

Objectives for Advanced Luminal Endoscopy Fellowship Program

1. Medical Expert:

a. Cognitive skills

- i. Learn the pathophysiology behind small intestinal diseases and anatomy of the gastrointestinal tract, including surgically altered anatomy.
- ii. Obtain a focused history and physical examination for patients presenting with acute and chronic obscure gastrointestinal bleeding (OGIB), polyposis syndrome, other small intestinal diseases, Barrett's esophagus, and advanced gastrointestinal tract polyps.
- iii. Interpret & utilize laboratory tests and radiologic imaging in the management of small bowel diseases and the inherent limitations of each test.
- iv. Know the epidemiology of Barrett's esophagus and identify those at risk for progression to carcinoma
- v. Understand the indications and contraindications for capsule endoscopy (CE), balloon assisted enteroscopy (BAE), radiofrequency ablation for Barrett's epithelium (RFA), endoscopic mucosal resection (EMR), and endoscopic submucosal dissection (ESD).
- vi. Understand the theoretical basis for advanced luminal endoscopic techniques, including CE, BAE, RFA, EMR, and ESD.
- vii. Gain proficiency in the medical, endoscopic, and surgical management of OGIB, small bowel diseases, dysplastic Barrett's epithelium, and advanced polyps.
- viii. Develop cognitive framework to understand when endoscopic management of malignant polyps is sufficient and when it is not
- ix. Develop cognitive framework to understand when endoscopic management of dysplastic Barrett's epithelium and adenocarcinoma is sufficient and when surgery should be preferred
- x. Learn strengths and limitations of different resection techniques and how to choose between them, including EMR (saline lift, cap assisted, ligation assisted, piecemeal), ESD, and surgery (transanal/TAMIS/segmental resection).

b. Technical skills

i. CE

1. Learn how to set-up, administer, download, and troubleshoot a capsule study.
2. Learn how to review capsule videos including landmarking, review of SBI (Suspected Blood Indicator)/Quick View/Full View images, and preparation of CE reports.
3. Interpret normal and abnormal images, including angioectasias, ulcers, Crohn's disease, polyps, tumors, strictures, foreign bodies, parasites, and submucosal lesions and how to localize them for BAE.

4. Learn how to interpret difficult studies, such as altered surgical anatomy, abnormal transit times, poor bowel preparation, and active bleeding.
- ii. BAE
1. Learn the similarities and differences between single balloon enteroscopy (SBE) and double balloon enteroscopy (DBE).
 2. Learn how to setup, manipulate, and troubleshoot the enteroscope, overtube, inflatable balloons, and balloon control unit.
 3. Learn the basic advancement and reduction maneuvers to pass the enteroscope in the small intestine safely.
 4. Learn advanced maneuvers to achieve deeper small bowel intubation.
 5. Learn the unique challenges of small bowel interventions compared to general endoscopy, including biopsy, injection, electrocoagulation, polypectomy, and balloon dilation, and how to surmount them.
 6. Learn how to perform BAE in surgically altered anatomy, such as Whipple's pancreaticoduodenectomy and roux-en-Y gastric bypass.
 7. Learn how to perform balloon assisted colonoscopy for patients who have right sided colonic lesions and incomplete colonoscopies.
- iii. RFA
1. Perform quality EGD and accurately describe Barrett's using the Prague Classification
 2. Identify dysplasia using narrow band imaging
 3. Confidently perform band assisted endoscopic mucosal resection in Barrett's esophagus and manage complications when they occur
 4. Understand the mechanisms of different endoscopic treatment modalities for Barrett's esophagus
 5. Be proficient in performing radiofrequency ablation, and manage the complications of treatment
 6. Know surveillance protocols post endoscopic therapy of Barrett's
- iv. EMR
1. Learn optical diagnosis of polyps, including identification of polyps at risk for malignancy using Paris classification and NICE classification
 2. Learn how to perform three types of EMR, including saline lift, cap assisted, and ligation assisted techniques in the esophagus, stomach, small bowel, colon, and rectum.
 3. Learn to recognize and differentiate between the mucosa, submucosa, and muscularis propria during endoscopy.
 4. Learn how to control EMR bleeding with snare tip electrocoagulation and hemostatic forceps
 5. Learn how to prevent and treat EMR perforations with clips and/or over-the-scope-clips.
- v. ESD

1. Due to the steep learning curve and high risk nature of the procedure, ESD training will begin in the porcine lab at CSTAR subject to availability of external funding. Transition to humans will only occur when Dr. Sey is satisfied with competency in the basic skills of ESD in the porcine lab. Trainees will gain exposure to ESD and depending on skill and case volume, may or may not gain full competency in ESD by the end of the fellowship.
2. Gain exposure to ESD, including injection, marking, circumferential incision, and submucosal dissection.
3. Learn to recognize and differentiate between the mucosa, submucosa, and muscularis propria during endoscopy.
4. Learn how to prevent and treat ESD bleeding with knife SprayCoag and hemostatic forceps.
5. Learn how to prevent and treat ESD perforations with clips and/or over-the-scope-clips.
6. Learn how to perform hybrid ESD.

2. Communicator

- a. Communicate effectively with patients, physicians, GI fellows, residents, medical students, nurses, and administrators in a clinic, endoscopy, and office setting.
- b. Obtain informed consent from patients taking into account the unique risks of advanced luminal endoscopy procedures.
- c. Generate timely and accurate notes detailing the history, exam, investigations, procedure, findings, and management plan to all involved parties (ie. referring doctor, family doctor, etc...).
- d. Obtain informed research consent from patients for any studies the fellow collaborates with.

3. Collaborator

- a. Work effectively with patients, referring doctor, GI fellows, residents, medical students, anesthesiologists, anesthesia assistant, nurses, and administrator in a clinic, endoscopy, and office settings.
- b. Effective liaison with radiologists and surgeons regarding patients with complex small intestinal diseases, esophageal pathologies, and advanced polyps.
- c. Collaborate with the inpatient team at University or Victoria hospital for urgent patients with small bowel bleeding who may require urgent capsule endoscopy or balloon assisted enteroscopy.
- d. Participate on Polyp Adjudication Committee as trainee member.

4. Manager

- a. Learn to make cost/benefit decisions in the investigation of small bowel diseases as it relates to CE, CT abdomen, CT enterography, MR enterography, small bowel follow through, and Meckel's scan.

- b. Learn to triage patients for small bowel endoscopy and advanced endoscopic resections in a setting of limited resources for advanced endoscopic procedures.

5. Health Advocate

- a. Understand the impact of limited luminal advanced endoscopic resources on the health of the community.
- b. Educate other physicians, GI fellows, trainees, and nurses on novel luminal advanced endoscopic techniques that may benefit their patients.

6. Scholar

- a. Research is a major component and strength of this fellowship geared towards those interested in an academic career. As such, fellows are expected to participate in at least 1 research projects during the course of the year long program and have 1 manuscript submitted or ready to be submitted for publication. The fellow will meet with Drs. Sey and Yan near the beginning of the year to find suitable projects given the limited time frame.
- b. Those interested in obtaining a Master's degree in Clinical Epidemiology, Public Health, or a certificate program in research methods will be given an opportunity to do so (separate application and funding required). To offset the extra course work, these fellows will not be required to participate in a research project during the course of the year.
- c. Those interested in teaching or administration will also be given an opportunity to complete a Master of Education, Health Administration, or Business Administration. To offset the extra course work, these fellows will not be required to participate in a research project during the course of the year.
- d. Regular attendance at GI Divisional Rounds and present once a year if requested.
- e. Present at one GI Division journal club on a seminal endoscopy paper if requested.

7. Professional

- a. Treat patients, physicians, trainees, nurses, administrators, and all persons in the clinic, endoscopy unit, and office with respect.
- b. Attend clinic and endoscopy prepared and on time.
- c. Take responsibility for individual adult based learning.
- d. Obey ethical principles when dealing with patients, health care providers, administrative staff, and the general public.