MODULE TITLE:	**GASTROINTESTINAL ENDOSCOPY**	**7-Nov-2016**
DEVELOPED BY:	**Elizabeth Dennett, Rowan French, Brian Kirkby.**	
Module Rationale and Objectives	Gastrointestinal endoscopy, and the knowledge and skills that this entails, is an integral part of General Surgery. The skilled endoscopist, far from acting as a technician, employs endoscopy in the appropriate situation to guide clinical decisions or improve patient outcomes. The skilled and safe practice of Gastrointestinal Endoscopy, in both diagnostic and therapeutic domains, requires knowledge across a wide range of areas considered elsewhere in the General Surgery Curriculum. Such knowledge is important for safe conduct of procedures, accurate diagnosis, and correct management. Important areas of knowledge and skill relevant to Gastrointestinal Endoscopy include, but are not limited to gastrointestinal anatomy/physiology, pharmacology of sedative medication, gut embryology, gastrointestinal disease including malignant, inflammatory and functional disorders, emergency gastrointestinal presentations, nutrition, audit and quality assurance, and public health issues. By graduation, it is expected that the trainee will be able to ▪ Describe the structure and function of the endoscope and ancillary equipment ▪ Safely administer conscious sedation ▪ Understand and apply principles of electrophysiology as they apply to therapeutic endoscopy ▪ Understand the principles of anti-sepsis as they apply to GI endoscopy ▪ Describe the indications and contra-indications for Gastrointestinal Endoscopy ▪ Perform safe insertion for upper and lower GI endoscopy, including knowledge of troubleshooting problems with insertion ▪ Make accurate diagnosis and demonstrate good lesion recognition ▪ Understand correct therapeutic techniques and begin to employ these safely and accurately ▪ Understand and participate in quality improvement/assurance processes as they apply to GI endoscopy ▪ Demonstrate positive traits in professionalism and communication in the endoscopy suite	
Suggested Reading	Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org For the Fellowship examination, there are no prescribed texts. Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources. (1) “Gastrointestinal Endoscopy in Practice” Canard, Jean Marc. 2011 Elsiever inc. Available in RACS online library.	
Learning Opportunities and Methods	Basic and advanced practical courses in GI endoscopy where available.	
How this module will be assessed	Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable); PBAs in colonoscopy.	

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	ANATOMY PHYSIOLOGY PATHOLOGY	BEHAVIOUR	KNOWLEDGE	SKILL
PERI-PROCEDURAL **Structure and Function of the Endoscope and Ancillary Equipment**				
Early - Mid SET		▪ Demonstrates respect for the endoscopes and ancillary equipment ▪ Display awareness of the effect colonoscope movement and manipulation has	▪ Develops a core understanding of the basic structure of the endoscope which should include knowledge of: - Relationship of the lens, washer, lights ounce and channels at the tip - Mechanism by which tip is manipulated - Control of insufflation, washer and irrigation pump - Image controls - Mechanism of action of ancillary equipment such as biopsy forceps, injection needles etc.	▪ Prepare an endoscopy video processor and endoscope for use without assistance ▪ Develop an effective stance and hand grip to optimise use of controls with the left hand ▪ Identify the site of a blocked channel and correct the blockage ▪ Troubleshoot basic equipment problems during procedure
Sedation				
Early - Mid SET		▪ Work within team environment to deliver safe and effective sedation ▪ Monitors patient comfort and sedation levels, recognise and manage any change in sedation and comfort levels	▪ Describe risk factors for poor outcome in conscious sedation ▪ Understand the pharmacology, risks and complications of commonly used sedative medication ▪ Understands the role of monitoring and supplemental oxygen in conscious sedation ▪ Describe requirements for safe recovery and discharge	▪ Undertake a pre-procedural assessment with regards to risks associated with conscious sedation ▪ Delivers skilled titration of sedative medication and reversal agents when sedation is deeper than expected
Principles of Electrosurgery				
Early - Mid SET		▪ Displays awareness of the important of diathermy current and power settings in the context of interventional endoscopy	▪ Explain: - the difference between Monopolar and Bipolar diathermy - the role of a dispersing return electrode and incorporated safety features - capacitive coupling - current leaks - shorting ▪ Describe power settings for cutting and coagulation ▪ Recognise electrical hazards and how to avoid them	▪ Deploy a diathermy unit checking for safety and electrical integrity ▪ Select appropriate settings on an electrosurgical unit ▪ Deploy and use a snare in a manner that minimises risk to normal surrounding tissues
Infection Control and Safety				
Early - Mid SET		▪ Demonstrates knowledge and application of Standard Precautions ▪ Participates as required in decontamination processes as the apply to endoscopic equipment	▪ Explain principles and practice of standard precautions, sterilisation, disinfection, and storage ▪ Describe measures to limit transmission of infection relevant to endoscopy	▪ Appropriate handling of the scope

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GASTROSCOPY **Preparation for Gastroscopy**				
Early - Mid SET		▪ Ensures appropriate fasting status ▪ Chooses appropriate location to perform acute endoscopy to maximise patient safety	▪ Understand department protocols relating to fasting before upper gastrointestinal endoscopy ▪ Explain how the sedation plan and patient factors determine the risk of pulmonary aspiration	▪ Assess risk of intra- and post- procedure pulmonary aspiration in an individual patient ▪ Gains consent for the procedure in an appropriate process
Gastroscopy Insertion				
Early - Mid SET		▪ Utilises good endoscopic insertion technique ▪ Appraise patient status throughout and choose appropriate steps resolve patient anxiety or discomfort	▪ Describe an approach to difficult oesophageal intubation ▪ Demonstrates knowledge of other areas of potential difficulty	▪ Successful oesophageal intubation - Key performance indicator > 95%, done under constant direct vision ▪ Correctly identify anatomic landmarks, and steer tip accurately towards direction of lumen ▪ Complete insertion to second part of duodenum is achieved in majority of cases
Gastroscopy Withdrawal				
Early - Mid SET		▪ Uses adequate time and various manoeuvres on withdrawal, to maximise views of all mucosal surfaces	▪ Explain why some areas of the upper digestive tract are challenging to image adequately, and describe how choice of instrument, endoscopic technique or additional measures such as chromoendoscopy or image enhancement can increase sensitivity ▪ Demonstrates knowledge of various gastrointestinal pathologies as they relate to endoscopy	▪ Uses tip control to optimise mucosal view in duodenum, minimise blind areas and visualise ampulla ▪ Uses distension and retroflexion in stomach to assess areas of mucosa poorly seen in forward viewing position - Key performance indicator > 95% ▪ Inspect the oesophagus on withdrawal in a manner suitable to identify mucosal pathology ▪ Makes an assessment of the likely cause of pathology based on close examination of a mucosal surface
Therapeutic Gastroscopy				
Late SET		▪ Appropriately assess and counsel a patient on the appropriateness, risks and alternatives of therapeutic interventions including mucosal resection, polypectomy and dilatation ▪ Demonstrates good in-procedure decision making with regards to potential therapeutic interventions	▪ Demonstrates knowledge on indications and contraindications for intervention ▪ Demonstrates working knowledge of various required tools	▪ Use tip control and positioning of shaft to optimise access to an area of interest ▪ Assess the risk of re-bleeding of a patient with peptic ulcer using endoscopic examination and implement an appropriate management plan ▪ Demonstrate use of available endoscopic haemostatic techniques to treat or prevent bleeding from submucosal vessels

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COLONOSCOPY **Preparation for Colonoscopy**				
Early - Mid SET		▪ Fosters a working team environment ▪ Participates in surgical checklist procedures ▪ Involved in activities to maximise the effectiveness of bowel prep, gain informed consent and reduce procedural risk of the patient	▪ Describe various schedules of bowel preparation and factors that influence their effectiveness ▪ Understand advantages and disadvantages of different bowel preparations ▪ Describe peri-procedural management of anticoagulant and anti-platelet agents	▪ Describe preparation for colonoscopy to a patient and prescribe appropriately ▪ Arranges additional preparation when required
Colonoscopy Insertion				
Late SET		▪ Perform digital rectal examination prior to introduction of colonoscope ▪ Demonstrate willingness and ability to insert instrument so as to minimise risk and discomfort to patient, and obtain help when needed ▪ Appraise patient status throughout and choose appropriate steps resolve patient anxiety or discomfort ▪ Select manoeuvres appropriate to anatomic landmarks. Use abdominal pressure and patient position change appropriately to facilitate insertion	▪ Describe how the anatomy of the colon influences the introduction and manipulation of the colonoscope ▪ Explain the principles, advantages and limitations of torque steering: inserting the scope using up down and rotation movements alone ▪ Demonstrates knowledge of how loops form and techniques to prevent and resolve looping	▪ Maintains a luminal view sufficient to allow safe insertion ▪ Correctly identifies the direction of lumen and anatomic landmarks ▪ Demonstrate a strategy for passing an acute angle by angulation, withdrawal and timed deflection of the tip, including judicious use of “slide by” manoeuvres ▪ Demonstrates use of water injection, minimal insufflation and adequate shaft lubrication ▪ Aspirates distended loops and straighten scope shaft, while steering into the lumen to facilitate scope advancement ▪ Employs a technique to achieve successful ileal intubation
Colonoscopy Withdrawal				
Late SET		▪ Recognises the importance of the withdrawal phase of colonoscopy and obtain help when needed ▪ Withdraw instrument, optimising probability of visualising the entire mucosal surface	▪ Understands the features and locations that are associated with greater likelihood of missed lesions ▪ Describe measures that may increase polyp detection rate	▪ Use tip control to optimise mucosal view ▪ Use washing, position change and aspiration appropriately ▪ Utilises double flexure pass when appropriate
Colonoscopy Polypectomy				
Late SET		▪ Work in a team using clear instructions ▪ Develop a polypectomy technique that minimises risks of complications or recurrence ▪ Demonstrates good in-procedure decision making around appropriateness and technique of polypectomy	▪ Understands the nature of polyp histopathology ▪ Describe how the histological subtypes, polyps numbers and patient factors influence decisions around polypectomy and surveillance intervals ▪ Knows the nature and incidence of complications with polypectomy ▪ Discuss the choice of fluid for flat polyp elevation prior to snare polypectomy	▪ Uses tip control and positioning of shaft to optimise working area and view of polyp ▪ Inject fluid accurately to the submucosal space in a manner that increases the ease and safety of polypectomy ▪ Examines polypectomy defect closely for completeness and risk of perforation ▪ Uses adjunctive equipment if necessary to achieve haemostasis and retrieve tissue ▪ Deploys endoscopic clips if required to control bleeding or close mucosal defects ▪ Performs physical examination if appropriate to detect signs of perforation ▪ Retrieve a resected specimen for pathology processing - Key performance Indicator: 90% of resected polyps retrieved