



OPERATING ROOM ROLES AND OBJECTIVES FOR RESIDENTS & FELLOWS

MEDICAL EXPERT

Most Important Diseases/Conditions to Study

For each of the following, be able to describe the pertinent history, physical examination, rationale for and interpretation of pre-operative investigations, indications and contraindications for surgery, expected post-operative course, care in hospital, possible complications and their presentation/work-up/treatment, and appropriate follow-up protocol. For malignant conditions, be able to describe and discuss the use of neoadjuvant and adjuvant therapies, name and discuss significance of associated lymph node stations and describe considerations for extent of resection and operative approach. For all malignant conditions, it is expected that residents will participate in patient care in clinic and attend discussions of patients at Upper GI tumour board.

Gastric/Esophageal Adenocarcinoma

Esophageal Squamous Cell Carcinoma

Gastro-intestinal stromal tumour and other gastric and esophageal submucosal lesions

Achalasia and other esophageal motor disorders

Barrett's Esophagus

GERD

Hiatal Hernia

Esophageal Diverticuli

Lung:

1. Anatomy and Common Congenital Abnormalities of the Lungs and Airways
2. Management of Pulmonary Complications after major surgery: This includes atelectasis, sputum retention and mucous plugging, postoperative pneumonia, arrhythmias, respiratory failure, choice and use of antibiotics, and indications for bronchoscopy
3. Management of significant pulmonary sepsis: This includes management of lung abscess, choice of antibiotics in pulmonary infections, options for percutaneous drainage and indications for surgical treatment
4. Principles of pulmonary surgery in chest trauma: This includes knowledge of the indications for urgent thoracotomy, principles of lung conservation and repair and anatomy of the pulmonary hilum from the posterolateral thoracotomy approach.
5. Lung Tumors: This includes principles of radiological assessment, approach to diagnosis, staging, methods of assessment of cardiopulmonary function and principles of surgical resection in lung cancer.

Airway:

1. Anatomy, including normal and abnormal bronchoscopic appearances
2. Tracheostomy. This includes indications, technique, recognition and acute care of complications. These would include vascular and esophageal fistulas and late airway stenosis.



Esophagus:

1. Anatomy, including interpretation of barium swallow and recognition of normal and abnormal endoscopic appearances.
2. Esophageal perforation: This includes knowledge of the mechanisms, recognition, diagnosis, acute resuscitation, principles or surgical repair and postoperative care and possible complications.
3. GERD and Esophageal Motor Disorder: Modalities of assessment (clinical, barium swallow, manometry, endoscopy). Principles of selecting patients for surgery, selection of appropriate procedure, techniques of surgery.
4. Esophageal Tumors: This includes principles of diagnosis and staging of esophageal cancer. Understanding of surgical approaches for esophageal resection and reconstruction, and recognition and knowledge of principles of management of post esophagectomy complications.

Pleural Space:

1. Sepsis: This includes recognition, diagnosis, acute drainage, fibrinolytic therapy, and principles of surgical treatment of acute empyema.
2. Pleural Effusion – Includes recognition and management of pleural effusion: Diagnosis, principles of tube thoracostomy and surgical management.
3. Chylothorax: Includes recognition, diagnosis and principles of treatment of chylothorax, including those arising following esophagectomy or other chest operations.

Chest Trauma:

1. Principles of stabilization.
2. Flail chest injury. This includes recognition, stabilization and principles of management.
3. Hemothorax. Includes recognition, tube thoracostomy, and principles of surgical management.

PROCEDURES

Global Cognitive Expectations for All Operative Cases

Senior General Surgery Residents & Fellows:

- Know the relevant history, work-up and indications for surgery for each patient before coming to the operating room
- Review and be able to discuss results of all relevant pre-operative investigations
- Review operation to be performed ahead of time and be able to describe key steps and anatomical landmarks
- Be present for the time-out and be able to answer the questions of the surgical team (nurses, anesthetist) as would be expected of the attending surgeon
- Take a lead role in preparing the patient for surgery once in the OR (e.g. positioning, instrument selection, use of foley catheters and NGTs, preparation of endoscope and performance and interpretation of endoscopy, etc)
- Lead the junior residents in understanding the rationale for, and planning and executing, the post-operative patient care plan



Objectives of Training

- Scrub for all cases, participate in operation according to level of ability and need as dictated by attending surgeon and observe all components of operation when not actively operating (scrubbing out for parts of the case or not attending cases solely because one is not actively operating may be considered a breach of professionalism and will limit participation in future cases)

Junior Residents

- Know the relevant history, work-up and indications for surgery for each patient before coming to the operating room
- Review and be able to discuss results of all relevant pre-operative investigations
- Review operation to be performed ahead of time and be able to describe key steps and anatomical landmarks
- Assist in preparing the patient for surgery once in the OR (e.g. positioning, instrument selection, use of foley catheters and NGTs, preparation of endoscope and performance and interpretation of endoscopy, etc)
- Take ownership of understanding the rationale for, and planning and executing, the post-operative patient care plan
- Scrub for all cases when feasible and space at the OR table allows, participate in operation according to level of ability and need as dictated by attending surgeon and observe all components of operation when not actively operating (scrubbing out for parts of the case or not attending cases solely because one is not actively operating may be considered a breach of professionalism and will limit participation in future cases)

Common Procedures:

Upper Endoscopy - Diagnostic

Open Gastro-Esophagectomy (thoracoabdominal, Ivor-Lewis, three hole)

Open Subtotal and Total Gastrectomy

VATS/Lap Gastro-Esophagectomy (Ivor-Lewis, three hole)

Laparoscopic Subtotal Gastrectomy

Laparoscopic Wedge Resection for GIST

Laparoscopic Heller myotomy +/- epiphrenic diverticulum

Laparoscopic Paraesophageal Hernia Repair

Laparoscopic Anti-Reflux Procedure

Technical Expectations

(Minimum level of performance to be achieved by the END of a 3 month rotation)

T = teaching role

I = perform independently (perform role of primary surgeon; attending is not scrubbed)

A = perform with assistance (attending is scrubbed and giving instructions/direction as needed)

F = active 1st assistant who is following case and anticipating upcoming moves/steps



O = active observer/2nd assistant role who is following case and anticipating upcoming moves/steps

Open Gastro-Esophagectomy (Ivor-Lewis, Three Field & Thoracoabdominal)

Operative Step	Fellows	PGY5	PGY4	PGY3	PGY2	PGY1
All Procedures						
Perform and interpret upper endoscopy	T	I	I	I	A	O
Ivor Lewis Esophagectomy						
Laparotomy	T	T	T	I	A	A
Gain exposure, position retractor	I	I	A	A	A	A
Encircle esophagus at hiatus	I	A	A	A	O	O
Mobilize greater curvature, identify and preserve RGE artery	A	F	F	F	O	O
D2 lymphadenectomy	F	F	F	F	O	O
Kocherize duodenum	I	I	A	F	O	O
Prepare conduit	A	F	F	F	F	F
Pyloromyotomy	I	A	A	A	O	O
Irrigation, hemostasis & abdominal closure	I	I	I	A	A	A
Right posteriolateral thoracotomy	I	A	A	A	A	A
Gain exposure, position retractors	I	A	A	A	A	A
En-bloc mobilization of intra-thoracic esophagus	F	F	F	F	O	O
Identify and ligate thoracic duct	F	F	F	F	O	O
Mobilize and divide azygous vein	F	F	F	F	O	O
Choose proximal resection margin	A	A	A	A	O	O
Divide esophagus	A	A	A	A	O	O
Place esophageal stay sutures	A	A	A	A	O	O
Complete distal transection on conduit	A	A	A	A	A	A
Over-sew conduit staple line	I	I	I	I	A	A
Orient conduit & make gastrotomy	A	A	A	A	O	O
Hand-sewn anastomosis - posterior wall	F	F	F	F	O	O
Hand-sewn anastomosis - anterior wall	A	A	F	F	O	O
Positioning of NGT	I	I	I	A	O	O
Buttress anastomosis	I	I	I	A	O	O
Position & suture JP drain	I	I	I	A	O	O



Objectives of Training

Irrigation, hemostasis/chylostasis & closure	I	I	I	A	O	O
<i>Three-Field Esophagectomy</i>						
Mobilization of esophagus above azygous vein with en-bloc lymphadenectomy (identify and skeletonize recurrent laryngeal nerve)	F	F	F	F	O	O
Neck incision	I	I	I	A	A	A
Bilateral neck dissection	A	F	F	F	O	O
Position conduit	F	F	F	F	O	O
Hand-sewn anastomosis - posterior wall	A	A	F	F	O	O
Hand-sewn anastomosis - anterior wall	A	A	A	A	O	O
Buttress anastomosis	I	I	I	A	O	O
Irrigation, hemostasis & closure	I	I	I	A	A	A
Neck incision skin closure	I	I	I	I	I	A
<i>Thoracoabdominal</i>						
Choose position of and perform incision	I	A	A	A	F	F
Gain exposure, position retractor	I	A	A	A	A	A
Perform Closure	I	I	A	A	A	A

Laparoscopic Gastro-Esophagectomy (Ivor-Lewis & Three Hole Esophagectomy)

Operative Step	Fellows	PGY5	PGY4	PGY3	PGY2	PGY1
<i>All Procedures</i>						
Perform and interpret upper endoscopy	T	T	T	I	A	O
<i>Ivor Lewis Esophagectomy</i>						
Abdominal Entry	T	I	A	A	A	A
Trocar insertion	T	I	A	A	A	A
Mobilize esophagus at hiatus	A	A	A	F	F	O
Mobilize greater curvature, identify and preserve RGE artery	A	F	F	F	O	O



Objectives of Training

D2 lymphadenectomy	F	F	F	F	O	O
Kocherize duodenum	A	A	F	F	O	O
Accessory Incision	I	I	I	A	A	A
Prepare conduit	A	A	A	F	F	F
Pyloromyotomy	I	A	A	A	F	F
Irrigation, hemostasis & abdominal closure	I	I	A	A	F	F
Chest Entry	A	A	A	A	A	A
Trocar insertion/Accessory Incision	A	A	A	A	A	A
En-bloc mobilization of intra-thoracic esophagus	F	F	F	O	O	O
Identify and ligate thoracic duct prn	F	F	F	O	O	O
Mobilize and divide azygous vein	F	F	F	O	O	O
Choose proximal resection margin	A	A	A	F	O	O
Divide esophagus	A	A	A	A	O	O
Place esophageal stay sutures	A	A	A	A	O	O
Complete distal transection on conduit	A	A	A	A	A	A
Over-sew conduit staple line	T	T	T	I	A	A
Orient conduit & make gastrotomy	F	F	F	F	O	O
Hand-sewn anastomosis - posterior wall	F	F	F	F	O	O
Hand-sewn anastomosis - anterior wall	A	F	F	F	O	O
Position NGT	I	I	I	A	O	O
Buttress anastomosis	I	I	I	A	F	F
Position & suture JP drain	I	I	I	I	A	A
Irrigation, hemostasis/chylostasis & closure	I	I	I	A	A	A
<i>Three-Hole Esophagectomy</i>						
Mobilization of esophagus above azygous vein (identify and preserve recurrent laryngeal nerve)	F	F	F	F	O	O
Neck incision	I	A	A	A	A	A
Mobilize cervical esophagus	A	A	A	F	F	O
Divide esophagus	A	A	A	A	O	O
Place esophageal stay sutures	A	A	A	A	O	O
Position conduit	F	F	F	F	O	O
Hand-sewn anastomosis - posterior wall	A	A	A	F	O	O
Hand-sewn anastomosis - anterior wall	A	A	A	F	O	O
Buttress anastomosis	I	I	I	A	F	F
Irrigation, hemostasis & closure	I	I	I	I	A	A



Objectives of Training

Neck incision skin closure	I	I	I	I	A	A
----------------------------	---	---	---	---	---	---

Open Gastrectomy (Subtotal & Total)

Operative Step	Fellow s	PGY5	PGY4	PGY3	PGY2	PGY1
All procedures						
Perform and interpret upper endoscopy	T	T	T	I	A	O
Subtotal Gastrectomy						
Laparotomy	T	T	I	I	A	A
Gain exposure, position retractor	I	I	I	A	O	O
Mobilize station 1 & 3 lymph nodes	F	F	F	F	O	O
D2 lymphadenectomy with portal dissection	F	F	F	F	O	O
Mobilize greater curvature	A	A	F	F	O	O
Identify & divide RGE artery	A	A	F	F	O	O
Mobilize & transect duodenum	A	A	F	F	O	O
Select proximal resection margin	A	A	F	F	O	O
Divide stomach	I	A	F	F	O	O
Billroth II or Roux-en-y anastomosis	I	A	F	F	F	F
Position NGT & JP drain	I	I	I	I	A	A
Irrigation, hemostasis & closure	I	I	I	I	A	A
Total Gastrectomy						
Mobilize esophagus	A	A	F	F	O	O
Divide short gastric arteries	A	A	A	F	O	O
Divide esophagus	A	A	A	F	O	O
Place esophageal stay sutures	A	A	A	A	O	O
Prepare/lengthen roux limb	A	A	F	F	O	O
Roux-en-y jejunojunal anastomosis	I	I	A	A	F	F
Hand-sewn esophagojejunal anastomosis	F	F	F	F	O	O

Laparoscopic Subtotal Gastrectomy

Operative Step	Fellow s	PGY5	PGY4	PGY3	PGY2	PGY1
Perform and interpret upper endoscopy	T	T	T	I	A	O
Abdominal entry	T	I	A	A	F	F
Trocar insertion, position liver	T	I	A	A	A	A



Objectives of Training

retractor						
Mobilize station 1 & 3 lymph nodes	A	A	A	F	O	O
D2 lymphadenectomy with portal dissection	F	F	F	F	O	O
Mobilize greater curvature	A	F	F	F	O	O
Identify & divide RGE artery	A	F	F	F	O	O
Mobilize & transect duodenum	A	F	F	F	O	O
Identify jejunum for anastomosis	I	A	A	F	O	O
Accessory incision	I	I	A	A	A	A
Select proximal resection margin	A	A	A	F	F	O
Divide stomach	A	A	A	A	F	F
Billroth II or Roux-en-y anastomosis	A	A	A	A	F	F
Position NGT & JP drain	I	I	I	A	F	F
Irrigation, hemostasis & closure	I	I	I	A	A	A

Laparoscopic Benign Upper GI Cases

Note that operative exposure alone on a standard 2-3 month rotation will not be sufficient to achieve proficiency in certain key laparoscopic tasks, such as suturing and laparoscopic knot tying. It is expected that residents and fellows not proficient in these skills practice in the simulation lab prior to performing them in the operating room. Interested parties may arrange tutoring with attendings (e.g. Dr. Mueller) upon request.

Operative Step	Fellows	PGY5	PGY4	PGY3	PGY2	PGY1
<i>All procedures</i>	T	T	T	I	A	O
Perform and interpret upper endoscopy	T	I	A	A	F	F
Abdominal entry	T	I	A	A	A	A
Insert ports	T	I	A	A	A	A
Position liver retractor	T	I	A	A	A	A
One-handed camera navigation	T	I	I	I	A	A
Provide exposure/retraction in 1st assistant position	T	I	I	A	O	O
Mobilize esophagus at hiatus	A	A	A	F	O	O
Mobilize intra-thoracic esophagus	A	F	F	F	O	O
Divide short gastric arteries prn	A	F	F	F	O	O
Position penrose drain prn	A	A	F	F	O	O
Close crura	A	A	A	A	O	O
Position fundus for fundoplication	A	F	F	F	O	O
Suture fundoplication	A	A	A	F	O	O

**Objectives of Training**

<i>Nissen Fundoplication</i>						
Confirm adequate position, length and tightness of wrap	A	A	A	F	O	O
Fix fundoplication to diaphragm prn	A	A	F	F	O	O
<i>Laparoscopic Heller Myotomy +/- Epiphrenic Diverticulum</i>						
Mobilize diverticulum	F	F	F	F	O	O
Staple diverticulum	F	F	F	F	O	O
Perform myotomy	A	F	F	F	O	O
Confirm adequacy of myotomy by EGD	A	A	A	O	O	O
Identify and repair any mucosal perforation	A	F	F	F	O	O
<i>Paraesophageal Hernia Repair</i>						
Mobilize hernia sac from intra-thoracic structures	A	F	F	F	O	O
<i>Laparoscopic Wedge Resection for GIST</i>						
Mobilization and exposure of tumour	D	D	D	D	O	O
Wedge resection by stapling	D	D	D	D	O	O

*D = depends on tumour size and location

COMMUNICATOR

1. Demonstrate effective communication with patients and families characterized by understanding, trust, respect, empathy and confidentiality;
2. Demonstrate ability to communicate “bad news” to patients presenting with esophageal or lung malignancy;
3. Demonstrate ability to communicate effectively in regards to palliative options for patients presenting with advanced esophageal or lung malignancy
4. Gather information not only about disease but the patient’s belief, concerns and expectations about his/her illness;
5. Be aware of the influential factors such as age, gender, ethnic, cultural and socioeconomic background and spiritual values that may affect the illness;
6. Ensures that consistent messages are delivered to the patient and the family by various members of the health care team;
7. Establish good relationship with peers and other health professionals;
8. Effectively provide and receive information;
9. Prepares documents, summaries, operative reports that are accurate and timely;
10. Demonstrates the ability to handle conflict situations

COLLABORATOR



Objectives of Training

1. Demonstrates effective interaction with health professionals recognizing their roles within the care of the patient;
2. Consult effectively with other physicians and health care professionals;
3. Contribute effectively to the inter-disciplinary team activity and meetings. This relates to multidisciplinary tumor board presentation for patients with hepatobiliary and pancreatic malignancy. Specifically this relates to collaboration with medical oncology, radiation oncology, radiology and pathology;
4. Develop care plan for the patient including investigation, treatment, and continued care in collaboration with other members of inter-disciplinary team.

MANAGER

1. Understand the concept of resource utilization and the need for prioritization of health care delivery;
2. Allocate such resources wisely;
3. Utilize various technologies such as OACIS and PACS, I-PAD systems to optimize patient care and using such information to assist in decision-making
4. Demonstrate effective leadership with appropriate delegation of responsibilities to other members of the house staff;
5. Plan for weekly service rounds with the assignment of responsibility for presentation of subject matter cases;
6. Select cases for the weekly morbidity and mortality rounds with specific emphasis on identification of systemic issues.

HEALTH ADVOCATE

1. Understand the specialist role to intervene on behalf of patients on issues that may impact on their health;
2. Identify the important determinants of health affecting the patient as they relate to hepatobiliary and pancreatic malignancy (Smoking, ETOH, Hepatitis);
3. Utilize such information in the prioritization of cases for urgent, emergent or elective access to the operating room;
4. Understand the social demographic issues which affect patient hospital stay and evaluate the patient's ability to access various support services within the health and social systems;
5. Understand the issues related to disease prevention and identification of risk factors which may be modified through lifestyle change.

SCHOLAR

1. Commitment as a specialist to engage in lifelong learning in the pursuit of mastery;
2. Recognize and identify gaps in one's own knowledge and develop a personal learning project to correct such deficiency;
3. Participate actively in the CAGS evidence based Journal Clubs;
4. Critically appraise medical information and successfully integrate this information into the discussion at M&M rounds, Grand Rounds and service rounds;
5. Contribute to the development of new knowledge through involvement in a research project while on service;
6. Utilize an evidence-based approach to the resolution of clinical problems.



PROFESSIONAL

1. Recognize the responsibility for the overall care of the surgical patient;
2. Deliver the highest quality of care with integrity, understanding and compassion;
3. Have knowledge of and understanding of the professional, legal and ethical codes to which surgeons are bound;
4. Develop ability to recognize, analyze and deal with unprofessional behaviors in clinical practice through knowledge of local and provincial regulations;
5. Demonstrate appropriate personal and inter-personal behavior.