

Entrustable Professional Activities for Thoracic Surgery

2025
VERSION 1.0

This document applies to those who begin training on or after July 1, 2025.

This document is to be used in conjunction with the *Entrustable Professional Activity User Guide*, which is available on the Royal College's website.

Thoracic Surgery: Transition to Discipline EPA #1

Assessing and initiating management for patients with common conditions

Key Features:

- The focus of this EPA is the application of the clinical skills acquired in primary specialty training in the new setting of thoracic surgery residency.
- This includes performing a history and physical exam, interpreting diagnostic investigations (e.g., CXR, CT thorax), determining operability (as relevant), and proposing and documenting a plan for management that may include medical or surgical intervention for patients with presentations that are common in thoracic surgery.
- This EPA includes timely recognition and resuscitation of critically ill patients.

Assessment Plan:

Direct observation and indirect observation (case review) by supervisor (attending staff surgeon), which may include input from other health professionals

Use form 1. Form collects information on:

- Observation (select all that apply): direct; indirect (case review); review of documentation
- Case mix: acute/emergency; elective

Collect 3 observations of achievement

- At least 2 direct observations
- At least 1 case review that includes a review of the documentation
- At least 1 acute/emergency presentation

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CanMEDS Milestones:

- 1 ME 2.1 Prioritize issues to address in the patient's assessment and management**
- 2 ME 2.2 Elicit a history and perform a physical exam relevant to the presentation**
- 3 ME 2.2 Select and/or interpret investigations**
- 4 ME 2.2 Integrate the clinical data to establish the diagnosis and, if relevant, stage, prognosis, and/or severity of the condition**
- 5 ME 2.4 Develop a plan for management, which may include additional investigations, observation, surgery, and/or non-operative intervention**
- 6 ME 4.1 Determine if there is a need for consultation with another specialist or service**
- 7 ME 3.2 Obtain informed consent for any planned intervention**
- 8 COM 3.1 Share information with the patient and family about the patient's condition and plans for management clearly and compassionately**
- 9 COM 5.1 Document the clinical encounter to adequately convey clinical reasoning and the rationale for decisions and/or recommendations**
- 10 HA 1.1 Respond to an individual patient's health needs**

Thoracic Surgery: Transition to Discipline EPA #2

Performing diagnostic upper endoscopy

Key Features:

- The focus of this EPA is the application of the surgical skills acquired in primary specialty training in the new setting of thoracic surgery residency to perform an EGD, with or without biopsy.
- This includes the pre-procedural skills of preparing for the procedure (obtaining consent, reviewing imaging, preparing equipment, positioning and preparing the patient), performing the technical skills of diagnostic EGD, working effectively with the endoscopy team, and providing immediate post-procedural care including recognition and management of complications.
- It also includes delineation of normal versus abnormal findings, description of lesions using standardized nomenclature, and consideration of differential diagnosis.
- This EPA should not be observed with cases done under general anesthetic.

Assessment Plan:

Direct observation by supervisor

Use form 2

Collect 1 observation of achievement

CanMEDs Milestones:

- 1 ME 3.4 Administer local anesthesia and/or sedation to optimize patient safety and comfort**
- 2 ME 3.4 Assemble and verify endoscope function**
- 3 ME 3.4 Intubate the esophagus under direct vision**
- 4 ME 3.4 Achieve clear visualization**
- 5 ME 3.4 Identify key anatomic landmarks and clinically relevant findings**
- 6 ME 3.4 Perform tissue biopsies in quantity and quality as appropriate to indication**
- 7 ME 3.4 Identify and respond to immediate complications of the procedure, if applicable**
- 8 COL 1.2 Make effective use of nurses and/or assistants**
- 9 P 1.1 Work within personal limits, asking for help as needed**
- 10 COM 5.1 Document the endoscopic procedure and its outcome, using appropriate terminology to describe findings**

Thoracic Surgery: Transition to Discipline EPA #3

Performing chest tube insertion

Key Features:

- This EPA includes preparing for the procedure (obtaining consent, reviewing imaging, preparing equipment, positioning and preparing the patient), performing the technical skills of the procedure including selection and positioning of the tube, using ultrasound guidance when appropriate, and providing immediate post-procedural care including evaluating tube position and recognizing and managing complications.
- This EPA should be observed with procedures done at the bedside.

Assessment plan:

Direct observation or indirect observation (review of imaging or procedure note) by supervisor or Core or TTP resident

Use form 2

Collect 1 observation of achievement

CanMEDs Milestones:

- 1 ME 3.1 Determine the safety and appropriateness of chest tube insertion and the appropriate site**
- 2 ME 3.2 Obtain and document informed consent, explaining the risks and rationale for the procedure**
- 3 ME 3.4 Prepare to obtain and handle samples, sending for appropriate testing**
- 4 ME 3.4 Set up, position, and drape the patient for the procedure**
- 5 ME 3.4 Administer local anesthesia and/or sedation to optimize patient safety and comfort**
- 6 ME 3.4 Perform chest tube insertion, using ultrasound guidance when appropriate**
- 7 ME 3.4 Evaluate tube position**
- 8 ME 3.4 Recognize and manage complications**
- 9 ME 3.4 Document the procedure and its outcome**

Thoracic Surgery: Foundations EPA #1

Leading the delivery of care on the thoracic surgery inpatient service

Key Features:

- This EPA focuses on management of the thoracic surgery inpatient service as the resident leading the inpatient team.
- This includes leading rounds, preparing patients for surgery, providing routine post-operative care including managing and troubleshooting drains and chest tubes, recognizing when a patient is experiencing an expected versus unexpected post-operative course, working effectively with the interprofessional team, and participating in discharge planning and patient and family education.
- The observation of this EPA is not based on a single patient encounter, but rather on the resident performance over a period of at least one week.

Assessment Plan:

Direct and indirect observation (case review) by supervisor which may include input from other health care professionals

Use form 1

Collect 2 observations of achievement

- At least 2 different observers

CanMEDS Milestones:

- 1 ME 1.1 Demonstrate responsibility and accountability for decisions regarding patient care**
- 2 L 4.1 Manage time and prioritize tasks**
- 3 COL 1.2 Consult as needed with other health care professionals**
- 4 ME 2.4 Develop and implement plans for ongoing care, discharge, and follow-up**
- 5 HA 1.1 Facilitate timely patient access to services and resources**
- 6 COL 1.3 Communicate effectively with the health care team**
- 7 L 4.1 Integrate supervisory and teaching responsibilities into the overall management of the clinical service**
- 8 P 1.1 Behave in a professional manner**
- 9 COM 3.1 Share information with patients and families about ongoing delivery of care**
- 10 COM 5.1 Document the clinical encounter to adequately convey clinical reasoning and the rationale for decisions and/or recommendations**

Thoracic Surgery: Foundations EPA #2

Performing bronchoscopy for diagnosis and for airway management

Key Features:

- This EPA includes the following procedures: performing bronchoalveolar lavage (BAL), bronchial brushing, bronchial biopsy, and pulmonary toilet, as well as providing assistance with airway management (e.g., lung isolation techniques or confirmation of dual lumen endotracheal tube placement, bronchial blocker placement, or ETT placement).
- This EPA may be observed in awake and intubated patients.

Assessment Plan:

Direct observation by supervisor

Use form 2. Form collects information on:

- Procedure: bronchoalveolar lavage (BAL); bronchial brushing; bronchial biopsy; pulmonary toilet; lung isolation techniques; dual lumen intubation; bronchial blocker placement; ETT placement; other
- Intubated: no; yes

Collect 4 observations of achievement

- At least 1 bronchoscopy in an awake patient (not intubated)
- At least 1 confirmation of placement of dual lumen endotracheal tube
- At least 1 confirmation of placement of bronchial blocker
- At least 2 different observers

CanMEDS Milestones:

- 1 ME 3.4 Administer local anesthesia and/or sedation to optimize patient safety and comfort**
- 2 ME 3.4 Assemble and verify endoscope function**
- 3 ME 3.4 Maintain orientation, localization, and clear visualization during the procedure**
- 4 ME 3.4 Identify key anatomic landmarks and clinically relevant findings**
- 5 ME 3.4 Perform the intended intervention**
- 6 ME 3.4 Identify and respond to immediate complications of the procedure, if applicable**
- 7 COL 1.2 Make effective use of nurses and/or assistants**
- 8 P 1.1 Work within personal limits, asking for help as needed**

- 9 ME 2.2 Interpret the clinical significance of the findings of the endoscopic procedure**
- 10 COM 5.1 Document the endoscopic procedure and its outcome, using appropriate terminology to describe findings**

Thoracic Surgery: Foundations EPA #3

Providing interventional management for patients with simple pleural disease

Key Features:

- This EPA focuses on the interventional management of pleural disorders, including benign and malignant presentations, using open and minimally invasive techniques.
- This includes the following procedures: thoracoscopy; thoracentesis; pleurodesis (chemical or mechanical); and placement of an indwelling catheter.

Assessment Plan:

Direct observation of operative procedure by supervisor or direct and/or indirect observation (case review) of bedside procedure by supervisor, nurse practitioner, physician assistant, clinical associate, or Core or TTP resident, with input from nurses

Use form 2. Form collects information on:

- Procedure: thoracoscopy; thoracentesis; pleurodesis (chemical or mechanical); placement of an indwelling catheter
- Observation: direct; indirect (case review)
- Procedure setting: operative; bedside

Collect 2 observations of achievement

- At least 1 direct observation of operative procedure
- At least 2 different observers

CanMEDS Milestones:

- 1 ME 3.2 Obtain and document informed consent, explaining the risks and rationale for the procedure**
- 2 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
- 3 ME 3.4 Prepare to obtain and handle samples, sending for appropriate testing**
- 4 ME 3.4 Set up, position, and drape the patient for the procedure**
- 5 ME 3.4 Administer local anesthesia and/or sedation to optimize patient safety and comfort**
- 6 ME 3.4 Perform the procedure skilfully and safely**
- 7 COL 1.2 Make effective use of nurses and/or assistants**
- 8 ME 3.4 Recognize and manage complications**
- 9 ME 3.4 Document the procedure and its outcome**

Thoracic Surgery: Foundations EPA #4

Obtaining surgical access and exposure

Key Features:

- This EPA focuses on obtaining appropriate surgical access and exposure using a variety of techniques and incision sites commonly used in Thoracic Surgery.
- It also includes closing the incision.
- This includes laparotomy, laparoscopy, thoracotomy (clamshell, hemi clamshell), sternotomy, thoracoscopy, and cervical and thoracoabdominal incisions.

Assessment Plan:

Direct observation by supervisor or Core or TTP resident, which may include input from other health care professionals

Use form 2. Form collects information on:

- Procedure: cervical incision for exposure of the esophagus; laparoscopy; laparotomy; sternotomy; thoracoabdominal incision; thoracoscopy; thoracotomy

Collect 4 observations of achievement

- At least 1 cervical incision for exposure of the esophagus
- At least 1 sternotomy
- At least 1 thoracoscopy
- At least 1 thoracotomy
- At least 2 different observers

CanMEDS Milestones:

- 1 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
- 2 ME 3.4 Set up, position, and drape the patient for the procedure**
- 3 ME 5.2 Participate in the surgical safety checklist or equivalent**
- 4 ME 3.4 Select the appropriate site and technique and perform the incision**
- 5 ME 3.4 Establish adequate exposure**
- 6 ME 3.4 Close the incision**
- 7 ME 3.4 Use surgical instruments and equipment correctly and in a fluid manner**
- 8 COL 1.2 Make effective use of operative assistants**
- 9 P 1.1 Work within personal limits, asking for help as needed**
- 10 COL 1.2 Work effectively with the OR team**

Thoracic Surgery: Foundations EPA #5

Performing non-anatomic lung resections

Key Features:

- This EPA includes the following procedures for benign or malignant pathologies: wedge resection of lung nodules, bullectomy, and lung biopsy.
- This includes positioning the patient, obtaining access, use of appropriate instruments, orientation within the chest, tissue handling and lung retraction, achieving adequate margins, use and selection of staplers, specimen removal, and appropriate specimen processing (selection of correct tests, orientation of the sample and communication with the pathology lab).
- This EPA may include lymph node sampling.

Assessment Plan:

Direct observation by supervisor, which may include input from other health care professionals

Use form 2. Form collects information on:

- Procedure: bullectomy; lung biopsy; wedge resection
- Condition: benign; malignant

Collect 3 observations of achievement

- At least 1 lung biopsy
- At least 1 wedge resection for malignant disease
- At least 2 different observers

CanMEDS Milestones:

- 1 P 1.2 Prepare for the procedure, reviewing relevant investigations and pre-operative assessments, consults, and consent**
 - 2 ME 3.4 Set up, position, and drape the patient for the procedure**
 - 3 ME 5.2 Participate in the surgical safety checklist or equivalent**
 - 4 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
 - 5 ME 3.4 Perform the procedure skilfully and safely**
 - 6 ME 3.4 Anticipate, recognize, and respond to intraoperative challenges**
 - 7 ME 3.4 Demonstrate intraoperative judgement**
 - 8 COL 1.2 Make effective use of operative assistants**
 - 9 P 1.1 Work within personal limits, asking for help as needed**
 - 10 COL 1.2 Work effectively with the OR team**
 - 11 COM 5.1 Document the surgical procedure in a complete and timely manner**
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Thoracic Surgery: Core EPA #1

Assessing and managing patients with complex presentations

Key Features:

- This EPA includes performing a comprehensive assessment; selecting, interpreting, and integrating investigations; assessing operability and resectability; and developing and implementing a management plan which may include medical and/or surgical intervention such as neoadjuvant and adjuvant treatment.
- This includes selecting an operative approach, including understanding operative and peri-operative management and recognizing the need for consultation with other specialties.
- Presentations may be complex due to the nature of the benign or malignant disease, borderline cardiopulmonary function, and/or the presence of concurrent conditions.

Assessment Plan:

Direct and/or indirect observation (case review), which may include input from other members of the health care team

Use form 1. Form collects information on:

- Site: airway; chest wall; esophagus/stomach; lung; mediastinum; pleura
- Diagnosis: benign; malignant
- Case mix: borderline pulmonary function test; borderline candidate for other reasons; needing neoadjuvant therapy; other

Collect 7 observations of achievement

- At least 1 benign esophageal/stomach case
- At least 1 malignant case needing neoadjuvant therapy
- At least 1 case with borderline pulmonary function test
- At least 1 case that is borderline for any other reason, including resectability
- At least 2 different observers

CanMEDS Milestones:

- 1 ME 1.4 Perform a clinical assessment that addresses all relevant issues**
 - 2 ME 2.2 Select and/or interpret investigations**
 - 3 ME 2.2 Assess the patient's candidacy for surgical intervention**
 - 4 ME 2.3 Establish goals of care with the patient and family**
 - 5 S 3.4 Integrate best evidence and clinical expertise into decision-making**
 - 6 ME 2.4 Develop a plan for management which may include additional investigation, observation, and endoscopic, surgical, and/or non-operative intervention**
 - 7 ME 2.4 Select the operative approach and formulate a plan for peri-operative management**
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- 8 ME 4.1** Determine if there is a need for consultation with another specialist or service
- 9 ME 2.2** Determine if the case warrants discussion at multidisciplinary rounds
- 10 COM 3.1** **Provide information to the patient and family about treatment options, including the choice of surgical technique and other treatment modalities**
- 11 HA 1.2** Provide recommendations for resources for patient education and support
- 12 COM 5.1** **Document the clinical encounter to adequately convey clinical reasoning and the rationale for decisions and/or recommendations**

Thoracic Surgery: Core EPA #2

Assessing and managing patients with emergency presentations

Key Features:

- This EPA focuses on timely assessment and management; this includes patients with emergencies in their initial presentation as well as intra-operative consultations and in post-operative complications.
- It includes providing airway management and resuscitation, recognizing the need for and consulting with other services for patient care (e.g., critical care, anesthesiology, medical imaging), and may include arranging for definitive management of the underlying etiology.
- Examples of emergency/urgent presentations include acute airway emergency, massive hemoptysis, mediastinitis, tension pneumothorax, and pericardial tamponade.

Assessment Plan:

Direct and/or indirect observation (case review) by supervisor, which may include input from other physicians (e.g., anesthesiology, emergency medicine, critical care)

Use form 1. Form collects information on:

- Setting: emergency department; ICU; intra-operative consultation; PACU; ward; other
- Presentation: airway emergency; hemoptysis; massive hemorrhage; mediastinitis; pericardial tamponade; shock; tension pneumothorax; other

Collect 4 observations of achievement

- At least 1 airway emergency
- At least 1 hemorrhage
- At least 1 mediastinitis

CanMEDS Milestones:

- 1 ME 2.1 Determine the acuity of the issue and the priorities for patient care**
- 2 ME 1.4 Act decisively and maintain control in critical situations**
- 3 ME 3.4 Provide airway management and/or resuscitation**
- 4 ME 2.2 Perform a clinical assessment relevant to the patient presentation in a time-effective manner**
- 5 ME 2.2 Select and/or interpret investigations**
- 6 ME 2.4 Develop a plan for definitive management**
- 7 COL 1.2 Interact effectively with other health care professionals**
- 8 ME 4.1 Determine appropriate disposition and/or setting for ongoing care**

- 9 L 4.2. Establish clear leadership in resuscitative efforts**
- 10 COM 3.1 Share information with the patient and family about the patient's condition and plans for management clearly and compassionately**

Thoracic Surgery: Core EPA #3

Performing anatomic lung resection

Key Features:

- This EPA focuses on the performance of uncomplicated segmentectomies, lobectomies, bi-lobectomies, and pneumonectomies and may include bronchoplasty and en bloc chest wall resection.
- This includes airway planning and management in collaboration with anesthesia.
- It does not include complex procedures, such as pulmonary artery sleeve resections.
- This EPA includes open and minimally invasive techniques (MIS).

Assessment Plan:

Direct observation by supervisor, which may include input from other health care providers

Use form 2. Form collects information on:

- Approach: MIS; open
- Procedure (select all that apply): bronchoplasty; en bloc chest wall resection; lobectomy-left lower; lobectomy-left upper; lobectomy-middle; lobectomy-right lower; lobectomy-right upper; pneumonectomy-left; pneumonectomy-right; segmentectomy-left lower; segmentectomy-left upper; segmentectomy-middle; segmentectomy-right lower; segmentectomy-right upper
- Post-neoadjuvant therapy: no; yes

Collect 10 observations of achievement

- At least 1 using MIS approach
- At least 1 using open approach
- At least 1 right upper lobectomy
- At least 1 left upper lobectomy
- At least 1 middle lobectomy
- At least 1 right lower lobectomy
- At least 1 left lower lobectomy
- At least 1 pneumonectomy
- At least 2 segmentectomies in 2 different anatomic regions
- At least 1 anatomic resection post neoadjuvant therapy
- At least 2 different observers for lobectomy

CanMEDS Milestones:

- 1 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
 - 2 P 1.2 Prepare for the procedure, reviewing relevant investigations and pre-operative assessments, consults, and consent**
 - 3 ME 3.4 Set up, position, and drape the patient for the procedure**
 - 4 ME 5.2 Participate in the surgical safety checklist or equivalent**
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- 5 **ME 3.4** Use surgical instruments and equipment correctly and in a fluid manner
- 6 **ME 3.4 Perform the procedure skilfully and safely**
- 7 **ME 3.4 Anticipate, recognize, and respond to intraoperative challenges**
- 8 **ME 3.4 Demonstrate intraoperative judgement**
- 9 **COL 1.2 Make effective use of operative assistants**
- 10 **P 1.1** Work within personal limits, asking for help as needed
- 11 **COL 1.2 Work effectively with the OR team**
- 12 **COM 5.1** Document the surgical procedure in a complete and timely manner

Thoracic Surgery: Core EPA #4

Performing surgery for patients with benign conditions of the esophagus

Key Features:

- This EPA includes antireflux surgery, esophageal myotomy, and surgical management of giant hiatus hernia, esophageal diverticulae, and esophageal perforation.
- The technical skills of this EPA may include mobilization of the EG junction, mobilization of the cervical esophagus, repair of the hiatus, and performance of diverticulectomy, fundoplication, myotomy, and esophageal lengthening.
- This EPA includes open and minimally invasive techniques (MIS).

Assessment Plan:

Direct observation by supervisor

Use form 2. Form collects information on:

- Urgency: elective; emergency
- Diagnosis: achalasia; antireflux; esophageal diverticulae; esophageal myotomy; esophageal perforation; giant hiatus hernia; other

Collect 3 observations of achievement

- At least 1 emergency surgery
- At least 1 esophageal myotomy
- At least 1 giant hernia
- At least 2 different observers

CanMEDS Milestones:

- 1 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
- 2 P 1.2 Prepare for the procedure, reviewing relevant investigations and pre-operative assessments, consults, and consent**
- 3 ME 3.4 Set up, position, and drape the patient for the procedure**
- 4 ME 5.2 Participate in the surgical safety checklist or equivalent**
- 5 ME 3.4 Use surgical instruments and equipment correctly and in a fluid manner**
- 6 ME 3.4 Perform the procedure skilfully and safely**
- 7 ME 3.4 Anticipate, recognize, and respond to intraoperative challenges**
- 8 ME 3.4 Demonstrate intraoperative judgement**
- 9 COL 1.2 Make effective use of operative assistants**
- 10 P 1.1 Work within personal limits, asking for help as needed**

11 COL 1.2 Work effectively with the OR team

12 COM 5.1 Document the surgical procedure in a complete and timely manner

Thoracic Surgery: Core EPA #5

Performing esophageal and gastric resection and reconstruction

Key Features:

- This EPA includes open and minimally invasive techniques (MIS).
- The technical skills of this EPA include esophageal and gastric resection, abdominal and thoracic lymph node dissection, creation of a gastric conduit, performance of an esophagogastric anastomosis, and may include pyloric drainage, mobilization of the cervical esophagus, or placement of a feeding jejunostomy.
- This EPA does not include complex procedures, such as colon interposition, jejunal flaps, retrosternal reconstruction, and salvage resections.

Assessment Plan:

Direct observation by supervisor

Use form 2. Form collects information on:

- Surgical task (select all that apply): cervical anastomosis; creation of a gastric conduit; esophageal and gastric resection; intrathoracic anastomosis; lymph node dissection-abdominal; lymph node dissection-thoracic; mobilization of the cervical esophagus; placement of a feeding jejunostomy; pyloric drainage

Collect 5 observations of achievement

- At least 1 cervical anastomosis
- At least 1 intrathoracic anastomosis
- At least 2 different observers

CanMEDs Milestones:

- 1 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
- 2 P 1.2 Prepare for the procedure, reviewing relevant investigations and pre-operative assessments, consults, and consent**
- 3 ME 3.4 Set up, position, and drape the patient for the procedure**
- 4 ME 5.2 Participate in the surgical safety checklist or equivalent**
- 5 ME 3.4 Use surgical instruments and equipment correctly and in a fluid manner**
- 6 ME 3.4 Perform the procedure skilfully and safely**
- 7 ME 3.4 Anticipate, recognize, and respond to intraoperative challenges**
- 8 ME 3.4 Demonstrate intraoperative judgement**
- 9 COL 1.2 Make effective use of operative assistants**
- 10 P 1.1 Work within personal limits, asking for help as needed**

11 COL 1.2 Work effectively with the OR team

12 COM 5.1 Document the surgical procedure in a complete and timely manner

Thoracic Surgery: Core EPA #6

Performing chest wall resection and reconstruction

Key Features:

- This EPA includes the use of open and minimally invasive techniques (MIS) in procedures such as rib and/or sternal resection for benign and malignant disease, first rib resection, chest wall reconstruction, creation of a thoracostomy window, surgical management of pectus defects, sternoclavicular joint resection, rib plating, disarticulation of the costovertebral joint, and/or thoracoplasty.
- This EPA does not include use of complex flap reconstruction or spine resection.

Assessment Plan:

Direct observation by supervisor

Use form 2. Form collects information on:

- Procedure (select all that apply): chest wall reconstruction; creation of a thoracostomy window; disarticulation of the costovertebral joint; first rib resection; rib plating; rib resection; sternal resection; sternoclavicular joint resection; surgical management of pectus defect; thoracoplasty

Collect 3 observations of achievement

- At least 1 chest wall reconstruction
- At least 2 different observers

CanMEDS Milestones:

- 1 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
- 2 P 1.2 Prepare for the procedure, reviewing relevant investigations and pre-operative assessments, consults, and consent**
- 3 ME 3.4 Set up, position, and drape the patient for the procedure**
- 4 ME 5.2 Participate in the surgical safety checklist or equivalent**
- 5 ME 3.4 Use surgical instruments and equipment correctly and in a fluid manner**
- 6 ME 3.4 Perform the procedure skilfully and safely**
- 7 ME 3.4 Anticipate, recognize, and respond to intraoperative challenges**
- 8 ME 3.4 Demonstrate intraoperative judgement**
- 9 COL 1.2 Make effective use of operative assistants**
- 10 P 1.1 Work within personal limits, asking for help as needed**

11 COL 1.2 Work effectively with the OR team

12 COM 5.1 Document the surgical procedure in a complete and timely manner

Thoracic Surgery: Core EPA #7

Providing operative treatment of diseases of the mediastinum and pericardium

Key Features:

- This EPA includes the use of open and minimally invasive techniques (MIS) in the management of patients with benign or malignant disease.
- This may include mediastinal mass resection, pericardial window creation, pericardial resection, sympathectomy, thymectomy, and operative management of mediastinitis.
- This EPA does not include vascular resection and reconstruction and does not include percutaneous drainage of the pericardium.

Assessment Plan:

Direct observation by supervisor

Use form 2. Form collects information on:

- Procedure: mediastinal mass resection; pericardial window creation; pericardial resection; operative management of mediastinitis; sympathectomy; thymectomy; other
- Approach (write in):

Collect 4 observations of achievement

- At least 1 trans-sternal resection of mediastinal mass
- At least 1 pericardial procedure
- At least 2 different observers

CanMEDS Milestones:

- 1 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
- 2 P 1.2 Prepare for the procedure, reviewing relevant investigations and pre-operative assessments, consults, and consent**
- 3 ME 3.4 Set up, position, and drape the patient for the procedure**
- 4 ME 5.2 Participate in the surgical safety checklist or equivalent**
- 5 ME 3.4 Use surgical instruments and equipment correctly and in a fluid manner**
- 6 ME 3.4 Perform the procedure skilfully and safely**
- 7 ME 3.4 Anticipate, recognize, and respond to intraoperative challenges**
- 8 ME 3.4 Demonstrate intraoperative judgement**
- 9 COL 1.2 Make effective use of operative assistants**
- 10 P 1.1 Work within personal limits, asking for help as needed**

11 COL 1.2 Work effectively with the OR team

12 COM 5.1 Document the surgical procedure in a complete and timely manner

Thoracic Surgery: Core EPA #8

Performing tracheal surgery

Key Features:

- This EPA may include open and percutaneous tracheostomy, neck and chest approaches for tracheal resection, repair of tracheal injury, repair of acquired tracheoesophageal fistula (TEF), and surgical management of tracheoinnominate fistula.
- It includes the use of open and minimally invasive techniques (MIS) for management of patients with benign or malignant disease.
- This includes cervical, anterior, and lateral approaches.
- This EPA may be observed in a simulation setting.

Assessment Plan:

Direct observation by supervisor

Use form 2. Form collects information on:

- Procedure: open tracheostomy; percutaneous tracheostomy; repair of acquired tracheoesophageal fistula (TEF); repair of tracheal injury; surgical management of tracheoinnominate fistula; tracheal resection
- Setting: clinical; simulation

Collect 3 observations of achievement

- At least 1 open tracheostomy
- No more than 2 tracheostomy
- At least 2 different observers
- No more than 1 procedure in simulation

CanMEDS Milestones:

- 1 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
 - 2 P 1.2 Prepare for the procedure, reviewing relevant investigations and pre-operative assessments, consults, and consent**
 - 3 ME 3.4 Set up, position, and drape the patient for the procedure**
 - 4 ME 5.2 Participate in the surgical safety checklist or equivalent**
 - 5 ME 3.4 Use surgical instruments and equipment correctly and in a fluid manner**
 - 6 ME 3.4 Perform the procedure skilfully and safely**
 - 7 ME 3.4 Anticipate, recognize, and respond to intraoperative challenges**
 - 8 ME 3.4 Demonstrate intraoperative judgement**
 - 9 COL 1.2 Make effective use of operative assistants**
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- 10 P 1.1 Work within personal limits, asking for help as needed**
- 11 COL 1.2 Work effectively with the OR team**
- 12 COM 5.1** Document the surgical procedure in a complete and timely manner

Thoracic Surgery: Core EPA #9

Performing surgery of the diaphragm

Key Features:

- This EPA includes operative management of congenital, traumatic, or iatrogenic diaphragmatic hernia (excluding standard hiatal hernia repair), resection and reconstruction for malignant disease, plication of the diaphragm, and operative repair of diaphragmatic injury.
- This includes open and minimally invasive techniques (MIS).

Assessment Plan:

Direct observation by supervisor

Use form 2. Form collects information on:

- Procedure: plication; repair; resection with reconstruction; resection without reconstruction; other (write-in)

Collect 2 observations of achievement

- At least 1 repair
- At least 2 different observers

CanMEDS Milestones:

- 1 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
- 2 P 1.2 Prepare for the procedure, reviewing relevant investigations and pre-operative assessments, consults, and consent**
- 3 ME 3.4 Set up, position, and drape the patient for the procedure**
- 4 ME 5.2 Participate in the surgical safety checklist or equivalent**
- 5 ME 3.4 Use surgical instruments and equipment correctly and in a fluid manner**
- 6 ME 3.4 Perform the procedure skilfully and safely**
- 7 ME 3.4 Anticipate, recognize, and respond to intraoperative challenges**
- 8 ME 3.4 Demonstrate intraoperative judgement**
- 9 COL 1.2 Make effective use of operative assistants**
- 10 P 1.1 Work within personal limits, asking for help as needed**
- 11 COL 1.2 Work effectively with the OR team**
- 12 COM 5.1 Document the surgical procedure in a complete and timely manner**

Thoracic Surgery: Core EPA #10

Performing surgical procedures for patients with complex pleural disease

Key Features:

- This EPA builds on the skills of Foundations to focus on the use of open and minimally invasive techniques (MIS) for patients with more complex pleural disease.
- This includes decortication, resection of pleural tumours, and surgical management of complex retained hemothorax.
- It does not include resection of mesothelioma.

Assessment Plan:

Direct observation by supervisor

Use form 2. Form collects information on:

- Procedure: decortication; resection; surgical management of complex retained hemothorax
- Presentation (select all that apply): benign; malignant; infectious; neoplastic; trapped lung; other

Collect 2 observations of achievement

- At least 1 decortication
- At least 2 different observers

CanMEDS Milestones:

- 1 ME 1.3 Apply knowledge of anatomy, key landmarks, and the intended procedure**
- 2 P 1.2 Prepare for the procedure, reviewing relevant investigations and pre-operative assessments, consults, and consent**
- 3 ME 3.4 Set up, position, and drape the patient for the procedure**
- 4 ME 5.2 Participate in the surgical safety checklist or equivalent**
- 5 ME 3.4 Use surgical instruments and equipment correctly and in a fluid manner**
- 6 ME 3.4 Perform the procedure skilfully and safely**
- 7 ME 3.4 Anticipate, recognize, and respond to intraoperative challenges**
- 8 ME 3.4 Demonstrate intraoperative judgement**
- 9 COL 1.2 Make effective use of operative assistants**
- 10 P 1.1 Work within personal limits, asking for help as needed**
- 11 COL 1.2 Work effectively with the OR team**
- 12 COM 5.1 Document the surgical procedure in a complete and timely manner**

Thoracic Surgery: Core EPA #11

Performing advanced diagnostic and therapeutic endoscopic interventions

Key Features:

- This EPA includes flexible and rigid bronchoscopy, mediastinoscopy, and esophagoscopy (flexible and rigid), and procedures such as endobronchial ultrasound, endoscopic ultrasound, foreign body retrieval, airway or esophageal stenting, tracheal or esophageal dilation (balloon, guided vs unguided), tracheal tumour debridement, and endoscopic mucosal or submucosal resection (EMR or ESD).
- In addition to pre-procedural skills, the technical skills of the procedure, and post-procedure patient care, this EPA includes delineation of normal versus abnormal findings, description of lesions using standardized nomenclature, and intra-procedural decision making as a result of clinically significant findings.
- This EPA may be observed in the simulation setting.

Assessment Plan:

Direct observation by supervisor

Use form 2. Form collects information on:

- Procedures: rigid bronchoscopy; EBUS; EUS; esophageal stenting; interventional management of central airway obstruction; mediastinoscopy; other (write in)
- Simulation: no; yes

Collect 5 observations of achievement

- At least 1 rigid bronchoscopy
- At least 1 EBUS
- At least 1 esophageal stenting
- At least 1 interventional management of central airway obstruction
- At least 1 mediastinoscopy
- No more than 2 procedures in simulation
- At least 2 different observers

CanMEDS Milestones:

- 1 ME 3.1 Determine a plan for sedation and monitoring appropriate to the patient's condition and the clinical setting**
- 2 ME 3.4 Select and gather appropriate ancillary equipment**
- 3 ME 5.2 Participate in the surgical safety checklist or equivalent**
- 4 ME 3.4 Maintain orientation, localization, and clear visualization during the procedure**
- 5 ME 3.4 Identify key anatomic landmarks and clinically relevant findings**
- 6 ME 3.4 Interpret the clinical significance of findings and modify the procedure as**

indicated

- 7 ME 3.4 Demonstrate appropriate and safe use of ancillary equipment (e.g. electrocautery, endoscopic ultrasound, dilation equipment)**
- 8 ME 3.4** Demonstrate appropriate pace and progress
- 9 ME 3.4 Identify and respond to immediate complications of the procedure, if applicable**
- 10 COL 1.2 Communicate effectively with the health care team**
- 11 P 1.1** Work within personal limits, asking for help as needed
- 12 COM 5.1** Document the endoscopic procedure and its outcome, using appropriate terminology to describe findings

Thoracic Surgery: Core EPA #12

Managing patients with perioperative complications

Key Features:

- This EPA focuses on recognizing and managing patients with postoperative complications.
- This includes investigation and management and may include consulting other medical or surgical services.
- Examples of complications include airway injury, esophageal anastomotic leak, postoperative bleeding, postoperative cardiopulmonary complications, post-pneumonectomy complications, chylothorax, infectious complications, mucus plugging, and/or prolonged air leak.

Assessment Plan:

Direct and/or indirect observation (case review) by supervisor, which may include input from other health care professionals

Use form 1. Form collects information on:

- Complication: airway injury; chylothorax; dysrhythmia; esophageal anastomotic leak; hemorrhage; infection; mucus plugging; postoperative bleeding; prolonged air leak; respiratory failure

Collect 6 observations of achievement

- At least 1 chylothorax
- At least 1 dysrhythmia
- At least 1 esophageal anastomotic leak
- At least 1 hemorrhage
- At least 1 prolonged air leak
- At least 1 respiratory failure

CanMEDs Milestones:

- 1 ME 2.1 Identify patients that are at risk of clinical deterioration**
- 2 ME 1.4 Perform a clinical assessment that addresses all relevant issues**
- 3 ME 2.4 Provide airway management and/or resuscitation, as indicated**
- 4 ME 2.2 Develop a differential diagnosis relevant to the patient's presentation**
- 5 ME 2.2 Select and/or interpret investigations**
- 6 ME 4.1 Determine if there is a need for consultation with another specialist or service**
- 7 ME 2.4 Develop and implement a management plan**
- 8 ME 3.3 Consider urgency and potential for deterioration in advocating for the timely**

execution of a procedure or therapy

- 9 COM 3.2 Communicate the reasons for unanticipated clinical outcomes and/or disclose patient safety incidents to the patient and/or family**
- 10 COM 5.1** Document the clinical encounter to adequately convey clinical reasoning and the rationale for decisions and/or recommendations

Thoracic Surgery: Core EPA #13

Contributing thoracic surgery expertise to multidisciplinary cancer conference discussions

Key Features:

- This EPA focuses on the thoracic surgeon's role within and contributions to the multidisciplinary team with regards to shared decision-making about patient management.
- This includes reviewing, synthesizing, and presenting a case synopsis, highlighting the challenges and areas of controversy, and engaging with and soliciting appropriate opinions from the group.
- It may include a review of relevant literature.
- It also includes summarizing the group consensus and documenting the discussion and plan.

Assessment Plan:

Direct and/or indirect observation (case review and dictation/ letter) by supervisor, with input from other members of the group

Use form 1.

Collect 2 observations of achievement

CanMEDS Milestones:

- 1 ME 2.2 Synthesize cases for discussion at multidisciplinary rounds**
- 2 S 3.4 Integrate best evidence and clinical expertise**
- 3 COL 1.3 Work with clinical colleagues to develop and implement a management plan**
- 4 COL 2.2 Facilitate the development of consensus when there are differences in recommendations provided by other health care professionals**
- 5 P 1.1 Behave in a professional manner**
- 6 COM 5.1 Document the encounter to convey the discussion and its outcome**

Thoracic Surgery: Transition to Practice EPA #1

Managing an outpatient clinic

Key Features:

- This EPA focuses on the management of clinical responsibilities over and above the care of an individual patient.
- This includes triaging referrals and booking them in an appropriate time frame, managing the flow of patients within the scheduled clinic time, reviewing test results/acting on results, and completing documentation in timely manner, as well as working effectively with the clinic staff.
- This EPA includes booking and organizing OR slates and ambulatory day care slates (Endo/Bronch/Minors).
- The observation of this EPA is based on the resident performance over a period of at least one week.

Assessment Plan:

Direct observation by supervisor, which may include input from other health care professionals

Use form 1.

Collect 1 observation of achievement

CanMEDS Milestones:

- 1 L 4.1 Manage time effectively in the outpatient clinic**
- 2 ME 2.1 Triage referrals on the basis of the patient's condition**
- 3 ME 1.4 Perform relevant clinical assessments**
- 4 ME 2.4 Establish patient-centered management plans**
- 5 S 3.4 Integrate best evidence and clinical expertise into decision-making**
- 6 COM 5.1 Document clinical encounters in an accurate, complete, and timely manner**
- 7 COL 1.2 Work effectively with outpatient clinic staff**
- 8 L 4.2 Book operative cases and other procedures with appropriate urgency, duration, equipment, and patient preparation**
- 9 L 4.1 Integrate supervisory and teaching responsibilities into the overall management of the clinic**
- 10 P 1.1 Behave in a professional manner**

Thoracic Surgery: Transition to Practice EPA #2

Managing the day's list of operative procedures

Key Features:

- This EPA integrates procedural abilities for individual cases with the ability to work effectively in the operating room: managing the operative day efficiently, prioritizing, communicating, and working effectively with the anesthesiologist(s), nurses, and other consulting surgeons, and directing surgical assistants.
- This EPA may be observed in any mix of thoracic surgery operative procedures, performed for inpatient or ambulatory patients.
- Observation of this EPA is based on managing a full day's OR list and is to be documented at the end of a procedure list.

Assessment Plan:

Direct observation by supervisor, which may include input from other health care professionals

Use form 1.

Collect 2 observations of achievement

- At least 2 different observers

CanMEDS Milestones:

- 1 P 1.2 Prepare for the day, reviewing the list of planned procedures**
- 2 ME 3.4 Anticipate and prepare for technical challenges and/or significant findings**
- 3 ME 3.4 Select appropriate materials and equipment for the procedure**
- 4 ME 3.4 Manage unexpected intraoperative findings and perioperative issues, adjusting the procedure as appropriate**
- 5 COL 3.2 Transition patient care safely to the post-operative team**
- 6 ME 4.1 Establish plans for post-operative care**
- 7 COM 3.1 Convey information about the procedure, operative findings, and patient status to the family clearly and compassionately**
- 8 COM 5.1 Document surgical procedures in an accurate, complete, and timely manner**
- 9 S 2.3 Provide junior learners with opportunities for appropriate clinical responsibility**
- 10 S 2.5 Provide junior learners with feedback to enhance learning and performance**
- 11 P 4.1 Maintain professional clinical performance in demanding or stressful clinical settings**

Thoracic Surgery: Transition to Practice EPA #3

Performing advanced thoracic surgery procedures with an experienced assistant

Key Features:

- This EPA focuses on the resident having a sound plan and performing aspects of the procedure with prompting and an experienced assistant and providing a plan for immediate post-operative care.
- This EPA does not include selection of material or equipment, directing surgical assistance, or taking primary responsibility for the flow of the operation and effectiveness of the OR team.
- Examples of advanced thoracic surgery procedures include bronchial sleeve resection and superior sulcus tumour resection, and may include other procedures such as bronchoplastic pulmonary resection with/without vascular reconstruction, en bloc resection of spine or cardiac structures, esophageal resection requiring reconstruction using atypical conduits such as colon or small intestinal grafts or atypical conduit placements (such as retrosternal), pulmonary artery sleeve resection, reconstruction after diversion, salvage esophageal resection, and reconstruction after diversion or for end-stage esophageal disease.

Assessment Plan:

Direct observation by supervisor

Use form 2. Form collects information on:

- Procedure: bronchial sleeve resection; superior sulcus tumour resection; other (write in)

Collect 3 observations of achievement

- At least 1 bronchial sleeve resection
- At least 1 superior sulcus tumour
- At least 2 different observers

CanMEDs Milestones:

- 1 ME 1.3 Apply knowledge of anatomy, key landmarks, indications for surgery, and surgical approach**
 - 2 P 1.2 Prepare for the procedure, reviewing relevant investigations and pre-operative assessments, consults, and consent**
 - 3 ME 3.4 Set up, position, and drape the patient for the procedure**
 - 4 ME 5.2 Participate in the surgical safety checklist or equivalent**
 - 5 ME 3.4 Use surgical instruments and equipment correctly and in a fluid manner**
 - 6 ME 3.4 Perform safe dissection**
 - 7 ME 3.4 Anticipate, recognize, and respond to intraoperative challenges**
-

- 8 ME 3.4 Demonstrate intraoperative judgement**
- 9 P 1.1 Work within personal limits, asking for help as needed, including from other specialties**
- 10 COL 1.2 Work effectively with the OR team**