. Appropriate federal, provincial and regional bodies should identify patients at high risk for negative outcomes, particularly those from vulnerable populations, and develop appropriate pathways and monitor compliance against the pathways.

3.2.7. Systematic communication and documentation tools, in alignment with published best practice guidelines, should be in place and embedded into quality processes to minimize errors in care and enhance quality of care delivered to patients.

Affiliations: From the Canadian Partnership Against Cancer, Toronto, Ont. (Prashad, Mitchell, Katwala, Daly, Earle, Finley); and the Department of Surgery, McMaster University, Hamilton, Ont. (Finley).

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