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Thoracic Surgical Oncology Standards

S. Sundaresan, B Langer, T Oliver, F Schwartz, M Brouwers, H Stern and the Expert Panel on Thoracic Surgical Oncology

Report Date: September 9, 2005

This Evidence-based Series is comprised of 3 sections:	
Section 1:	A Clinical Practice Guideline
Section 2:	A Systematic Review
Section 3:	Guideline Development and External Review - Methods and Results

A Special Project of the Surgical Oncology Program, Cancer Care Ontario and
The Program in Evidence-based Care, Cancer Care Ontario.
Developed by the Expert Panel on Thoracic Surgical Oncology.

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Evidence-Based Series: Section 1

Thoracic Surgical Oncology Standards

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Question

What is the optimum organization for the delivery of cancer-related thoracic surgery in Ontario?

Scope of Standards

The following standards, developed by the Expert Panel on Thoracic Surgical Oncology, apply to thoracic surgical oncology and include the full spectrum of multi-disciplinary assessment and treatment.

Surgeon Criteria

General characteristics for surgeons undertaking the management of patients with thoracic cancer are as follows:

- Knowledgeable about thoracic cancer biology, behaviour and natural history.
- Well informed of appropriate investigation techniques, multidisciplinary treatment options as well as postoperative management and the continuum of care.
- Skilled in modern techniques of surgery of the thoracic region.
- Experienced in the management of patients with thoracic diseases; specifically, the management of their complications, early and late.
- Committed to providing excellence in care to patients with thoracic diseases, specifically cancer patients, and to advancing knowledge in the field to improve patient outcomes.
- Committed to participating as a member of a multidisciplinary oncology team or to consult with such teams.
- Committed to participating in Cancer Care Ontario initiatives, particularly those of the Surgical Oncology Program, and/or in the Program in Evidence-based Care through membership in working groups, standing groups, or as active participants in external review and consultation processes.

Training

- Surgeons should have completed formal training in programs such as the Royal College of Physicians and Surgeons of Canada (RCPSC) programs in thoracic surgery, cardiothoracic surgery or cardiovascular and thoracic surgery, or the American Board of Thoracic Surgery or

other equivalent training recognized in Canada, and be certified and licensed to practice thoracic surgery in Canada.

- Surgeons should maintain expertise and competence through ongoing education in available Continuing Professional Development (CPD) programs, such as the Maintenance of Certification (MOC) program of the RCPSC or others.

Practice Setting

- Level 1 Tertiary care regional thoracic centres should be equipped to manage the full range of thoracic surgical care, as well as acting as the primary source to manage the most complex cases. To facilitate this goal, there should ideally be at least three thoracic surgeons on staff to provide intraoperative assistance and postoperative care, and weekend, holiday and emergency coverage.
    - This number of surgeons is needed to provide the capacity for tertiary clinical care in addition to the other requirements and responsibilities of a multidisciplinary cancer care facility, including teaching, research, quality improvement and program advancement.
    - A team approach is understood to improve the quality of surgery in complex cases and the judgment required to manage complications.

- In some regions of the province, the population may not support a Level 1 thoracic centre. In these regions, a Level 2, or secondary care unit, may be established to serve the basic thoracic surgery needs of the population.
    - Level 2 centres should have:
        - A minimum of one thoracic surgeon who performs routine thoracic procedures.
        - A formalized relationship with a Level 1 tertiary centre to which the thoracic surgeon may refer complex thoracic cases (e.g., tracheal resections, major chest wall resections, etc.).
        - Arrangements with surgical colleagues in those centres to provide support in the event of the thoracic surgeon's absence.
- Hospitals not meeting Level 1 or 2 thoracic surgery criteria should establish formal relationships with a Level 1 or Level 2 centre to facilitate consultation, appropriate management and referral of patients with thoracic malignancies. For those hospitals where the geographic location, patient volume or population catchments do not support Level 1 or 2 status, the basic thoracic service needs may still be provided in that area through formal relationships with Level 1 and 2 centers. Guided by the expertise of these centers, much of the initial/pre-operative evaluation can be conducted at that hospital itself. The surgical care would require transferring the patient to the Level 1 or 2 Thoracic surgery unit. However, upon completion of the surgery, the patients can return to the originating center for ongoing care and follow-up as deemed appropriate and necessary by the multidisciplinary group at the Level 1 or 2 centre.

Volume of Thoracic Surgery

- The practice setting should have a sufficient volume of thoracic surgery to maintain the skills of surgeons in both complex cancer surgery and thoracic surgery.
- Surgical volumes in the range of 20 esophagectomy cases per unit per year and 150 anatomic pulmonary resections per unit per year should be considered targets for Level 1 centres.
- Surgical volumes in the range of 7 esophagectomy cases per unit per year and 50 anatomic pulmonary resections per unit per year should be considered targets for Level 2 centres.
- These volumes were considered reasonable by the expert panel in light of the current distribution of thoracic surgery in the province, but it is recommended that these numbers be revisited as more data becomes available.

- The panel recognized that some regions may not have the population and cases to support the recommended target volumes, but could meet them as the predicted increase in cancer cases occurs.

Hospital Criteria
Important characteristics of the institution in which major thoracic cancer surgery would take place are:

- Commitment to high-quality, multidisciplinary thoracic cancer care.
- Commitment to providing or participating in an organizational structure to manage patients with these cancers through all phases of their care.
- Commitment to participate in activities that advance CCO's Provincial Cancer Plan (2004).
- Formal working relationship or association with a regional cancer centre, if a thoracic surgery unit is not located at the cancer centre.

Physical Resources and Collaborating Services
The following physical resources and collaborating services are considered to be reasonable criteria which Level 1 and 2 hospitals providing thoracic cancer surgery should be expected to meet in providing comprehensive acute care:

- Operating Room that is available 24 hours per day, 7 days per week (24/7), with video capacity for bronchial and esophageal scopes, Video Assisted Thoracic Surgery (VATS) and laparoscopy, intra-operative fluoroscopy capacity, and frozen section available 24/7 for emergencies.
- An interventional radiology suite that has the capacity for needle biopsy of lung and chest masses and drainage of loculated pleural collections and that is available 24/7 for emergencies, either onsite or at an on-call hospital. The capacity for embolization therapy for massive hemoptysis or prior to massive chest wall resections is essential for Level 1 centres.
- Full spectrum of radiological imaging, including X-ray and immediate portable X-ray access 24/7 for emergencies, esophageal contrast studies, CT, MRI, ultrasound, nuclear medicine and vascular imaging.
- For Level 1 units – a dedicated thoracic surgical service with consolidated beds to ensure an appropriate level of nursing, physiotherapy and respiratory therapy expertise.
- Specialized nursing care, including mechanical ventilation and invasive monitoring in a combination of ICU and step-down beds sufficient to support the volume of patients treated.
- Affiliation with a regional cancer center, with access to radiation therapy equipment and consultation from medical and radiation oncologists.
- Ambulatory endoscopy facility with access to surgeons, pulmonologists and gastroenterologists.
- On-site lab for pulmonary function tests (PFT), cardiac diagnostic assessment services, including echocardiography and nuclear imaging.
- On-site rapid response laboratory (i.e., biochemistry, hematology, transfusion and microbiology) services sufficient to support operating room, ICU, step-down and ward requirements 24/7.
- On-site or rapid access pathology and cytology services sufficient to support operating room, endoscopy and ambulatory services.

Human Resources
Human Resources should include:

- Thoracic surgeons.
- Anesthesiologists skilled in thoracic anesthesia techniques.

- Other medical specialists including gastroenterologists, pulmonary medicine specialists, intensivists, a thoracic pathologist and a radiologist with a subspecialty interest in diagnostic and interventional procedures in the chest.
- Allied professionals, including dedicated nurses; chest physiotherapists accessible 7 days a week; respiratory therapists available 24/7; dietary/nutritional, home care, social work, and pharmacy support; and access to a palliative care team.
- Formalized partnerships and access to oncology specialists including medical oncologists and radiation oncologists.
- Access to other consulting specialties as needed, such as infectious disease, cardiology and neurology specialists.

Organizational Criteria

- The successful management of patients with thoracic problems, particularly those with thoracic malignancies, by involving a multidisciplinary team approach with the use of standard diagnostic and treatment protocols and the involvement of a variety of surgical and non-surgical specialists.
- For Level 1 units - a designated thoracic unit with identified leadership and accountability.
- A system of regular review of multidisciplinary patient management (e.g. multidisciplinary clinics, clinical rounds, educational rounds, morbidity and mortality review, and formal ongoing outcome measurements and quality assurance) is essential for the achievement of optimal patient outcomes.
- Participation in regional and provincial integrated networks of care as outlined in the CCO Provincial Cancer Plan (2004) to facilitate patient access, consultation, referral, quality improvement and continuing professional development.
- Infrastructure support for participation, and the participation, of patients in clinical research in thoracic care, both in local and national studies.

Development of the Standards Document

Evidence on thoracic cancer surgery was gathered through a systematic search of the literature and a scan of documents from organizations concerned with thoracic surgery quality practice. Evidence was reviewed by members of the Expert Panel on Thoracic Cancer Surgical Oncology (see Appendix 1, Section 3) investigating the delivery of cancer-related thoracic surgery in Ontario.

The panel included thoracic surgeons, general surgeons, a medical oncologist, a radiation oncologist, social and behavioural scientists, a hospital Chief Executive Officer, a Cancer Care Ontario Regional Vice President, pathologists, radiologists and methodologists, and representatives from the Canadian Association of Thoracic Surgeons and the Ontario Association of General Surgeons, with representation from across the province.

The standards were developed using a combination of evidence-based analysis, existing recommendations from other jurisdictions, and incorporated expert opinion based on experience and consensus. The panel analyzed data on the current distribution of thoracic cancer surgery across Ontario to inform the process of developing volume standards for Ontario. The standards were developed to accommodate long-range needs and take into account the projected increase in thoracic cancer surgery needs over the next decade due to a growing and aging population.

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