

# Curriculum

General Surgery Education and  
Training Program

Royal Australasian College of Surgeons  
Australian Board in General Surgery  
Aotearoa New Zealand Committee in General Surgery



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# 1. INTRODUCTION

## 1.1. Background

The General Surgery Curriculum was initially developed in 2008 and has been reviewed continually on a three-year rotation since 2010. With the introduction of the new General Surgery Education and Training (GSET) program and a review of best practice in curriculum design, the Australian Board in General Surgery and Aotearoa New Zealand Committee in General Surgery approved a redevelopment of the Curriculum to align to contemporary standards. The redevelopment of the Curriculum involved the members of both Training Boards, Hospital Surgical Supervisors, General Surgery trainers, Trainee Representatives, surgical educators, and executive staff.

## 1.2. Acronyms

The following is a list of acronyms that are used throughout the document:

Acronym	Expansion
AuBiGS	Australian Board in General Surgery
CPD	Continuing Professional Development
DOPS	Direct Observation of Procedural Skills
EPA	Entrustable Professional Activities
GSET	General Surgery Education and Training
M&M	Mortality and Morbidity Meetings
MDT	Multidisciplinary Team
Mini-CEX	Mini-Clinical Examination
MSF	Multi-Source Feedback
AoNZCIGS	Aotearoa New Zealand Committee in General Surgery
PBA	Procedure Based Activities
PMEX	Professional Mini-Evaluation Exercise
RACS	Royal Australasian College of Surgeons
SEAM	Surgical Education and Assessment Modules

## 1.3. Objective

The objective of the General Surgery Curriculum is to outline the learning outcomes and competencies that are expected to be obtained on the General Surgery training program, together with the associated learning opportunities and assessments.

## 1.4. Purpose

The purpose of the Curriculum is to equip future General Surgeons with the knowledge, skills and behaviours required to service the community in the specialty of General Surgery. The Curriculum, and the training program that it underpins, ensures that graduating General Surgery Trainees have been trained and assessed across the broad spectrum of General Surgery and RACS Competencies.

## 1.5. Users

The intended users of the Curriculum are primarily the following groups:

- GSET Trainees (SET Trainees, that is those that commenced training prior to 2022 should reference the 2016 General Surgery Curriculum)
- General Surgery Hospital Surgical Supervisors
- Unit Supervisors in accredited General Surgery posts
- Trainers in accredited General Surgery posts
- RACS General Surgery Court of Examiners

## 2. TERMINOLOGY

The following terms and definitions are used throughout the Curriculum to enable the user to understand the context of the competency, sub-competency, or milestone.

Term	Definition
Activities	Includes, but is not limited to, interactions with patients, the clinical team, colleagues, and management/administration.
Basic and Clinical Sciences	The Basic and Clinical sciences include the following as they relate to the condition specified in the syllabus: <ul style="list-style-type: none"> <li>• Anatomy (including embryology)</li> <li>• Physiology</li> <li>• Pathology</li> <li>• Pharmacology</li> <li>• Pathophysiology</li> <li>• Microbiology/Virology</li> <li>• Genetics and molecular biology</li> <li>• Immunology</li> <li>• Biochemistry</li> </ul>
Bias	Bias is a disproportionate weight in favour of or against an idea, usually in a way that is closed-minded, prejudicial, or unfair. Biases can be innate, learned, conscious or unconscious. People may develop biases for or against an individual, a group, or a belief.
Checklist	Refers to what is commonly known as the Surgical Safety Checklist aspects of which include but are not limited to patients, procedures, specimen, and instruments.
Clinical Environment	Refers to all settings in which the Trainee undertakes their patient related duties including but not limited to wards, operating theatre, clinics, outpatients, and emergency departments.
Community	Includes but not limited to friends, family, support groups, and organisations.
Completing procedures effectively and safely	Refers to, but is not limited to, the following aspects: consistent purposeful economy of movement, logical sequence, tissue handling, control of bleeding, handling of sharps, energy devices, sterile technique, personal protective equipment, pre-empting next step in procedure, time management, and efficiency.
Complications	Relates to both surgical and non-surgical, and sequelae as they relate to the condition specified in the syllabus.
Health Professionals	Refers to professionals both inside and outside of the clinical environment including but not limited to: <ul style="list-style-type: none"> <li>• General Practitioners</li> <li>• Surgical Specialists</li> <li>• Medical Specialists</li> <li>• Nurses</li> <li>• Social workers</li> <li>• Occupational therapists and physiotherapists</li> <li>• Psychologists and Counsellors</li> <li>• Paramedics</li> <li>• Nutritionist</li> </ul>

Term	Definition
	<ul style="list-style-type: none"> <li>• Aboriginal and/or Torres Strait Islander Health Workers</li> <li>• Maori support services</li> </ul>
Meeting	A meeting is defined as a gathering of two or more people where information is exchanged formally or informally. A meeting may take place face to face, virtually or via telephone. Examples include but are not limited to handover, audit, Morbidity and Mortality, Multi-Disciplinary Team, education, committees/boards, and assessment/feedback meetings.
Patient	A person who is receiving healthcare or treatment including those in an acute, elective, critical illness, or trauma setting.
Patient Safety	Refers to those aspects of care that minimise risk of harm or adverse outcome for a patient. This includes, but is not limited to, ensuring an appropriate level of care, that appropriate facilities are available, positioning, marking, equipment, imaging, patient handling, and consent.
Procedures	Procedures include local anaesthetic procedures, endoscopic procedures, bedside procedures, and general anaesthetic procedures.
Resources	Resources includes aspects of clinical practice, including but not limited to, support, equipment, imaging, histology, notes, and workforce.
Safety Procedures	Safety procedures are standardised processes that outline how to conduct tasks with minimal risk to people, materials, and work environments. The procedures include work-related tasks that address safety concerns, safety equipment, and work-area precautions.
Team	A team is defined as a group that come together, physically or virtually, to achieve a common goal. A team may be established or ad-hoc.
Uncertainty	Lack of knowledge or definite circumstances, which may derive from a lack of information, experience or time, with respect to what is best for a particular patient or situation.
Variations	Variations refers to clinical occurrences that may be unusual or unexpected. This includes but is not limited to, anatomy, unexpected contaminations, and bleeding.

### 3. STRUCTURE

#### 3.1. Curriculum and Syllabus Overview

The difference between the Curriculum and Syllabus and their intended purpose is outlined below:

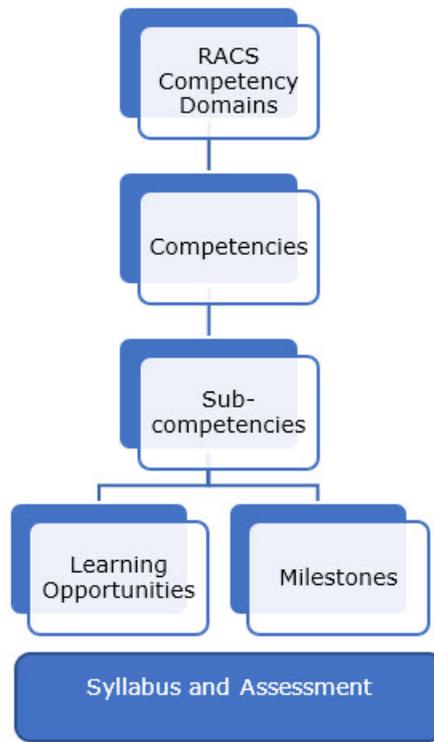
	Curriculum	Syllabus
<b>Definition</b>	Curriculum is the overall content, taught in an educational system or a course. It covers knowledge, attitude, behaviour, manner, performance and skills (ie competencies) trainees should learn and acquire during the program.	Syllabus contains the topics or subjects that are covered in the program.
<b>Set for</b>	An entire program (ie the training program)	A topic (ie the individual competency domains or modules such as colorectal, breast, communication etc)
<b>Scope</b>	Wide	Narrow (focuses on one topic)
<b>Includes</b>	Learning objectives, overall competencies, milestones, and learning opportunities	Describes and summarises what should be taught, learnt, and assessed.

#### 3.2. Curriculum

The Curriculum is presented as a framework of competencies and milestones, designed to guide and support the training of trainees in General Surgery in Australia and Aotearoa New Zealand. The Curriculum is aligned to the following Royal Australasian College of Surgeons ten competencies which for the purposes of the General Surgery Curriculum will be referred to as domains:

- Medical Expertise
- Judgement and Clinical Decision Making
- Technical Expertise
- Collaboration and Teamwork
- Communication
- Health Advocacy
- Leadership and Management
- Professionalism
- Education and Teaching
- Cultural Competence and Cultural Safety (*to be included following finalisation of the RACS Professionalism Curriculum*)

Each domain consists of competencies, sub-competencies, and milestones which are defined across GSET1, GSET2-3, and GSET4-5. Below is a representation of the Curriculum:



### 3.3. Competencies

The Competencies outline the learning outcomes required to be attained under each domain. Each competency focusses on a particular area of the specific domain.

### 3.4. Sub-competencies

The sub-competencies details the higher order skills and key elements for each competency. They describe the knowledge, skills, or behaviours a trainee should demonstrate at the completion of General Surgery training.

### 3.5. Milestones

The Milestones represent the key targets that are to be achieved by Trainees to achieve the stated sub-competency. They describe the assessable knowledge, skill, or behaviour. The milestones are described as a trajectory from GSET1 to GSET5. As the Trainee's progress through the program, all milestones that have been attained in the earlier GSET levels are encompassed and carried into the higher GSET levels.

Competency is achieved through an incremental process of learning and development as indicated by the milestones. The Curriculum indicates various learning opportunities for each domain. Consultants in accredited training posts and hospitals, who supervise and provide the training of future General Surgeons are crucial to this process, in guiding day to-day learning, opportunities, assessment, and ensuring ongoing development of knowledge and skills.

### 3.6. Syllabus

The syllabus component provides the details for the topic areas that relate to the competencies. It provides the Supervisor, Trainers, and Trainees with the details regarding the knowledge, skills and behaviours that relate to each competency.

For the domains of Medical Expertise, Technical Expertise, and Judgement and Clinical Decision Making, the syllabus is divided into the following 17 areas covering the breadth and depth of General Surgery:

- Abdominal Wall, Retroperitoneum, and Urogenital
- Breast
- Colorectal
- Emergency

- Endocrine
- Endoscopy, Gastroscopy, and Colonoscopy
- Head and Neck
- Sepsis and the Critical Ill or Compromised Patient
- Skin and Soft Tissue
- Small Bowel
- Surgical Oncology
- Transplantation
- Trauma
- Upper GI and HPB – Bariatric
- Upper GI and HPB - Hepatic, Pancreatic & Biliary
- Upper GI and HPB - Oesophago-gastric
- Vascular - Arterial, Venous & Lymphatic Systems

### **3.7. Training Program and Regulations**

Supervisors, Trainers, and Trainees are directed to the GSET Training Regulations for information on the following in regard to the Training Program:

- Program structure
- Length of training
- Program requirements
- EPA assessments
- PBA assessments
- In-Training Assessment process
- Rotation outcomes

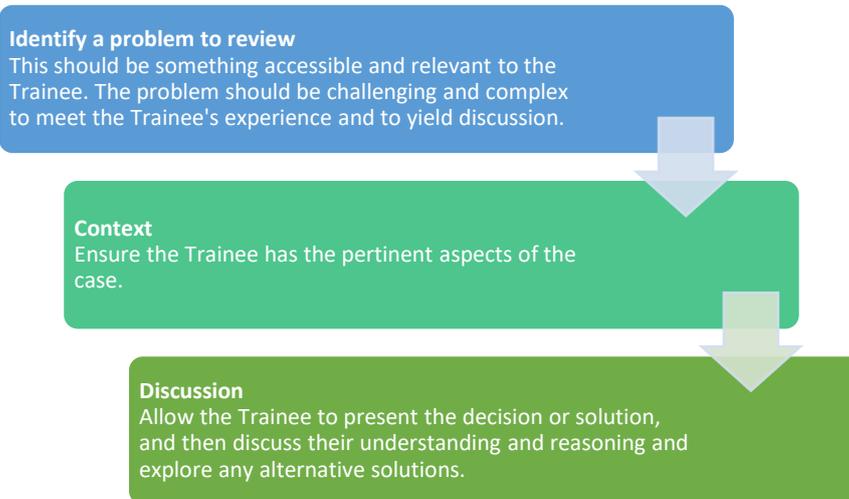
## 4. TEACHING AND LEARNING STRATEGIES

Teaching strategies are methods that Supervisors and Trainers use to assist Trainees in acquiring the required competencies. For learning to occur it is important that trainees are kept engaged and provided with opportunities to practice acquisition of knowledge, skills, and behaviours. Specific strategies employed will vary depending on the competency being taught, the level of the Trainee, and the resources available. The following are examples of teaching strategies and a brief explanation of each. Supervisors and Trainers are encouraged to employ a variety of methods and to discuss opportunities with their Trainees.

*Note: This is not an exhaustive list of teaching and learning strategies.*

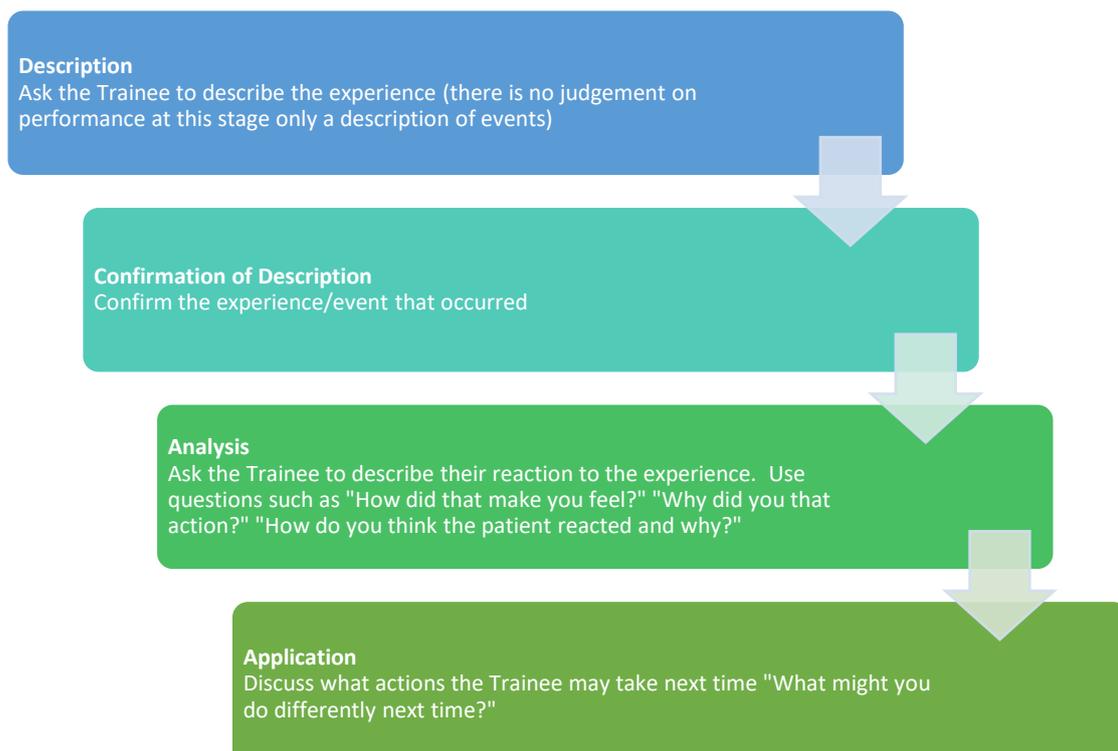
### 4.1. Case Based Learning

Case based learning is a method of teaching using a case, either real life or one that resembles real life, which Trainees explore to make a decision or solve a problem, developing specific skills and knowledge through inquiry. Case based learning should generally follow the following steps:



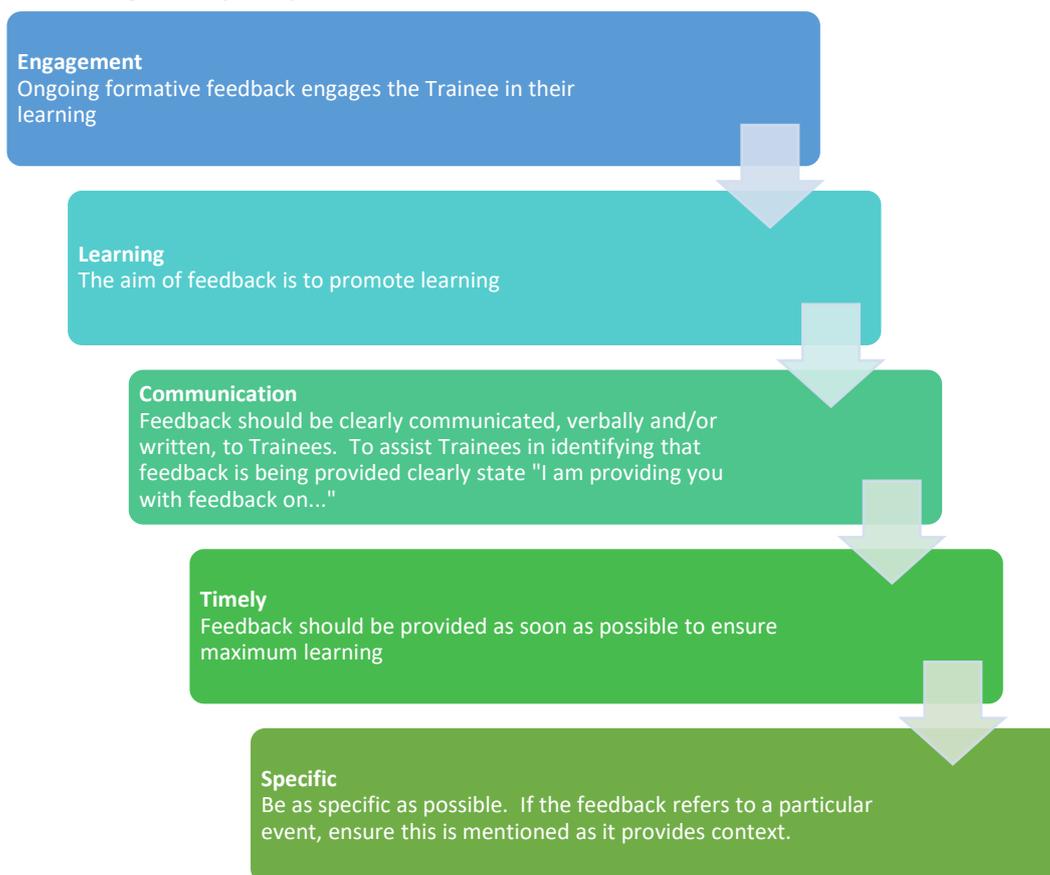
### 4.2. Debriefing

Debriefing allows the Supervisor or Trainer to explore the Trainee's motives or rationale, therefore allowing for a deeper understanding. There are several models of Debriefing and the below diagram demonstrates the key elements:



### 4.3. Feedback

Feedback provides the Supervisor or Trainer the opportunity to discuss with the Trainee aspects of performance that were undertaken well and where improvements or further learning can occur. Feedback can occur after direct observation or following information provided by members of the team. The general principles of feedback are:



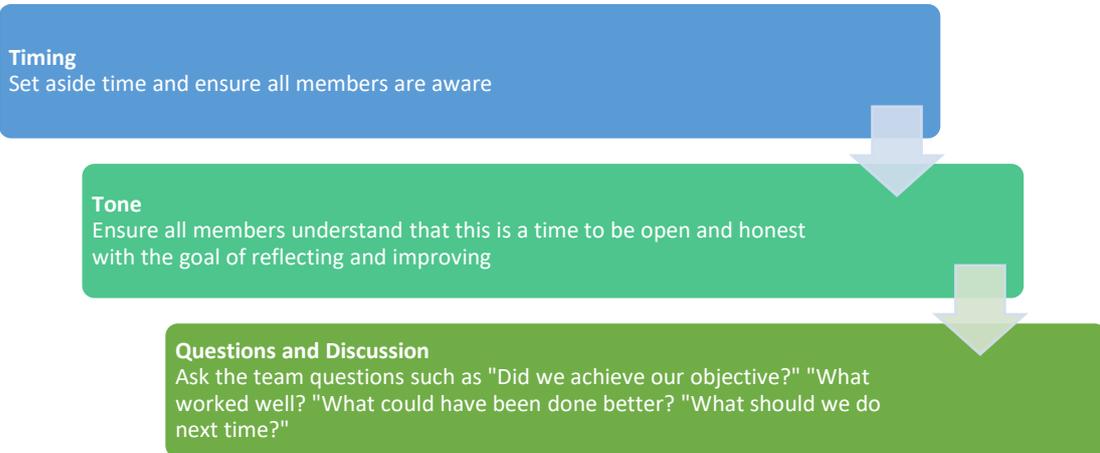
### 4.4. Inquiry Based Questioning

Inquiry Based Questioning is a method by which higher order questions are presented to the Trainee to promote learning through guided investigation of complex questions and problems. The general principles of Inquiry Based Questioning include the following however the process does not have to include the investigation stage if an opportunistic teaching session takes place:



## 4.5. Team Debriefing

Team Debriefing is an opportunity for the whole team to reflect on an event or experience. The aim of Team Debriefing is to discuss what occurred, what worked well, and where improvements can be made as a team. It allows the Trainee to learn through group processes. Below are the general principles of Team Debriefing:



## 4.6. Team Briefing

Team Briefing is a method in which the team comes together, prior to an event, to achieve the following:

- Disseminate pertinent information to all members of the team in a concise and timely manner
- Ensure that all team members understand the information

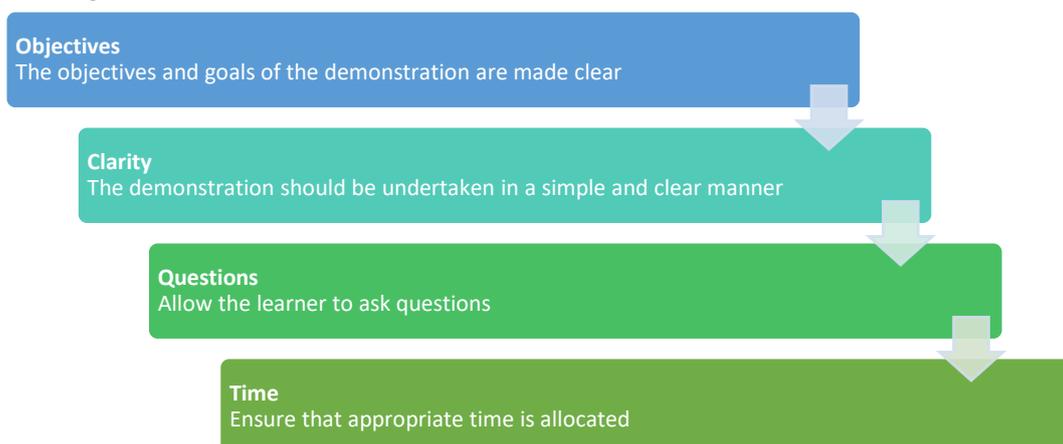
It is a method in which Trainees can ask questions if the information is not clear, thereby adding to their learning.

## 4.7. Role Modelling

Role modelling is a powerful teaching tool that allows Supervisors and Trainers to pass on knowledge, skills, behaviours, and values to Trainees. Role modelling uses social learning theories in that a key feature is the experience the Trainee brings to the situation. Role Modelling assists Trainees in identifying what direction learning should take and Supervisors and Trainers help to facilitate. Social learning is a continuous process whereby learning occurs through the interactions of the Trainee and the environment. Trainees learn by observing another person.

## 4.8. Demonstration

A demonstration is the process of teaching how to undertake a skill or perform an activity in a systematic manner and that requires observation of performance. Demonstration often occurs when a Trainee has difficulty connecting theories or knowledge to actual practice or when Trainees are unable to understand application of theories or knowledge. Characteristics of demonstration teaching include:

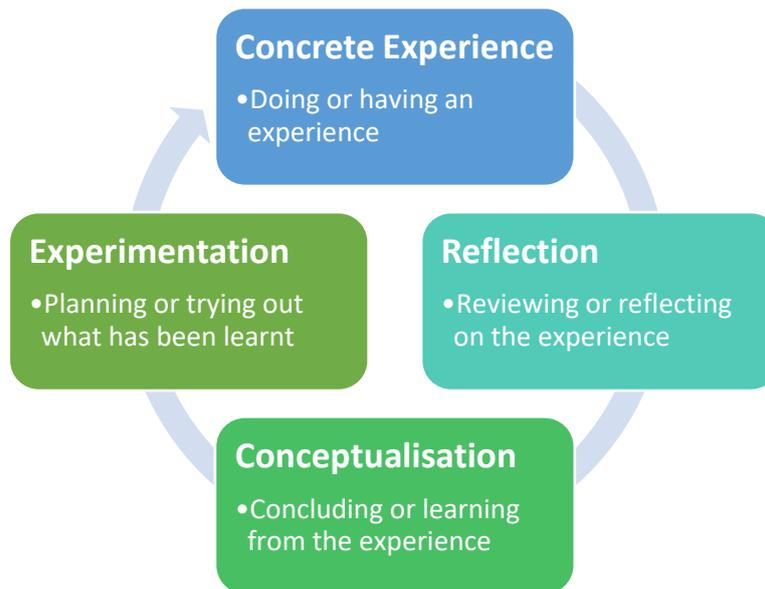


## 4.9. Experiential Learning

Experiential learning is a process of learning through experience and purposefully reflecting on the experience. Experiential learning sees the Trainee at the centre of the teaching method and the Trainee must:

- be willing to be actively involved in the experience
- have the ability to reflect on the experience
- use analytical skills to conceptualise the experience
- use decision making and problem-solving skills in order to use the new ideas gained from the experience

Kolb's Experiential Learning Model sets out the following cycle of learning:



In Experiential Learning, the Supervisor or Trainer assists the Trainee in creating the experience, guides them in reflection, and conceptualisation.

## 4.10. Independent Learning

Independent learning is a process where Trainees have ownership and control and responsibility for their learning – they learn by their own actions and determine, direct, regulate, and assess their own learning. Independent learning skills encompass self-motivation, initiative, time management, inquiry, critical evaluation, organisation, and multi-tasking.

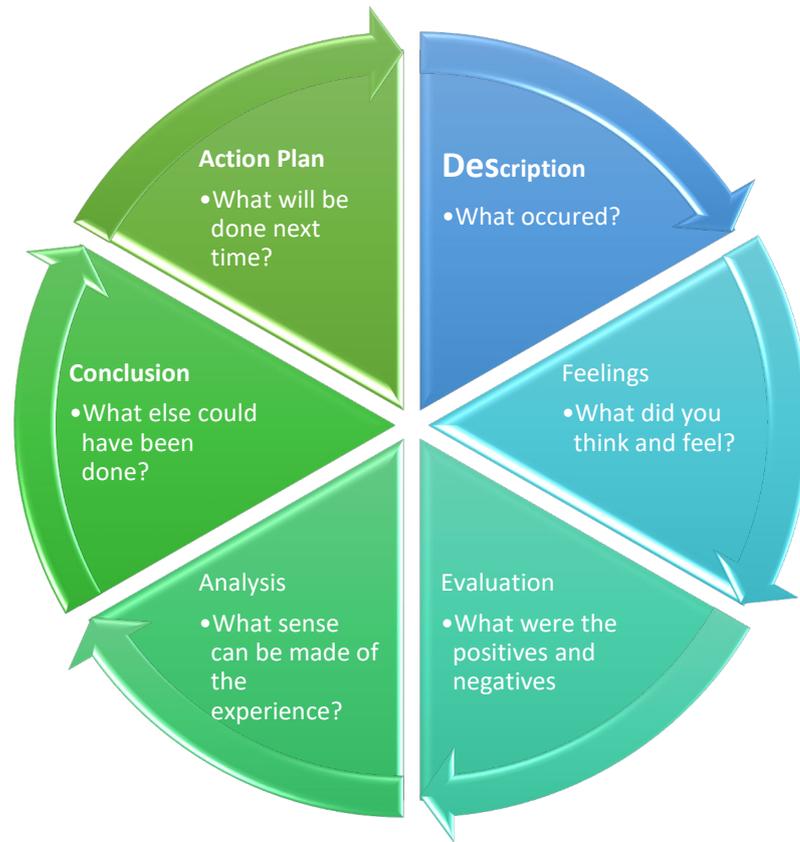
Independent learning does not mean working alone. Working with another person or group, encouraging each other, and talking through difficulties or scenarios may be the most effective way of working independently. If a problem is encountered, explaining it to someone else can help to provide clarification. Characteristics of independent learning include:



#### 4.11. Reflective Practice

Reflective practice is the ability to reflect on one's actions to engage in the process of continuous learning. Reflective practice provides the opportunity to think about and understand practices from different perspectives, consider future actions and responses, and refine them accordingly.

There are various models of reflective practice and the below is based on Gibb's reflective cycle.



## 5. LEARNING OPPORTUNITIES

Learning opportunities in surgical education and training are wide and varied. Learning opportunities will cover several competencies, sub-competencies, and milestones. Trainees are encouraged to ensure they take advantage of all learning opportunities. It is the responsibility of Trainees to drive their own learning and development through the program. The following are examples of learning opportunities that Trainees will experience during their training.

*Note: This is not an exhaustive list of learning opportunities*

- Attending referrals and consultations
- Audit
- Clinics
- Hospital/Network teaching sessions
- Informed consent discussion
- Journal clubs
- M&M meetings
- MDT meetings
- Operating room
- Patient, family, and carer discussion
- Reflection
- Research activities
- Scientific Meetings
- Self-study
- Simulation
- Study group
- Team briefing
- Team debriefing
- Ward rounds

## 6. EDUCATIONAL ACTIVITIES AND COURSES

There are many educational activities and courses available to Trainees across Australia and Aotearoa New Zealand. The courses listed here are available through either the Royal Australasian College of Surgeons, General Surgeons Australia, or New Zealand Association of General Surgeons.

Trainees should be aware of which activities and courses are mandatory for either the Australian Training Program or Aotearoa New Zealand Training Program and should reference the respective GSET Training Regulations.

Organisation	Education Activities and Courses	Mandatory
Royal Australasian College of Surgeons	CCrISP	✓
	EMST	✓
	TIPS	✓
	ASSET	✓
	CLEAR	
General Surgeons Australia	SEAM	✓
	SEAM II	
	GSA Trainees' Day	✓
	Victorian-Tasmanian Simulation Skills	
	- Laparoscopic Tissue Approximation	
	- Laparoscopic Common Bile Duct	
	- Laparoscopic Inguinal Hernia	
	Queensland Core Course	✓
	Western Australian Regional Training Sessions	✓
	New South Wales-ACT Educational Program	✓
	South Australian Long Course	✓
	South Australian Skills Courses	
	- Advanced Laparoscopic Course	
	- Alternative Energy Course	
- Laparoscopic Hernia Course		
- Surgical Stapling Course		
MOSES (Management of Surgical Emergencies)		
Fellowship Examination Preparation Courses		
Victorian Trainees Weekend		
Wellness Summit		
New Zealand Association of General Surgeons	SEAM	✓
	NZAGS Trainee Day	✓

## 7. ASSESSMENT

The Curriculum specifies the associated assessment appropriate to the overall competency domain. Each competency domain will list the assessment, formative or summative, that is applicable. Below is a list of assessments that are available across the Curriculum:

Assessment	Explanation
Observation	Observation is a form of continual assessment and assists in understanding the level of knowledge and skills a Trainee has gained.
Mini-CEX	The Mini-CEX is designed to assess competencies essential to the provision of clinical care. It is also used to facilitate feedback to drive learning.
DOPS	DOPS is a method of assessing competence in performing diagnostic and interventional procedures during surgical practice. It also facilitates feedback in order to drive learning
P-MEX	The P-MEX is a tool for assessing professionalism skills. It also facilitates feedback in order to drive learning.
Feedback Note	The Feedback Note is designed to provide a Trainee with feedback on areas for improvement as well as areas where they are performing at the expected level or above.
SEAM	SEAM consists of the following eight (8) modules. <ol style="list-style-type: none"> <li>Acute Abdomen</li> <li>Anatomy</li> <li>Haematology</li> <li>Nutrition</li> <li>Operating Theatre</li> <li>Peri-operative Care</li> <li>Post-Operative Care</li> <li>Trauma and Critical Care</li> </ol>
MSF	The MSF is a questionnaire-based assessment method in which the Trainee is evaluated by peers, co-workers, and trainers, as well as a self-evaluation, on key performance behaviours.
In-Training Assessment	The In-Training Assessment is used to assess and rate the Trainee's performance during the rotation.
PBAs	A PBA is a type of EPA (unit of professional practice) to be entrusted to a trainee when they are able to perform independently and know when to ask for assistance. PBAs assess the competencies of medical expertise, technical expertise, and decision making.
EPAs	An EPA is a unit of professional practice, defined as a task or responsibility to be entrusted to a trainee once sufficient competence has been gained. EPAs assess a variety of competency domains.
Fellowship Examination	The Fellowship Examination is the final examination, at the standard and level of competency equivalent to that of a consultant surgeon in their first year of independent practice.

## **8. HOW TO USE THE CURRICULUM AND SYLLABUS**

### **8.1. Overview**

The Curriculum milestones have been split across the following GSET levels:

- GSET1
- GSET2-3
- GSET4-5

The milestones are to be viewed as building blocks. As the Trainee progresses through the program their skills, knowledge, and behaviours increase in complexity and ability. As the Trainee progresses through the program, all milestones that have been attained in the lower GSET levels are encompassed and carried through to the higher GSET levels.

Trainees, Hospital Supervisors, and Trainers should focus on the milestones that have been described for each sub-competencies. The milestones:

- Inform Trainees of the standard expected and what they should achieve by the various GSET level
- Inform Hospital Supervisors and Trainers about what they should help learners to achieve
- Form the basis of the in-training assessment process

Where specific components are required an asterisk will indicate that the details are included in the Syllabus component. For example, if the milestone states “Applies knowledge to GSET1 procedures\*”, the list of procedures applicable will be listed in the Syllabus.

### **8.2. Use in Learning and Development Plan or Goal Setting**

Goal setting is a skill that is essential for Trainees to develop to be able to take responsibility for their own learning and progression. In creating a Learning and Development Plan or Goal Setting, Trainees and Supervisors can utilise the sub-competencies to:

- Self-assess their own skill level against the relevant milestones for their GSET level
- Determine which milestones they wish to focus on for the current term
- Identify resources and/or opportunities required to assist in achieving the milestones
- Discuss the goals and progression

### **8.3. Use in Providing Feedback**

Supervisors and Trainers can utilise the sub-competencies and milestones to provide specific feedback to Trainees on areas they are performing well in and areas that require further development.

Trainees can utilise the Curriculum to engage in the feedback process and ensure that a meaningful dialogue can occur. Supervisors can assist Trainees by utilising the milestones to facilitate reflection during a feedback conversation.

The milestones are integrated with the In-Training Assessment form to assist Trainees, Supervisors, and Trainers in constructing feedback that will assist with meeting the performance expectation. When providing feedback to Trainees, the Supervisor or Trainer should focus on the milestones. The milestones can be used as a trigger point for a conversation when providing feedback to a Trainee. The goal of feedback is to move the conversation towards an agreed course of action and a commitment around specific milestones aimed to improve or enhance performance.

## 9. COMPETENCIES, SUB-COMPETENCIES, AND MILESTONES

### 9.1. Instructions

The sections below outline the competencies, sub-competencies, and milestones across all the domains and GSET levels. The milestones are designed to increase in complexity to enhance learning and development. As the trainee progresses through the program, all milestones that have been attained in the lower GSET levels continue into the higher GSET levels.

Where a word has been defined in Section 2, the word will be underlined and the user will be able to click on the term to view the definition. Where a link to the syllabus is indicated, the competency, sub-competency or milestone will be underlined, and box highlighted in green. The user will be able click and be taken to the relevant section of the syllabus.

Each competency domain will also detail the applicable learning opportunities and assessments.

It is important to note that as per the definitions:

- **At patient is a person who is receiving healthcare or treatment including those in an acute, elective, critical illness, or trauma setting.**
- **Procedures include local anaesthetic procedures, endoscopic procedures, bedside procedures, and general anaesthetic procedures.**
- **Topic inclusions, conditions, diseases, and procedures are outlined in the syllabus.**

## 9.2. Medical Expertise

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
<b><u>ME1: Assesses pertinent features of history and examination</u></b>	Gathers relevant information concerning the patient's condition	Takes comprehensive history to gather relevant information	Takes focussed history to gather relevant information	Integrates relevant past surgical and medical history into patient's current presentation to enable focussed clinical examination
	Performs clinical examination relevant to patient's condition	Performs systematic clinical examination of patient	Tailors clinical examination to patient's specific condition	Elicits clinical findings pertinent to patient's conditions
<b><u>ME2: Applies knowledge of basic and clinical sciences as relevant to the patient's condition</u></b>	Applies knowledge of anatomy (including embryology) and physiology	Identifies relevant anatomy (including embryology) and physiology	Applies knowledge of anatomy and physiology to conditions and procedures	Evaluates anatomical and physiological variations and takes these into account where relevant
	Applies knowledge of the <u>basic sciences</u> to assessment of the underlying condition	Demonstrates knowledge of <u>basic sciences</u>	Plans interventions based on <u>basic sciences</u>	-
	Integrates <u>basic and clinical science</u> knowledge for therapeutic and management purposes	Applies knowledge of <u>basic and clinical sciences</u> to initial management plan	Applies <u>basic and clinical sciences</u> knowledge in response to changes in patient status	Uses the <u>basic sciences</u> to anticipate, predict likelihood, and evaluate the outcome of interventions
<b><u>ME3: Formulates a differential diagnosis</u></b>	Integrates <u>basic science and clinical</u> information to create a differential diagnosis	Generates a list of potential diagnoses	Generates a focussed differential diagnosis	Considers rare and atypical presentations when compiling a differential diagnosis
	Selects targeted investigations to refine differential diagnosis	Selects investigations relevant to the presenting problem	Narrows selection of investigations based on patient's presentation	Demonstrates knowledge of cost/benefits and sensitivity/specificity of common investigations by choosing wisely for the individual patient

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	Accurately interprets investigation results to refine differential diagnosis	Interprets investigations reports relevant to conditions to confirm or refine differential diagnosis	-	Interprets investigations relevant to conditions to confirm or refine differential diagnosis
	Generates a succinct summary of the pertinent case features	Summarises the case features of the patient's condition	Summarises the pertinent case features of the patient for common conditions	Summarises the pertinent case features of the patient for complex conditions
<b><u>ME4: Implements a patient-centred management plan</u></b>	Demonstrates knowledge of available best practice options	Considers best practice options for common conditions	-	Considers best practice options for complex conditions
	Seeks the contribution of inter-disciplinary and community resources	Demonstrates awareness of cross disciplinary and community resources	Involves cross disciplinary and community resources	Co-ordinates the involvement of cross disciplinary and community resources
	Recommends and implements a management plan based on patient and disease specific factors	Implements management plans	Lead the generation of management plan relevant to individual patient including recognition of comorbidities	Clearly justifies and defends management plan pertinent to a particular patient
		Discusses reversible patient factors with the team	Manages reversible patient factors	-
		Considers patient's priorities and goals of care	-	-
	Ensures an effective informed consent process	Undertakes informed consent for procedures relevant to GSET1	Undertakes informed consent for procedures relevant to GSET2-3	Undertakes informed consent for procedures relevant to GSET4-5
		-	Demonstrates knowledge of the informed consent process for complex procedures	Supervises junior staff undertaking the informed consent process

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	Reviews response to treatment	Seeks timely assistance when changes in patient condition occur	Recognises and assesses post-surgical complications	-
		Implements stabilising measures to address changes in patient condition	Implements management plan in response to change in patient condition	-
	Formulates and ensures implementation of follow up plans	Implements management plans as determined by the team	Formulates and Implements management plans	Ensures follow up of management plans
		-	Manages barriers to implementation of management plan	Acts to minimise the impact of potential barriers to implementation of management plan
<b><u>ME5: Demonstrates procedural knowledge</u></b>	Consistently acquires and retains sound procedural knowledge	Explains steps required to complete procedures relevant to GSET1	Explains steps required to complete procedures relevant to GSET2-3	Explains steps required to complete procedures relevant to GSET4-5

Learning Opportunities	<ul style="list-style-type: none"> <li>• Case based learning</li> <li>• SEAM I and II</li> <li>• Operating room</li> <li>• Endoscopy suite</li> <li>• Ward rounds</li> <li>• Clinics</li> <li>• Teaching sessions</li> </ul>	<ul style="list-style-type: none"> <li>• M&amp;M meetings</li> <li>• MDT meetings</li> <li>• Reflection</li> <li>• Team debriefing</li> <li>• Informed consent discussion</li> <li>• Patient, family, and carer discussion</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• SEAM I</li> <li>• Mini-CEX</li> <li>• Feedback Note</li> <li>• Observation</li> </ul>	<ul style="list-style-type: none"> <li>• In-Training Assessment</li> <li>• Fellowship Examination</li> <li>• Core and Principal PBAs</li> </ul>

- Core EPAs

- Arrange and complete surgery for a simple acute case
- Assessing simple new elective case in outpatient clinic
- Delivering results to a patient
- Discharge planning for a complex patient
- Leading a team ward round
- Management of acute admissions – evening or weekend shift
- Presentation at departmental meeting
- Present at MDM/X-ray meeting
- Run a student teaching session – topic based

- Principal EPAs

- Arranging acute surgery for a complex condition
- Delivering news to a patient – end of life prognostic discussion
- Delivering news to a patient – unable to undertake procedure on the day
- Management of a new cancer patient in the outpatient clinic
- Operative supervision of a junior colleague
- Present at MDM or X-ray meeting of a complex case

### 9.3. Judgement and Clinical Decision Making

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
<u>JCDM1: Displays sound judgement in all professional activities</u>	Uses knowledge to make informed and timely decisions	Uses knowledge to contribute to team decision making	Uses knowledge to make considered and rational decisions	Justifies decisions based on knowledge
		Formulates differential diagnosis for common presentations	Refines differential diagnosis based on clinical assessment and effective utilisation of targeted investigations	Manages atypical presentations
		Organises investigations in a timely manner	Makes decisions on the use of investigations based on clinical acuity and cost/benefit	Rationalises the use of investigations based on clinical acuity, and cost benefit
		-	Demonstrates the ability to book a theatre list in a timely manner	Considers duration and complexity when choosing cases for a theatre list
	Displays sound rationale for decision making and judgement	Demonstrates consistency in clinical practice	Demonstrates systematic approach to problem solving	Provides logical rationale for decision making
		Demonstrates knowledge of management strategies	Formulates a management plan	Develops a comprehensive management plan
		Contributes to management plans and recognises common <a href="#">complications</a>	Applies preventive measures to mitigate potential risks	Discusses in detail all treatments and potential <a href="#">complications</a>
	Works to minimise the impact of <a href="#">bias</a> on decision making	Discusses the impact of <a href="#">bias</a> on decision making	Takes steps to minimise the impact of <a href="#">bias</a> on decisions	Evaluates team decisions to identify and correct for potential sources of <a href="#">bias</a>
	Uses experience to inform decision making	Demonstrates an ability to learn from experience	Uses feedback on decisions to modify future decisions	Appraises experiences to inform future practice
	<u>JCDM2: Displays sound judgement in clinical decisions involving individual patients</u>	Uses available information to effectively prioritise acute and elective patient assessment	Escalates in response to clinical urgency	Prioritises patients according to clinical urgency

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	Manages <u>uncertainty</u> in clinical decision making	Shares <u>uncertainty</u> in clinical decision making with senior colleague	Formulates patient management plan despite incomplete information	Takes steps to minimise <u>uncertainty</u>
		Asks for assistance when the management plan is failing	Formulates alternative management strategies with seniors in a timely manner	Promptly adapts management strategy in response to changing patient circumstances
	Uses medical expertise to make informed and timely decisions in all parts of the patient journey	Describes the indications for surgical intervention	Evaluates non-operative vs operative approach for common conditions	Evaluates non operative vs operative approach for complex conditions
		Develops rational plans of management	Considers patient complexities when formulating management plan	Incorporates patient complexities when formulating management plan
		Formulates plan for ongoing management and evaluates progress	Suggests corrective measures when deviation from anticipated pathway is identified	Evaluates strategies and selects appropriate corrective measures for deviations from anticipated pathway
	Displays sound judgement when limits of skill are reached	Requests supervision or assistance commensurate with level of experience	Refers to other specialists to enhance patient care	Appraises advice provided by other specialists prior to acting
	Demonstrates rational and safe intraoperative clinical decision making	-	Discusses when a damage control approach should be implemented	Manages unexpected operative findings (including those falling outside details of consent)
		Discusses the intraoperative impact of the disease process	Anticipates and communicates potential intraoperative complications	Manages intraoperative complications and <u>uncertainty</u>
	Demonstrates sound post-operative decision making	Implements post-operative care plans	implements initial management of post-operative complications	Manages unexpected post-operative complications

Learning Opportunities	<ul style="list-style-type: none"> <li>• Case based learning</li> <li>• SEAM I and II</li> <li>• Operating room</li> <li>• Ward rounds</li> <li>• Clinics</li> </ul>	<ul style="list-style-type: none"> <li>• MDT meetings</li> <li>• Reflection</li> <li>• Team briefing</li> <li>• Patient, family, and carer discussion</li> <li>• Teaching sessions</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• Observation</li> <li>• SEAM I</li> <li>• Mini-CEX</li> <li>• DOPS</li> <li>• Feedback Note</li> <li>• In-Training Assessment</li> <li>• Fellowship Examination</li> <li>• Core and Principal PBAs</li> <li>• Core EPAs <ul style="list-style-type: none"> <li>○ Arrange and complete surgery for a simple acute case</li> <li>○ Assessing simple new elective case in outpatient clinic</li> <li>○ Discharge planning for a complex patient</li> <li>○ Leading a team ward round</li> <li>○ Management of acute admissions – evening or weekend shift</li> <li>○ Presentation at departmental meeting</li> <li>○ Present at MDM/X-ray meeting</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Principal EPAs <ul style="list-style-type: none"> <li>○ Arranging acute surgery for a complex condition</li> <li>○ Management of a new cancer patient in the outpatient clinic</li> <li>○ Present at MDM or X-ray meeting of a complex case</li> </ul> </li> </ul>

## 9.4. Technical Expertise

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
<b>TE1: Ensures adequate preparation has taken place for procedures</b>	Takes steps to maximise <u>patient safety</u> for <u>procedures</u>	Describes the elements of a safe environment for <u>procedures</u>	Uses strategies to assess and mitigate risk	Arranges <u>resources</u> required for surgical <u>procedures</u>
		Explains the importance of safe surgical access	Demonstrates ability to position patient and gain surgical access for GSET1-3 procedures	Demonstrates ability to position patient and gain surgical access for GSET4-5 procedures
	Confirms correct procedure on correct patient	Uses the surgical safety checklist	Leads Surgical 'Timeout' in theatre	-
		-	Completes post procedure <u>checklist</u>	-
	Ensures a safe team environment for procedures	Demonstrates safe sharps handling	Demonstrates working knowledge of <u>safety procedures</u>	-
		Demonstrates awareness of hazards in theatre	Acts to minimise hazards in theatre	-
<b>TE2: Performs procedures effectively and safely</b>	Uses technical skills to <u>complete procedures effectively and safely</u>	<u>Safely and effectively performs GSET1 procedures</u>	<u>Safely and effectively performs GSET2-3 procedures</u>	<u>Safely and effectively performs GSET4-5 procedures as primary operator</u>
		Performs part or individual components of GSET2-3 procedures under direct supervision	Performs part or individual components of GSET4-5 procedures under direct supervision	-
	Assists with instruction	Anticipates operative steps in order to assist effectively	Utilises assistants effectively	
	Undertakes procedures within defined scope of practice	Asks for assistance when procedures are beyond own level of experience	Anticipates when additional assistance may be required	-
		Seeks and/or readily accepts feedback for all procedures	Reflects on feedback and adjusts performance	Undertakes surgery appropriate to their training and expertise, implements learnings from reflective practice

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	Applies medical knowledge to perform procedures	Applies medical knowledge to GSET1 procedures	Applies medical knowledge for GSET2-3 procedures	Applies medical knowledge for GSET4-5 procedures
		-	-	Contributes to operative decision making whilst assisting another operator
	Demonstrates a willingness to adapt and adopt new technical concepts	Seeks opportunities to learn new techniques	Demonstrates a willingness to alter technique in response to feedback	Demonstrates an ability to modify techniques to address individual patient situations
	Adapts technique to solve procedural problems	Asks for assistance to solve procedural problems	Discusses management strategies for intra-operative complications	Anticipates and manages potential complications in GSET1-5 procedures
		Discusses <a href="#">variations</a> from normal		Employs a plan to manage <a href="#">variations</a> from normal

Learning Opportunities	<ul style="list-style-type: none"> <li>• SEAM I and II</li> <li>• Simulation</li> <li>• Operating room</li> <li>• Reflection</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• Observation</li> <li>• DOPS</li> <li>• Feedback Note</li> <li>• In-Training Assessment</li> <li>• Core and Principal PBAs</li> <li>• Fellowship Examination</li> </ul>

## 9.5. Collaboration and Teamwork

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
CT1: Acts as a valued and effective member of the <a href="#">team</a>	Works effectively within a team	Listens to all team members regarding patient care	Responds to all team members input to ensure best patient outcomes	Actively seeks the contributions of all team members in the patient's care
		Demonstrates responsibility for own roles, tasks, and deadlines	Delegates clinical tasks and roles when necessary to ensure deadlines are met	Takes ownership for tasks that require senior responsibility
		-	Provides required information to team members who have been delegated tasks	Provides adequate support to team members who have been delegated tasks
	Demonstrates ability to compromise and achieve consensus	Acknowledges and respects differences in clinical opinion within the team	Participates in conversations to achieve consensus where there are differences in team opinion	Facilitates consensus decision making within the team
	<a href="#">Engages in joint decision making</a>	Seeks the opinions of other healthcare professionals	Incorporates opinions of other healthcare professionals to facilitate patient care	Negotiates between multiple perspectives to optimise patient care
		-	Discusses the need for patient transfer to other relevant healthcare professionals and/or facilities	Manages patient transfers effectively to other relevant healthcare professionals and/or facilities
		Refers patients for consideration at MDT meetings	Seeks clarification/explanation of clinical reasoning at MDT meetings	Contributes to the formulation of consensus opinion at MDT meetings
		Actively participates in patient family meetings	Promotes patient and family engagement in joint decision making	Conducts patient and family meetings and encourages inclusion of all relevant parties

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	Enhances the function of the team by ensuring a shared understanding of clinical plans	Ensures documentation, including ward round notes, and significant changes in patient status are updated in a timely manner	Facilitates handover between team members	Ensure clinical plans are both understood and being enacted in a timely manner
		Ensures operation notes and post-operative plans are updated in a timely manner	-	-
	Undertakes preparation in order to optimise team performance and patient outcomes	Prepares thoroughly before all ward rounds and theatre lists	Prepares equipment requirements in a timely manner	Formulates a theatre list considering staffing, time, and equipment requirements
		Co-ordinates team members to ensure timely ward rounds	-	-
		Participates in team time out and surgical huddle prior to procedures	<u>Leads team time out and surgical huddle prior to procedures relevant to GSET2-3</u>	<u>Leads team time out and surgical huddle prior to procedures relevant to GSET4-5</u>
		-	-	Participates in debriefing to improve team performance and future patient care after unexpected or adverse event
<b>CT2: Enhances effective team dynamics</b>	Facilitates effective utilisation of team members	Respects all members of the health care team	Acts to flatten the hierarchy within teams to optimise contributions	Provides opportunities for team members to take a leadership role
		Demonstrates knowledge of all team members and their roles	Facilitates the contribution of all team members	-
	Supports team members to ensure effective function of the team	Helps other team members as requested	-	Anticipates the needs of team members and readily assists to ensure effective functioning of the team
	Adopts circumstance appropriate roles within the team	Demonstrates an ability to lead a ward round	Demonstrates an ability to negotiate with other teams to achieve patient needs	Demonstrates an ability to adopt flexibility in roles within a team

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	<u>Manages differences within the team</u>	Respects differences within the team	Adapts processes to support - differences within the team	
		Works co-operatively with others to avoid and reduce conflict	-	Implements strategies to address conflict within the team
		-	-	Escalates where conflicts have been unable to be resolved

Learning Opportunities	<ul style="list-style-type: none"> <li>• SEAM I: Post-operative Care</li> <li>• SEAM I: Operating Theatre</li> <li>• Operating room</li> <li>• Ward rounds</li> <li>• Clinics</li> <li>• MDT meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Reflection</li> <li>• Team debriefing</li> <li>• Team briefing</li> <li>• Teaching sessions</li> <li>• Patient, family, and carer discussion</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• Observation</li> <li>• P-MEX</li> <li>• Feedback Note</li> <li>• SEAM I: Post-operative Care</li> <li>• SEAM I: Operating Theatre</li> <li>• In-Training Assessment</li> <li>• Fellowship Examination</li> <li>• Principal EPAs <ul style="list-style-type: none"> <li>○ Arranging acute surgery for a complex condition</li> <li>○ Delivering news to a patient – end of life prognostic discussion</li> <li>○ Operative supervision of a junior colleague</li> <li>○ Present at MDM or X-ray meeting of a complex case</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Core EPAs <ul style="list-style-type: none"> <li>○ Arrange and complete surgery for a simple acute case</li> <li>○ Assessing simple new elective case in outpatient clinic</li> <li>○ Delivering results to a patient</li> <li>○ Discharge planning for a complex patient</li> <li>○ Leading a team ward round</li> <li>○ Management of acute admissions – evening or weekend shift</li> <li>○ Presentation at departmental meeting</li> <li>○ Present at MDM/X-ray meeting</li> </ul> </li> </ul>

## 9.6. Communication

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
<b>C1: Demonstrates effective communication skills</b>	Maintains and promotes patient confidentiality	Maintains patient confidentiality in daily practice	Responds to difficult patient confidentiality situations	Promotes patient confidentiality within the team
	Chooses suitable environment and time for communication	<u>Arranges a suitable environment and time for routine communications</u>	-	<u>Arranges a suitable environment and time for difficult communication</u>
	Prepares prior to communication	Gathers the required information prior to communication	Synthesises gathered information prior to communication	<u>Rehearses delivery of information prior to communications of a difficult nature</u>
	Establishes rapport to facilitate effective communication	Acknowledges patient grievances as a result of miscommunication	Applies principles such as open disclosure and apology to manage difficult communications	Identifies and acts on potential points of miscommunication
	Communicates with respect and uses culturally appropriate language	Acts respectfully at all times	Uses culturally appropriate language at all times	Uses resources to modify communication and ensure culturally appropriate language and understanding
		Applies cultural awareness to everyday healthcare delivery	-	Devises strategies for communicating sensitively and effectively with those holding different cultural values and beliefs
	Selects the optimal medium for undertaking and recording an interaction	Uses communication mediums to accurately record routine interactions	Modifies communication methods for undertaking and recording all interactions including emergencies	Critically evaluates communication modes and promotes appropriate use
	Demonstrates timeliness and accuracy in all means of communication	Completes discharge summaries, operation notes, and handover notes in a timely and accurate manner	Ensures accuracy and timeliness of delegated communication	Effectively critiques team members timeliness and accuracy in all means of communication

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	Modifies own communication as a result of critical evaluation or reflection	Develops an action plan to respond to feedback received on their communication skills and abilities	Actively reflects on communication strengths and areas for improvement, and practices new techniques	<u>Modifies communication in new and difficult situations</u>
	<u>Complies with institutional policies regarding communication and information transmission</u>	Adheres to institutional policies regarding communication and information transmission	-	-
	Demonstrates receptiveness to incoming information	Demonstrates active listening in routine daily communications	Demonstrates active listening in all communication situations including acute situations	Demonstrates an ability to close the loop in communication
		-	-	Modifies communication strategies in real time in response to the situation
<b>C2: Undertakes patient centred communication</b>	Facilitates patients' expressions of understanding, concerns, and feelings	Uses a combination of open and closed questions to ascertain a patient's concerns and feelings	Actively encourages patients to express concerns and feelings and responds appropriately	-
		Responds to both verbal and non-verbal forms of communication that identify a patient's concerns and feelings	-	-
		Describes the principles of breaking bad news	Demonstrates ability to adapt communication to potential bad news situations	Predicts and pro-actively addresses specific patient concerns when breaking bad news
	Conveys information to a patient in an individualised manner	Explains medical concepts using plain language, diagrams, and other formats	Demonstrates clear communication of complex/difficult information	Modifies communication dependent on the individual patient circumstances

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	Reinforces interactions by providing access to information resources	Prepares for team meetings by ensuring all relevant patient information is at hand	Communicates succinct and relevant patient information to ensure team members understanding	Facilitates access to information resources for all team members
	Demonstrates the importance of family, carer, <a href="#">community</a> , and cultural background in communication	Explains management plan and responds to questions from the patient, family or carer	Applies specific knowledge including the impact of the patient's cultural background, to contribute to patient/family/carer discussions	Arranges family meetings that include family and/or carers to discuss difficult patient management issues
<b>C3: Demonstrates effective communication with healthcare professionals</b>	Uses handover techniques to optimise safe transition of care	Prepares for daily handover processes to optimise patient care	-	Facilitates handover processes to ensure optimal patient care
	Promotes the exchange of information in a multidisciplinary context	Participates in multidisciplinary meetings	Seeks to involve relevant multidisciplinary team members in the care of patients	Formulates a focussed question to the MDT to meet the patient's need
	Displays adaptable communication techniques that promote <a href="#">patient safety</a> in all <a href="#">clinical environments</a>	Displays adaptable communication techniques on the wards that promote <a href="#">patient safety</a>	Displays adaptable communication techniques in the operating theatre that promote <a href="#">patient safety</a> including leading time outs	Displays adaptable communication techniques in all clinical situations
		Demonstrates respectful communication with all team members	Adapts the information delivered to the needs of the recipient health staff	Promotes effective communication by all members of the surgical team
<b>C4: Manages difficult communication situations</b>	<u>Utilises effective techniques for communicating in difficult situations</u>	<u>Demonstrates awareness of situations that may be challenging and seeks assistance as required</u>	<u>Addresses difficult situations and seeks assistance when required</u>	<u>Takes responsibility for the management of difficult situations</u>
		Demonstrates awareness of techniques for speaking up	-	Promotes an environment where speaking up is supported
	Utilises effective techniques for conflict resolution	Identifies pathways by which conflict can be resolved	Raises issues in a timely manner to attempt resolution	Constructively participates in conflict resolution

Learning Opportunities	<ul style="list-style-type: none"> <li>• SEAM I: Post-operative Care</li> <li>• SEAM I: Operating Theatre</li> <li>• Operating room</li> <li>• Ward rounds</li> <li>• Clinics</li> <li>• MDT meetings</li> <li>• Reflection</li> </ul>	<ul style="list-style-type: none"> <li>• Team debriefing</li> <li>• Team briefing</li> <li>• Teaching sessions</li> <li>• Patient, family, and carer discussion</li> <li>• Informed consent discussion</li> <li>• Handover meetings</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Mini-CEX</li> <li>• DOPS</li> <li>• P-MEX</li> <li>• Feedback Note</li> <li>• SEAM I: Post-operative Care</li> <li>• SEAM I: Operating Theatre</li> <li>• In-Training Assessment</li> <li>• Fellowship Examination</li> <li>• Core EPAs <ul style="list-style-type: none"> <li>○ Arrange and complete surgery for a simple acute case</li> <li>○ Assessing simple new elective case in outpatient clinic</li> <li>○ Delivering results to a patient</li> <li>○ Discharge planning for a complex patient</li> <li>○ Leading a team ward round</li> <li>○ Management of acute admissions – evening or weekend shift</li> <li>○ Presentation at departmental meeting</li> <li>○ Present at MDM/X-ray meeting</li> <li>○ Run a student teaching session – topic based</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Principal EPAs <ul style="list-style-type: none"> <li>○ Arranging acute surgery for a complex condition</li> <li>○ Delivering news to a patient – end of life prognostic discussion</li> <li>○ Delivering news to a patient – unable to undertake procedure on the day</li> <li>○ Management of a new cancer patient in the outpatient clinic</li> <li>○ Operative supervision of a junior colleague</li> <li>○ Present at MDM or X-ray meeting of a complex case</li> </ul> </li> </ul>

## 9.7. Health Advocacy

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
<b>HA1: Advocates Effectively for Patient Care</b>	Considers the patient's psychosocial status in delivering care	Identifies the patient's psychosocial factors and mental health issues that may impact on delivering care	Involves other teams to support a patient from psychosocial and mental health perspective	Facilitates the team response to the psychosocial and mental health needs of patients, family, and carers
	Advocates for timely care	Responds to referrals in a timely fashion	Demonstrates an ability to prioritise based on acuity of patient needs	Manages the team to ensure timely care for all patients
		-	-	Adapts team priorities in response to emergent situations
		Places patients on waiting lists according to clinical priority	Acknowledges the impact and potential outcomes for patients who are categorised for waiting lists	Demonstrates awareness of system, patient, and community impacts when prioritising patients for elective & emergency surgery
	Educates the patient about factors that affect their health	Identifies factors that may affect the patient's health	Educates the patient about ways in which they can improve or maintain their health	Facilitates multidisciplinary input to improve patient health
	Takes steps to maximise a safe environment for the care of patients	<u>Considers environmental factors that put patients at risk</u>	<u>Takes steps to mitigate environmental factors that put patients at risk</u>	-
<b>HA2: Advocates for Health of the Community</b>	<u>Addresses factors that may impact access to healthcare</u>	<u>Describes factors that may impact on access to healthcare in general</u>	-	<u>Educates junior members on patient and system factors that may impact access to healthcare</u>
		<u>Enquires about individual (patient and/or family) factors which may impact on compliance with healthcare</u>	<u>Assesses factors with an individual (patient and/or family) which may affect compliance with suggested healthcare plan</u>	-
	<u>Demonstrates knowledge of financial and environmental implications of healthcare decisions</u>	Considers the financial impact of healthcare decisions and delivery on patients and family	Articulates which common staging investigations have an associated financial implication	Discusses clinical decisions that may have financial and/or environmental implications

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	Demonstrates knowledge of risks and benefits of screening and surveillance programs	Describes screening programs available for patients at the institution	Articulates the risks and benefits of healthcare screening programs	Selects appropriate screening or surveillance strategy for high-risk individuals
<b>HA3: Advocates for Self and Colleagues</b>	<u>Maintains physical and mental wellness in order to conduct duties as a surgeon</u>	Ensures compliance with institution processes and procedures to manage fatigue	Actively engages in activities to maintain own health and wellbeing	Proactively seeks solutions when physical and mental wellbeing is hindering duties
		Describes the impact of fatigue and stress on patient care and outcomes	Manages signs of fatigue or stress during routine practice	Actively monitors and addresses signs of fatigue and stress in team members
	Provides assistance to colleagues in need	Identifies personal and professional support services for colleagues in need	Encourages colleagues in need to seek support	-

Learning Opportunities	<ul style="list-style-type: none"> <li>• SEAM I: Nutrition</li> <li>• SEAM I: Post-operative Care</li> <li>• Operating room</li> <li>• Ward rounds</li> <li>• Clinics</li> <li>• M&amp;M meetings</li> </ul>	<ul style="list-style-type: none"> <li>• MDT meetings</li> <li>• Reflection</li> <li>• Team briefing</li> <li>• Teaching sessions</li> <li>• Patient, family, and carer discussion</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Feedback Note</li> <li>• SEAM I: Nutrition</li> <li>• SEAM I: Post-operative Care</li> <li>• In-Training Assessment</li> <li>• Fellowship Examination</li> <li>• Core EPAs <ul style="list-style-type: none"> <li>○ Arrange and complete surgery for a simple acute case</li> <li>○ Assessing simple new elective case in outpatient clinic</li> <li>○ Delivering results to a patient</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Discharge planning for a complex patient</li> <li>○ Leading a team ward round</li> <li>○ Management of acute admissions – evening or weekend shift</li> <li>• Principal EPAs <ul style="list-style-type: none"> <li>○ Arranging acute surgery for a complex condition</li> <li>○ Delivering news to a patient – end of life prognostic discussion</li> <li>○ Delivering news to a patient – unable to undertake procedure on the day</li> </ul> </li> </ul>

## 9.8. Leadership and Management

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
<b>LM1: Demonstrates ability to lead</b>	<u>Adopts leadership style relevant to the situation</u>	Demonstrates an ability to lead a ward round	Demonstrates an ability to lead in theatre	Demonstrates an ability to lead in acute situations
	Delegates to optimise team performance	Delegates routine tasks to junior doctors on the team	Delegates appropriately and takes responsibility for outcome	Evaluates team capabilities and delegates accordingly
		Takes responsibility for own allocated roles or tasks	Monitors the effects of delegation on team functioning and intervenes when necessary	
	Uses resources to enhance leadership	Asks for help to enhance leadership		Self-evaluates and seeks feedback to enhance leadership skills
	Models positive leadership behaviours	Demonstrates approachability with junior members of the team	Encourages team members involvement	Leads by example
	<u>Creates a positive tone for the team</u>	Contributes to activities which enhance team morale	Seeks opportunities to enhance team morale	Is a positive role model for the team
	Maintains performance and behavioural standards under pressure	Seeks assistance to manage when pressure has the potential to impact on their performance and behaviour	Modifies behaviour to ensure optimal performance and standards in stressful situations	Anticipates the need to support team members at times of stress or increased workload
		-	Makes reasoned decisions under pressure	-
	Speaks up against damaging behaviour and unprofessional conduct	Describes damaging behaviour and unprofessional conduct	-	Takes steps to mitigate damaging behaviour and unprofessional conduct
	Establishes clear goals	Provides clear goals for junior members of the team	Evaluates progress against goals	-
<b>LM2: Leads effectively in a clinical context</b>	Co-ordinates efficient care of patients	Provides direction to junior members of the team to co-ordinate patient care	Manages inefficiencies in patient care	Co-ordinates the patient's care across inpatients and outpatients
	<u>Promotes joint decision making</u>	Encourages team members to participate in decision making processes	-	Fosters autonomy and responsibility in team members

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
<b>LM3: Manages effectively in a team context</b>	Allocates personnel and other resources to demand/work-load	Demonstrates an ability to delegate to share workload	Prioritises allocation of tasks to manage demand, workload, and resources	Allocates tasks to promote learning opportunities for all team members
	<u>Uses organisational skills to enhance the functioning of the team</u>	Demonstrates time management and prioritisation skills	-	Demonstrates an ability to manage the workload of both co-located and geographically dispersed teams
<b>LM4: Engages in institutional and operational leadership and management</b>	<u>Effectively uses constrained resources</u>	Describes local resource constraints	<u>Demonstrates an ability to modify practice in response to constrained resources</u>	<u>Evaluates the impact of constrained resources on service provision and identifies areas requiring future planning</u>
	Effectively participate or lead a <u>meeting</u>	Prepares for <u>meetings</u>	Participates effectively in <u>meetings</u>	Demonstrates an ability to lead <u>meetings</u> in an efficient and collaborative manner

Learning Opportunities	<ul style="list-style-type: none"> <li>• Operating room</li> <li>• Ward rounds</li> <li>• Clinics</li> <li>• M&amp;M meetings</li> <li>• MDT meetings</li> <li>• Reflection</li> </ul>	<ul style="list-style-type: none"> <li>• Team debriefing</li> <li>• Team briefing</li> <li>• Teaching sessions</li> <li>• Patient, family, and carer discussion</li> <li>• Informed consent discussion</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• Observation</li> <li>• P-MEX</li> <li>• Feedback Note</li> <li>• In-Training Assessment</li> <li>• Fellowship Examination</li> </ul>	<ul style="list-style-type: none"> <li>• Core EPA <ul style="list-style-type: none"> <li>○ Leading a ward round</li> </ul> </li> </ul>

## 9.9. Professionalism

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
<b>P1: Upholds behaviours that meet the level of trust and responsibility placed in a surgeon</b>	Demonstrates a personal commitment to excellence	Demonstrates attention to detail regarding patient care and records	Actively seeks improvement and refinement of skills	-
		Demonstrates professional attributes	-	-
	Reflects on own practice and acts to institute change as required	Analyses own performance against expected standards	Makes changes to performance as a result of reflection	Evaluates performance changes that were made as a result of reflection
	Receptive to feedback and willing to engage in change	Participates in feedback conversations and planning for change in practice	-	-
		Demonstrates change to practice as a result of feedback conversation	-	-
		Accepts feedback in a positive and constructive manner	-	-
		Accepts feedback from all levels and demonstrates reflection into own behaviour	-	-
		Actively reflects on individual behaviour and performance	-	-
	Maintains currency of knowledge and skills	Applies up to date knowledge of <a href="#">basic sciences</a> relevant to general surgical diseases	Participates in CPD to expand knowledge of current general surgery topics	Introduces new evidence to practice as it applies to the patient
	Demonstrates accountability for clinical and non-clinical situations	Completes allocated tasks in a timely manner	Ensures follow through on assigned tasks	-
Describes the need to prioritise patients		Assists team to effectively schedule and prioritise patients for surgery	Effectively prioritises elective and emergency surgery	

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	Engages in clinical responsibilities and attends commitments	Demonstrates punctuality and time management skills	Organises self to ensure responsibilities are met	-
	Acts within own limitations	Demonstrates an awareness of own limitations	Accurately assesses own limitations or regression of knowledge and skills	Takes steps to minimise regression of knowledge or skills
	Fosters an environment of collegiality	Demonstrates willingness to assist other team members	Uses a variety of support processes to assist colleagues	Advocates for support for colleagues in need
		Acknowledges the role of other <a href="#">health professionals</a> in patient care	Actively involves other <a href="#">health professionals</a> in patient care	Ensures an inter-disciplinary approach to patient care by the team
<b>P2: Demonstrates commitment to patient centred care</b>	Protects patient rights and information	Maintains patient rights including patient confidentiality	Educates the junior members of team on patient rights	-
	Upholds the right to equitable care for patients	-	Demonstrates an ability to recognise patients at risk of inequitable outcomes	Modifies the team's patient interactions and management to strive for equitable care
<b>P3: Behaves in a way that supports the institution's ability to care for patients</b>	Fulfils legal and regulatory requirements	Demonstrates an awareness of their own legal and regulatory requirements	Advocates for compliance with legal and regulatory requirements	Problem solves difficult legal and regulatory situations they may encounter to ensure these requirements are fulfilled
	<a href="#">Demonstrates fiscal responsibility in decision making and clinical practice</a>	Demonstrates an awareness of cost of patient assessment and management decisions	-	Alters clinical practice to contribute to fiscal responsibility
	Participates in processes that maintain/advance standards	Demonstrates an awareness of RACS and the institution's required standards	Demonstrates a willingness to change practice as a result of new standards	Seeks opportunities to improve standards of care at the institution
	Adheres to institutional and professional policies and procedures	Acts in accordance with RACS Code of Conduct and the institutions professional policies and procedures	-	Advocates for compliance with institutional and professional policies and procedures

Learning Opportunities	<ul style="list-style-type: none"> <li>• SEAM I: Operating Theatre</li> <li>• Operating room</li> <li>• Ward rounds</li> <li>• Clinics</li> <li>• Reflection</li> </ul>	<ul style="list-style-type: none"> <li>• MDT meetings</li> <li>• Team debriefing</li> <li>• Team briefing</li> <li>• Patient, family, and carer discussion</li> <li>• Teaching sessions</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Mini-CEX</li> <li>• P-MEX</li> <li>• Feedback Note</li> <li>• SEAM I: Operating Theatre</li> <li>• In-Training Assessment</li> <li>• Fellowship Examination</li> <li>• Core EPAs <ul style="list-style-type: none"> <li>○ Arrange and complete surgery for a simple acute case</li> <li>○ Assessing simple new elective case in outpatient clinic</li> <li>○ Discharge planning for a complex patient</li> <li>○ Leading a team ward round</li> <li>○ Present at MDM/X-ray meeting</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Principal EPAs <ul style="list-style-type: none"> <li>○ Delivering news to a patient – end of life prognostic discussion</li> <li>○ Delivering news to a patient – unable to undertake procedure on the day</li> <li>○ Present at MDM or X-ray meeting of a complex case</li> </ul> </li> </ul>

## 9.10. Education and Teaching

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
<b>ET1: Demonstrates an ongoing commitment to personal learning</b>	Demonstrate acquisition and maintenance of knowledge and skills	Participates in teaching sessions and journal discussions	-	-
		Develops own learning goals and implements a study plan relevant to stage of training and experience	Refines study plan as a result of the development of knowledge, skills, feedback, and changing learning needs	Pursues continuing professional development, and self-directed learning across the breadth and depth of General Surgery
	Demonstrate reflective learning & practice	Reflects on own practice and identifies areas for improvement	Refines learning goals as a result of reflection and accurate assessment of own level of learning including feedback from others	Implements change in own practice as a result of reflection, feedback and learning
	Engages with new developments relevant to General Surgery	Actively seeks to develop knowledge and skills	-	Critically appraises research regarding new developments and techniques in General Surgery
	Engages in scholarship	-	-	Demonstrates knowledge of current literature in general surgery
		Identifies path to complete Research Requirement	-	Participates in research activities relevant to General Surgery
<b>ET2: Demonstrates a Commitment to Teaching and Educating others</b>	Facilitates learning of others	Provides teaching and learning opportunities for medical students and interns	Educates nursing and ancillary staff to optimise patient care when opportunities arise	Modifies teaching and supervision to ensure learning needs of individual team members are met
	Supervises junior colleagues	Provides safe and respectful supervision to medical students	Demonstrates an ability to adjust supervision of junior team members to their individual needs	Actively creates opportunities for junior team members to gain firsthand experience under appropriate levels of supervision
		-	-	Supervises junior team members during procedures
	Undertakes opportunistic teaching	Uses opportunities to teach junior members	Develops effective skills for opportunistic teaching	Uses opportunities to teach when managing acutely unwell patients

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	Facilitates learning in a structured teaching environment	Presents to a group of peers	Undertakes structured teaching of junior members that encourages their interaction and application of learning	Undertakes a variety of structured teaching sessions within and across teams to enhance patient care and learning
	Appraises effectiveness of educational activity	Seeks feedback from learners after teaching sessions	Refines teaching as a result of feedback from learners	Engages in debriefing with junior colleagues and refines their teaching method following self- reflection
	Provides feedback to junior colleagues to assist learning	Provides feedback to junior members on the team and reviews	-	Encourages a team approach to seeking and participating in feedback conversations

Learning Opportunities	<ul style="list-style-type: none"> <li>• SEAM I and II</li> <li>• Journal clubs</li> <li>• Operating room</li> <li>• Ward rounds</li> <li>• Clinics</li> <li>• M&amp;M meetings</li> </ul>	<ul style="list-style-type: none"> <li>• MDT meetings</li> <li>• Reflection</li> <li>• Team debriefing</li> <li>• Team briefing</li> <li>• Teaching sessions</li> <li>• Patient, family, and carer discussion</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Feedback Note</li> <li>• In-Training Assessment</li> <li>• Fellowship Examination</li> </ul>	<ul style="list-style-type: none"> <li>• Core EPAs <ul style="list-style-type: none"> <li>○ Presentation at departmental meeting</li> <li>○ Run a student teaching session – topic based</li> </ul> </li> <li>• Principal EPAs <ul style="list-style-type: none"> <li>○ Operative supervision of a junior colleague</li> </ul> </li> </ul>

## 9.11. Cultural Competency and Cultural Safety

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5	
<b>CCCS1: Promotes the special status of Aboriginal and Torres Strait Islander peoples in Australia and Māori people in New Zealand to achieve optimal health outcomes</b>	Demonstrates knowledge of the impact of colonisation and the impact of subsequent historical and contemporary events on the determinants of health and how these factors continue to contribute to health inequities	Completes RACS Cultural Competency and Safety online learning modules	-	-	
	Acknowledges and attempts to modify healthcare outcome inequities	Acknowledges the impact of systemic and organisational racism on health outcomes for Indigenous people	Demonstrates an awareness of the impact of racism has on outcomes for Indigenous people	Demonstrates an awareness of the impact of racism has on outcomes for Indigenous people	
	Demonstrates respect for the importance of the traditions, cultural practices, and language of Indigenous peoples	Identifies patient groups who are most affected by healthcare inequities	Identifies cultural resources to assist in treating Indigenous peoples	Responds to patients' cultural and social determinants of health that impact equitable access to healthcare	Works to address healthcare inequities in minority groups by utilising available resources
<b>CCCS2: Develops and Incorporates cultural competency and cultural safety into patient care</b>	Respects the values, beliefs, and traditions of individual cultural backgrounds which are different to their own	Acknowledges the importance of values, beliefs and traditions of individual cultures in their patient interactions	Identifies cultural resources to assist in treating Indigenous peoples	-	Actively engages in the use of cultural resources to assist in treating Indigenous peoples
		Acknowledges the importance of values, beliefs and traditions of individual cultures in their patient interactions	Seeks to address gaps in knowledge of individual cultural differences in values, beliefs or traditions	Modifies patient care to address values, beliefs, and traditions of individual cultures where they may be different to own	

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
		Identifies individual patient cultural priorities	Seeks assistance to incorporate cultural priorities in management decisions	Facilitates the team to incorporate cultural priorities in management decisions
		-	-	Fosters a workplace that is inclusive of diversity of colleagues, team members and other staff
	Acknowledges that differences in values, beliefs, and traditions can impact on healthcare	Demonstrates respect for differences in values, beliefs, and traditions and their impact on healthcare	-	-
	Actively works to identify and develop personal cultural safety skills and cultural competency skills to achieve optimal health outcomes	Evaluates own cultural learning needs to identify gaps	Participates in learning activities related to cultural safety and competency	-
	Applies cultural competencies in own practice, patient care, and environment	Demonstrates strategies that promote safe, respectful, and effective interactions with Indigenous patients, management plans and ongoing care	Develops strategies to facilitate socially and culturally safe and respectful communication with Indigenous patients	Models safe, respectful and effective communication when engaging with Indigenous patients
		Identifies cultural expectations of patients and families whilst recognising own limitations within cross-cultural interactions	Adapts interactions in a way that acknowledges cultural expectations utilising necessary cultural supports and resources	-
	Demonstrates self-awareness of own psychological	Evaluates own psychological interior and culture, and identifies	Critically considers how personal biases and differences affects their	-

Competency	Sub-competencies	GSET1	GSET2-3	GSET4-5
	interior, and culture, and takes steps to address own biases, attitudes, assumptions, stereotypes, and prejudices to ensure that they do not impact on the level of care provided	potential sources of bias and difference	interaction with patients, communities, and colleagues	
	Uses culturally appropriate support services to ensure shared decision making and engagement	Is aware of cultural support services at the institution	Initiates consultation with cultural support services to facilitate shared decision making	-

Learning Opportunities	<ul style="list-style-type: none"> <li>• Journal clubs</li> <li>• Operating room</li> <li>• Ward rounds</li> <li>• Clinics</li> <li>• M&amp;M meetings</li> <li>• Informed consent discussion</li> <li>• Handover meetings</li> </ul>	<ul style="list-style-type: none"> <li>• MDT meetings</li> <li>• Reflection</li> <li>• Team debriefing</li> <li>• Team briefing</li> <li>• Teaching sessions</li> <li>• Patient, family, and carer discussion</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Feedback Note</li> <li>• In-Training Assessment</li> <li>• Fellowship Examination</li> </ul>	<ul style="list-style-type: none"> <li>• Core EPAs</li> <li>• Principal EPAs</li> <li>• P-MEX</li> </ul>

## 10. SYLLABUS

The syllabus component provides the details for the topic areas that relate to the competencies. It provides the Supervisor, Trainers, and Trainees with the details regarding the knowledge, skills, and behaviours that relate to each competency. The knowledge, skills, and behaviours listed for items 10.1 – 10.5 should not be taken as an exhaustive list but should be viewed as a guide.

### 10.1. Collaboration and Teamwork

The topics that relate to the competency of Collaboration and Teamwork are:

Sub-competency	Topic Inclusions
Engages in joint decision making	Joint decision making includes: <ul style="list-style-type: none"> <li>Advanced Resuscitation Plan</li> <li>Palliative care plan</li> <li>Multi-disciplinary planning</li> </ul>
Manages differences within the team	Differences includes: <ul style="list-style-type: none"> <li>Opinions</li> <li>Personalities</li> <li>Working styles and preferences</li> <li>Cultural</li> </ul>

### 10.2. Communication

The topics that relate to the competency of Communication are:

Sub-competency	Milestone	Topic Inclusions
Chooses suitable environment and time for communication	Arranges a suitable environment and time for routine communications	Routine communications includes: <ul style="list-style-type: none"> <li>Handover</li> <li>Referrals</li> <li>Teaching</li> </ul>
	Arranges a suitable environment and time for difficult communication	Difficult or challenging communication includes: <ul style="list-style-type: none"> <li>Breaking bad news</li> <li>Managing emotions</li> <li>Open disclosure</li> <li>Dealing with uncertainty</li> <li>Providing feedback</li> <li>Receiving feedback</li> <li>Speaking up</li> <li>End of life discussions</li> <li>Conflict resolution</li> <li>Communicating in a resuscitation</li> </ul>
Prepares prior to communication	Rehearses delivery of information prior to communications of a difficult nature	
Modifies own communication as a result of critical evaluation or reflection	Modifies communication in new and difficult situations	
Utilises effective techniques for communicating in difficult situations	Demonstrates awareness of situations that may be challenging and seeks assistance as required	
	Addresses difficult situations and seeks assistance when required	
	Takes responsibility for the management of difficult situations	

Sub-competency	Milestone	Topic Inclusions
Complies with institutional policies regarding communication and information transmission		Principles for compliance include: <ul style="list-style-type: none"> <li>• Accountability</li> <li>• Transparency</li> <li>• Integrity</li> <li>• Protection</li> <li>• Availability</li> <li>• Retention</li> <li>• Disposition</li> </ul>

### 10.3. Health Advocacy

The topics that relate to the competency of Health Advocacy are:

Sub-competency	Milestone	Topic Inclusions
Takes step to maximise a safe environment for the care of patients	Considers environmental factors that put patients at risk	Factors include: <ul style="list-style-type: none"> <li>• Distance</li> <li>• Socioeconomic status</li> <li>• Disability</li> <li>• Cultural background</li> <li>• English as a second language</li> <li>• Literacy</li> <li>• Personal safety such as domestic violence</li> </ul>
	Takes steps to mitigate environmental factors that put patients at risk	
Addresses factors that may impact access to healthcare	Describes factors that may impact on access to healthcare in general	
	Educates junior members on patient and system factors that may impact access to healthcare	
	Enquires about individual (patient and/or family) factors which may impact on compliance with healthcare	
	Assesses factors with an individual (patient and/or family) which may affect compliance with suggested healthcare plan	
Demonstrates knowledge of financial and environmental implications of healthcare decisions		Environment implications include: <ul style="list-style-type: none"> <li>• Knowledge of disposal of single use devices</li> <li>• Selection of multiple use devices/instrument</li> </ul>
Maintains physical and mental wellness in order to conduct duties as a surgeon		Wellness includes: <ul style="list-style-type: none"> <li>• Physical</li> <li>• Mental</li> <li>• Emotional</li> </ul>

Sub-competency	Milestone	Topic Inclusions
		<ul style="list-style-type: none"> <li>• Burnout</li> <li>• Work-life balance</li> </ul>

## 10.4. Leadership and Management

The topics that relate to the competency of Leadership and Management are:

Sub-competency	Topic Inclusions
Adopts leadership style relevant to the situation	Leadership styles includes: <ul style="list-style-type: none"> <li>• Democratic</li> <li>• Strategic</li> <li>• Transformational</li> <li>• Transactional</li> <li>• Coach-style</li> </ul>
Creates a positive tone for the team	Characteristics of a leader that assists in creating a positive tone includes: <ul style="list-style-type: none"> <li>• Inspires</li> <li>• Motivates</li> <li>• Problem solver</li> <li>• Decisiveness</li> <li>• Manages stress</li> <li>• Calm under pressure</li> <li>• Displays initiative</li> <li>• Recognises achievements</li> <li>• Encourages team</li> <li>• Positive role modelling</li> <li>• Empowering team to make decision</li> <li>• Open to feedback</li> <li>• Time management</li> <li>• Approachable</li> <li>• Organisational skills</li> </ul>
Promotes joint decision making	Joint decision making includes: <ul style="list-style-type: none"> <li>• Advanced Resuscitation Plan</li> <li>• Palliative care plan</li> <li>• Multi-disciplinary planning</li> </ul>
Uses organisational skills to enhance the functioning of the team	Functioning of the team includes the following situations: <ul style="list-style-type: none"> <li>• Planning and executing tasks required for patient care</li> <li>• Rostering</li> <li>• Teaching</li> <li>• Family meetings</li> <li>• MDT meetings</li> </ul>
Effectively uses constrained resources	Constrained resources include: <ul style="list-style-type: none"> <li>• Ability to recognises areas of unmet need or areas for future planning</li> <li>• Awareness of fiscal implications of resource use</li> </ul>

## 10.5. Professionalism

The topics that relate to the competency of Professionalism are:

Competency or Sub-competency	Topic Inclusions
Upholds behaviours that meet the level of trust and responsibility placed in a surgeon	<ul style="list-style-type: none"><li>• Accountability</li><li>• Honesty</li><li>• Confidentiality</li><li>• Privacy</li><li>• Ethical behaviour</li><li>• Respect</li><li>• Conflict of interest - declaring and acting accordingly</li><li>• Ensures own practice is not compromised by financial or career gain</li><li>• Patient centred approach</li><li>• Empathy</li><li>• Teaching &amp; research</li><li>• Humility</li><li>• Culturally competent</li></ul>
Demonstrates fiscal responsibility in decision making and clinical practice	<ul style="list-style-type: none"><li>• Open disclosure</li></ul>

## 10.6. Medical Expertise, Judgement and Clinical Decision Making, and Technical Expertise

For the domains of Medical Expertise, Technical Expertise, and Judgement and Clinical Decision Making, the syllabus will continue to be divided into the 17 areas covering the breadth and depth of General Surgery.

The syllabus indicates the components relevant for each condition as they relate to the following over-arching competencies.

Condition or Disease			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Topics that are relevant to the assessment and history of the disease or condition</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Topics that are relevant to the basic and clinic sciences ie relevant anatomy, pathology, physiology etc for the disease or condition</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Topics that are relevant to the ability to determine a differential diagnosis ie specific investigations</li> </ul>		
<b>ME4, JCDM1, and JCDM2:</b>	<ul style="list-style-type: none"> <li>Topics that are relevant to the management plan for the disease or conditions</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Procedures that GSET1 should know but not necessarily do</li> </ul>	<ul style="list-style-type: none"> <li>Procedures that GSET2-3 should know but not necessarily do</li> </ul>	<ul style="list-style-type: none"> <li>Procedures that GSET4-5 should know but not necessarily do</li> </ul>
<b>Does*</b>	<ul style="list-style-type: none"> <li>Procedures that GSET1 are expected to do</li> </ul>	<ul style="list-style-type: none"> <li>Procedures that GSET2-3 are expected to do</li> </ul>	<ul style="list-style-type: none"> <li>Procedures that GSET4-5 are expected to do</li> </ul>

*\* Note: The undertaking of procedures in the Training Program occurs under supervision. There are also varying levels of supervision that occur depending on the skill level and procedure.*

The competencies in the overarching curriculum are applicable for each topic area in the Syllabus. Therefore, generic items such as the below are not be included in the syllabus, unless there are specific topics/areas for the condition.

- Assessment and history taking
- Investigations and their results
- Management of complications
- Surgical versus non surgical management
- Multidisciplinary care
- Describe details of common management options, as well as possible risks/ complications and how to deal with them
- List management options (non-surgical and surgical)
- Outline surgical management
- Referral to specialist care

### 10.6.1. Abdominal Wall, Retroperitoneum, and Urogenital

<b>Suggested Reading</b>	<p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <ul style="list-style-type: none"> <li>○ Rosen, M.J., <i>Atlas of abdominal wall reconstruction</i>. Second edition. ed. Elsevier ClinicalKey Australia. 2017: Elsevier.</li> <li>○ Jacob, B.P. and B. Ramshaw, <i>The SAGES manual of hernia repair</i>. 2013: Springer.</li> </ul>
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Adult groin hernias			
<ul style="list-style-type: none"> <li>○ inguinal</li> <li>○ femoral</li> </ul>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Inguinal hernias</li> <li>• Femoral hernias</li> <li>• Reducible, irreducible, and strangulated hernias</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Inguinal region 50</li> <li>• Spermatic cord and testis</li> <li>• Testicular descent</li> <li>• Processus vaginalis</li> <li>• Classification of groin hernias</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Inguinal versus femoral hernia</li> <li>• Recurrent hernias</li> <li>• Skin and soft tissue abnormality (eg sebaceous cyst, lipoma or lymph node)</li> <li>• Urogenital abnormality (eg undescended testis, hydrocoele of cord/lipoma of the cord, renal transplant)</li> <li>• Vascular abnormality (eg femoral artery aneurysm, saphenous vein varix)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Use of US/CT scan and bone scan</li> <li>• Open versus laparoscopic repair of inguinal and femoral hernias</li> <li>• Post hernia repair pain</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Open (mesh) repair of inguinal hernia</li> <li>• Open repair of femoral hernias</li> </ul>	<ul style="list-style-type: none"> <li>• Open repair of strangulated and non-strangulated femoral and inguinal hernias</li> <li>• Laparoscopic inguinal hernia repair</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>• Open (mesh) repair of inguinal hernia</li> <li>• Open repair of femoral hernias</li> </ul>	<ul style="list-style-type: none"> <li>• Open repair of strangulated and non-strangulated femoral and inguinal hernias</li> <li>• Laparoscopic inguinal hernia repair</li> </ul>

### Paediatric inguinal hernia/congenital hydrocele

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Hydroceles and hydroceles of the cord in a child</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Inguinoscrotal region and spermatic cord in a child</li> <li>Testicular descent</li> <li>Processus vaginalis</li> <li>Acute hernia</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Congenital hernias in children</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Timing of surgery in children versus adults</li> <li>Acutely irreducible inguinal hernia</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>Inguinal herniotomy</li> </ul>	
<b>Does</b>			<ul style="list-style-type: none"> <li>Inguinal herniotomy</li> </ul>

### Abdominal wound dehiscence/burst abdomen

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Superficial</li> <li>Fascial</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Etiological factors</li> <li>Abdominal wall anatomy</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Superficial dehiscence</li> <li>Fascial dehiscence</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Definitive closure</li> <li>VAC dressing with delayed closure</li> <li>Use of mesh/types of mesh</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>Definitive closure of abdominal wound dehiscence</li> </ul>	<ul style="list-style-type: none"> <li>Management of the open abdomen</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>Definitive closure of abdominal wound dehiscence</li> </ul>	<ul style="list-style-type: none"> <li>Management of the open abdomen</li> </ul>

### Exomphalos/Gastroschisis

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Exomphalos/Gastroschisis</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Umbilicus/abdominal wall</li> <li>Congenital abdominal wall defects</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Congenital abdominal wall defects requiring emergency management and transfer</li> </ul>		

Incisional/ventral hernias			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Irreducibility and strangulation</li> <li>• Defect size and implications on choice of repair</li> <li>• Risk factors influencing outcomes of successful repair</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Abdominal wall anatomy</li> <li>• Preperitoneal plane and peritoneal reflections</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Ventral hernias</li> <li>• Incisional hernias</li> <li>• Spigelian hernias</li> <li>• Abdominal mass</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Types of mesh and physiological properties</li> <li>• Mesh locations and types of repairs</li> <li>• Massive abdominal wall defects</li> <li>• Loss of abdominal domain and its physiological implications after repair</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Open repair of abdominal incisional hernia, with and without mesh/bowel resection</li> <li>• Retro-rectus mesh repair</li> </ul>	<ul style="list-style-type: none"> <li>• Open repair of irreducible incisional hernia</li> </ul>	<ul style="list-style-type: none"> <li>• Laparoscopic incisional hernia repair</li> <li>• Incisional hernia repair using component separation methods</li> <li>• Techniques to restore abdominal domain</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Open repair of abdominal incisional hernia, with and without mesh/bowel resection</li> <li>• Retro-rectus mesh repair</li> </ul>	<ul style="list-style-type: none"> <li>• Open repair of irreducible incisional hernia</li> </ul>

Haematocele/Scrotal haematoma			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Testicular viability</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Testis anatomy</li> <li>• Spermatic cord</li> <li>• Testicular descent</li> <li>• Patent processus vaginalis</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Haematocele</li> <li>• Hydrocoele</li> <li>• Hernias</li> <li>• Scrotal haematoma</li> <li>• Torted testis</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Use of US/CT scan</li> <li>• Scrotal exploration and timing</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Scrotal exploration and drainage</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Scrotal exploration and drainage</li> </ul>	

Open abdomen/laparostomy (See Trauma Syllabus)			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Raised intra-abdominal pressure</li> <li>• Aetiological factors</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Peritoneal cavity, including peritoneal reflections</li> <li>• Normal range of intra-abdominal pressure</li> <li>• Pathophysiological consequences of raised intra-abdominal pressure</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Technique for measuring intra-abdominal pressure including significant measure</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Measures to reduce intra-abdominal pressure</li> <li>• Laparostomy wound management</li> <li>• Suitability for wound closure</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Laparostomy</li> <li>• Application of vacuum dressing</li> <li>• Definitive wound closure</li> </ul>	<ul style="list-style-type: none"> <li>• Graduated Fascial closure techniques</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>• Laparostomy</li> <li>• Application of vacuum dressing</li> <li>• Definitive wound closure</li> </ul>	<ul style="list-style-type: none"> <li>• Graduated Fascial closure techniques</li> </ul>

Other abdominal wall hernias			
<ul style="list-style-type: none"> <li>○ Spigelian</li> <li>○ Lumbar</li> <li>○ Obturator</li> </ul>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Aetiological factors</li> <li>• Differentiation between spigelian, lumbar and obturator hernias</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Abdominal wall anatomy</li> <li>• Peritoneal cavity and peritoneal reflections</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Hernias – spigelian, lumbar, obturator, incisional</li> <li>• Soft tissue abnormalities – sebaceous cyst, lipoma, lymph node</li> <li>• Urogenital abnormalities – undescended testis</li> <li>• Abdominal mass</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Use of US/CT scan in these types of hernias</li> <li>• Open versus laparoscopic repair</li> <li>• Timing of repair</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Open hernia repair (with or without mesh)</li> </ul>	<ul style="list-style-type: none"> <li>• Open hernia repair (with or without small bowel resection)</li> </ul>	<ul style="list-style-type: none"> <li>• Laparoscopic repair of other hernias</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Open hernia repair (with or without mesh)</li> </ul>	<ul style="list-style-type: none"> <li>• Open hernia repair (with or without small bowel resection)</li> </ul>

Testicular tumours - benign/malignant			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Testis</li> <li>• Spermatic cord</li> <li>• Inguinoscrotal region</li> <li>• Retroperitoneum</li> <li>• Lymphatic drainage of the testis</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Serum tumour markers</li> <li>• Classification and staging of testicular neoplasms</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Use of US/CT for staging of testicular neoplasms</li> <li>• Scrotal exploration and orchidectomy - timing</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Orchidectomy via inguinal approach</li> </ul>	<ul style="list-style-type: none"> <li>• Testicular exploration and/or radical orchidectomy (inguinal approach)</li> </ul>	

Epididymal cyst			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Testicular viability</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Testis</li> <li>• Epididymis</li> <li>• Spermatic cord</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Epididymoorchitis</li> <li>• Torted testis</li> <li>• Hydrocoele</li> <li>• Scrotal haematoma</li> <li>• Hernias</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Use of US/CT scan</li> <li>• Scrotal exploration and timing</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Excision of epididymal cyst scrotal exploration and drainage</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Excision of epididymal cyst scrotal exploration and drainage</li> </ul>	

Mal-descent of the testis – paediatric and adult			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Exclusion of trauma</li> <li>• Exclusion of malignancy or previously absent testis</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Testis anatomy</li> <li>• Spermatic cord anatomy</li> <li>• Inguinoscrotal region anatomy</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Undescended testis</li> <li>• High riding testis</li> <li>• Testicular malignancy</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Use of US/CT scan</li> <li>• Scrotal exploration and timing</li> <li>• Role of laparoscopy in undescended testis</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>			<ul style="list-style-type: none"> <li>• Orchidopexy</li> </ul>

Adult hydrocele (acquired)			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Exclusion of malignancy/infective causes</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Testis anatomy</li> <li>Testicular descent</li> <li>Patent processus vaginalis</li> <li>Hernias</li> <li>Tunica vaginalis</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Hydrocoele</li> <li>Haematocoele</li> <li>Epididymoorchitis</li> <li>Torted testis</li> <li>Hernias</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Use of US/CT scan</li> <li>Scrotal exploration and timing</li> <li>Operative options for cure of hydrocoele and timing</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>Operative cure of hydrocele</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>Operative cure of hydrocele</li> </ul>	

Varicocele			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Exclusion of trauma</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Testis</li> <li>Spermatic cord</li> <li>Inguinoscrotal region</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Hydrocoele</li> <li>Varicocoele</li> <li>Haematocoele</li> <li>Hernias</li> <li>Infective causes</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Use of US/CT scan</li> <li>Scrotal exploration</li> <li>Open versus laparoscopic intervention</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>Surgical treatment of varicocele (inguinal approach)</li> </ul>		<ul style="list-style-type: none"> <li>Laparoscopic treatment of varicocele</li> </ul>

Vasectomy			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Scrotum</li> <li>• Spermatic cord</li> <li>• Histology/lifecycle of sperm</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Semen analysis and timing of unprotected intercourse</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Vasectomy</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Vasectomy</li> </ul>	

**Stomal hernia** (*See Colorectal Syllabus*)

**Epididymo-orchitis, Nephro/uretero/vesico-lithiasis, Testicular torsion, Phimosis/paraphimosis** (*See Emergency Syllabus*)

**Other peripheral nerve entrapments** (*See Skin & Soft Tissue Syllabus*)

## 10.6.2. Breast

<b>Suggested Reading</b>	<p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <ul style="list-style-type: none"> <li>○ Gradishar, W.J., et al., The breast: comprehensive management of benign and malignant diseases. 2017: Elsevier.</li> <li>○ Barber, M.D. and J.M. Dixon, Breast surgery: a companion to specialist surgical practice. 2018: Elsevier.</li> <li>○ Dixon, J.M., ABC of Breast Diseases. 4. Aufl.;4th; ed. 2012, Somerset: BMJ Books.</li> <li>○ Dixon, J.M. and L.R. Khan, Treatment of breast infection. BMJ: British Medical Journal, 2011. 342(7795): p. 484-489.</li> <li>○ Harris, J.R., et al., Diseases of the Breast. 5 ed. 2014, Philadelphia: Wolters Kluwer</li> </ul>
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Assessment of breast symptoms and disease			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Breast and axillary examination</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Breast embryology and normal histology</li> <li>• Developmental abnormalities</li> <li>• Molecular mechanisms, stem cells and endocrinology affecting breast development</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Triple assessment – including mammography and ultrasound; Fine needle aspiration/Core biopsy</li> <li>• Radiological image reporting classification systems               <ul style="list-style-type: none"> <li>○ BI-RADS classification for breast abnormalities</li> <li>○ Mammogram classification (M1 – M5)</li> <li>○ Ultrasound classification (U1 – U5)</li> </ul> </li> <li>• Pathologic reporting classification               <ul style="list-style-type: none"> <li>○ Cytology classification (C1 – C5)</li> <li>○ Histological classification</li> </ul> </li> <li>• Correlation of clinical and imaging findings with cytopathology or histopathology findings</li> <li>• MRI indications</li> </ul>		
<b>ME5, TE1, and TE2:</b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Image-guided fine needle aspiration and/or core biopsy</li> <li>• Wire/other localised excision biopsy</li> </ul>		<ul style="list-style-type: none"> <li>• Office ultrasound</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Clinical fine needle aspiration</li> <li>• Skin punch biopsy</li> <li>• Core biopsy</li> <li>• Excisional biopsy</li> </ul>	<ul style="list-style-type: none"> <li>• Wire/other localised excision biopsy</li> </ul>	

Benign breast disease			
<b>ME1:</b>	<i>See Assessment of breast symptoms and disease</i>		
<b>ME2:</b>	<i>See Assessment of breast symptoms and disease</i>		
<b>ME3 and JCDM1:</b>	<i>See Assessment of breast symptoms and disease</i>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Cysts/fibrocystic change</li> <li>• Fibroadenoma</li> <li>• Papillary lesions</li> <li>• Hyperplasia</li> <li>• Columnar cell change</li> <li>• Complex sclerosing lesions</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Image-guided fine needle aspiration and/or core biopsy</li> <li>• Wire/other localised excision biopsy</li> </ul>		
<b>Does</b>	<ul style="list-style-type: none"> <li>• Clinical fine needle aspiration</li> <li>• Skin punch biopsy</li> <li>• Core biopsy</li> <li>• Excisional biopsy</li> </ul>	<ul style="list-style-type: none"> <li>• Wire/other localised excision biopsy</li> </ul>	

Indeterminate proliferative lesions	
<b>ME1:</b>	<i>See Assessment of breast symptoms and disease</i>
<b>ME2:</b>	<i>See Assessment of breast symptoms and disease</i>
<b>ME3 and JCDM1:</b>	<i>See Assessment of breast symptoms and disease</i>
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Fibroepithelial lesions</li> <li>• Columnar cell change with atypia</li> <li>• Atypical ductal/lobular hyperplasia</li> <li>• Lobular carcinoma in situ</li> <li>• Phyllodes tumour</li> <li>• Radial scar</li> </ul>

Breast Pain	
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• “Cyclical” v “non-cyclical” pain</li> </ul>
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Mechanisms of breast pain</li> </ul>
<b>ME4, JCDM1 and JCDM2</b>	<ul style="list-style-type: none"> <li>• Exclusion of serious pathology and reassurance</li> <li>• Refractory breast pain</li> <li>• Pain management</li> </ul>

<b>Nipple discharge</b>			
<b>ME1:</b>	<i>See Assessment of breast symptoms and disease</i>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Physiological and pathological discharge and causes</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Discharge cytology and MRI</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Identify those who require further investigation</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Microdochectomy</li> <li>• Central duct excision</li> </ul>	
<b>Does</b>			<ul style="list-style-type: none"> <li>• Microdochectomy</li> <li>• Central duct excision</li> </ul>

<b>Inflammatory conditions, breast abscess</b>			
<b>ME1:</b>	<i>See Assessment of breast symptoms and disease</i>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Microbiology</li> <li>• Lactational and non lactational infections</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Triple assessment</li> <li>• MRI in assessment of mammary fistula</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Mastitis and breast abscesses</li> <li>• Mammary duct fistula</li> <li>• Granulomatous mastitis</li> <li>• Application of antibiotics, recurrent aspiration, and incision and drainage</li> <li>• Residual mass following initial therapy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Ultrasound-guided aspiration of deep/recurrent collections</li> </ul>	<ul style="list-style-type: none"> <li>• Excision of central ducts in chronic inflammation</li> </ul>	<ul style="list-style-type: none"> <li>• Management of complex mammary fistula</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Clinical aspiration of palpable breast abscess</li> </ul>		<ul style="list-style-type: none"> <li>• Lay open/excise mammary fistula</li> <li>• Excision of central ducts in chronic inflammation</li> </ul>

Ductal Carcinoma in Situ			
<b>ME1:</b>	<i>See Assessment of breast symptoms and disease</i>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Epidemiology, genetics, TNM staging, histological types, molecular biology</li> </ul>		
<b>ME3 and JCDM1:</b>	<i>See Assessment of breast symptoms and disease</i>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Breast conservation therapy and Mastectomy</li> <li>Indications for radiotherapy</li> <li>Indications for Sentinel lymph node in DCIS</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>Wide local excision (complete local excision/partial mastectomy)</li> <li>Mastectomy</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>Wire/other localised excision</li> <li>Wide local excision (complete local excision/partial mastectomy)</li> <li>Mastectomy</li> </ul>	

Breast screening & risk management ( <i>See Surgical Oncology Syllabus</i> )			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Population screening specifically related to breast cancer</li> <li>Identification and screening of high risk families</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Local Breast screening program</li> <li>Screening vs. Diagnostic imaging</li> <li>Breast imaging reporting and data system (Bi-rads) classification for breast lesions</li> <li>Screening in the high risk patient (including patients with known genetic mutations)</li> <li>Gene mutations (including BRCA1/2, p53, CDH1) and testing</li> <li>Familial breast cancer</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Specificity/sensitivity of screening</li> <li>Screening intervals</li> <li>Importance of quality assurance of the program</li> <li>Indications for prophylactic mastectomy</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>Surgical management of positive screening findings</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>Surgical management of positive screening findings</li> </ul>	

Early breast cancer			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Epidemiology, genetics, risk factors, TNM pathologic staging, grade, histological types</li> <li>• Oestrogen receptor (ER), progrestone receptor (PR) and HER2 status</li> <li>• Sentinel node mapping and assessment</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Molecular sub typing</li> <li>• Molecular biology</li> <li>• Principles and patterns of metastasis</li> </ul>		
<b>ME3 and JCDM1:</b>	<i>See Assessment of breast symptoms and disease</i>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Indications and contraindications to breast conservation therapy</li> <li>• Indications and contraindications to immediate breast reconstruction</li> <li>• Sentinel node mapping with isotope and blue dye</li> <li>• Radiotherapy and its delivery systems</li> <li>• Principles of staging</li> <li>• Role of gene expression profiling</li> <li>• Molecular markers of prognosis</li> <li>• Local recurrence</li> <li>• Prognostic estimation</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Wide local excision (complete local excision) of breast cancer</li> <li>• Mastectomy</li> <li>• Immediate breast reconstruction</li> <li>• Prophylactic mastectomy</li> <li>• Sentinel node biopsy (radio-isotope and blue dye)</li> </ul>	<ul style="list-style-type: none"> <li>• Skin sparing mastectomy</li> </ul>	<ul style="list-style-type: none"> <li>• Principles of oncoplastic surgery</li> <li>• Breast reconstruction</li> <li>• Nipple sparing mastectomy</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Wide local excision (complete local excision) of breast cancer</li> <li>• Mastectomy</li> <li>• Sentinel node biopsy</li> </ul>	<ul style="list-style-type: none"> <li>• Skin sparing mastectomy</li> </ul>

**Locally/advanced breast cancer**

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Epidemiology, genetics, risk factors, TNM pathologic staging, grade, histological types</li> <li>• Oestrogen receptor (ER), progrestone receptor (PR) and HER2 status</li> <li>• Nodal assessment</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Molecular sub typing</li> <li>• Molecular biology</li> <li>• Principles and patterns of metastasis</li> <li>• Molecular biological factors in initiation, promotion and metastasis of breast cancer</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• CT, Nuclear medicine and PET in staging</li> <li>• Use of serum markers</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Indications and contraindications of breast conservation therapy</li> <li>• Indications and contraindications to immediate breast reconstruction</li> <li>• Sentinel node mapping with isotope and blue dye</li> <li>• Indications for axillary lymph node dissection</li> <li>• Neoadjuvant therapies</li> <li>• Axillary staging options in the setting of neoadjuvant therapies</li> <li>• Radiotherapy and its delivery systems</li> <li>• Systemic adjuvant therapy (cytotoxic, hormonal, biological) and their side effects</li> <li>• Axillary lymphadenopathy with occult breast primary</li> <li>• Pregnancy associated breast cancer</li> <li>• Local and systemic recurrence</li> <li>• Prognostic estimation</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Wide local excision (complete local excision) of breast cancer</li> <li>• Mastectomy</li> </ul>	<ul style="list-style-type: none"> <li>• Axillary dissection</li> <li>• Insertion permanent central venous catheter (portacath)</li> </ul>	<ul style="list-style-type: none"> <li>• Breast conservation post primary/neoadjuvant chemotherapy</li> <li>• Reconstructive techniques post mastectomy radiotherapy</li> <li>• Post neoadjuvant Mastectomy and axillary surgery</li> <li>• Complex salvage surgery: breast and chest wall</li> <li>• axilla</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Wide local excision (complete local excision) of breast cancer</li> <li>• Mastectomy</li> </ul>	<ul style="list-style-type: none"> <li>• Axillary dissection</li> <li>• Insertion permanent central venous catheter (portacath)</li> </ul>

Male breast disease			
<u>ME1:</u>	<ul style="list-style-type: none"> <li>• Testicular and liver examination for gynaecomastia</li> </ul>		
<u>ME2:</u>	<ul style="list-style-type: none"> <li>• Gynaecomastia</li> </ul>		
<u>ME3 and JCDM1:</u>	<ul style="list-style-type: none"> <li>• Investigations for gynaecomastia: LFTs, endocrine hormones, testicular markers</li> </ul>		
<u>ME4, JCDM1 and JCDM2:</u>	<ul style="list-style-type: none"> <li>• Consider cancer</li> <li>• Physiological changes</li> <li>• Primary and secondary gynaecomastia</li> </ul>		
<u>ME5, TE1, and TE2:</u>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Subcutaneous mastectomy for gynaecomastia, recognition of cosmesis</li> </ul>	<ul style="list-style-type: none"> <li>• Liposuction for gynaecomastia</li> </ul>
<b>Does</b>			<ul style="list-style-type: none"> <li>• Subcutaneous mastectomy for gynaecomastia, recognition of cosmesis</li> </ul>

<i>Lymphoedema (See also Vascular Module)</i>	
<u>ME2:</u>	<ul style="list-style-type: none"> <li>• Pathological classifications, definitions, predisposing factors, incidence</li> <li>• Tape measurement, volume displacement, bioimpedence</li> </ul>
<u>ME3 and JCDM1:</u>	<ul style="list-style-type: none"> <li>• Selective Ultrasound to exclude venous occlusion/local recurrence</li> </ul>
<u>ME4, JCDM1 and JCDM2:</u>	<ul style="list-style-type: none"> <li>• Lymphatic massage</li> <li>• Compression garments</li> <li>• Prevention</li> </ul>

### 10.6.3. Colorectal

<b>Suggested Reading</b>	<p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <ul style="list-style-type: none"> <li>○ Gordon, P.H. and S. Nivatvongs, Principles and Practice of Surgery for the Colon, Rectum, and Anus. 2007: CRC Press. 1360.</li> <li>○ Surgery of the Anus, Rectum and Colon, 2- Volume Set - 3rd Edition, ed. M.R.B. Keighley, et al. 2007: Elsevier Ltd.</li> <li>○ Clark, S., Colorectal Surgery E-Book: Companion to Specialist Surgical Practice. 2018, Philadelphia: Elsevier.</li> <li>○ Fazio, V.W., et al., Current therapy in colon and rectal surgery. 2016: Elsevier.</li> <li>○ Suggested journals: Diseases of the Colon and Rectum/Colorectal Disease.</li> </ul>
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Haemorrhoids including external anal skin tags			
<u>ME1:</u>	<ul style="list-style-type: none"> <li>• Grading of haemorrhoids</li> <li>• Differentiates from other anal lesions eg. condylomata, anal cancer</li> </ul>		
<u>ME2:</u>	<ul style="list-style-type: none"> <li>• Haemorrhoids</li> <li>• Anal cushions</li> </ul>		
<u>ME4, JCDM1 and JCDM2:</u>	<ul style="list-style-type: none"> <li>• Local non-excisional techniques</li> <li>• Post haemorrhoidectomy bleeding</li> </ul>		
<u>ME5, TE1, and TE2:</u> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Banding of haemorrhoids</li> <li>• Sclerotherapy</li> <li>• Haemorrhoidectomy</li> </ul>		<ul style="list-style-type: none"> <li>• Stapled haemorrhoidectomy</li> <li>• Procedures for anal stenosis</li> <li>• DH-HAL: Doppler guided haemorrhoid artery ligation</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Banding of haemorrhoids</li> <li>• Sclerotherapy</li> <li>• Haemorrhoidectomy</li> </ul>	

Pruritus Ani	
<u>ME3:</u>	<ul style="list-style-type: none"> <li>• Skin biopsies</li> <li>• Proctoscopy</li> </ul>

Fissure in Ano			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Relative contraindication of digital anorectal examination if anal spasm</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Role of the internal anal sphincter and the anal mucosal blood supply in the pathogenesis of anal fissure</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Differentiates from other anal conditions with pain or bleeding</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Pharmacological agents and contraindications</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>Examination under anaesthetic</li> </ul>	<ul style="list-style-type: none"> <li>Fissurectomy</li> <li>Botox injection</li> <li>Internal sphincterotomy</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>Examination under anaesthetic</li> </ul>	

Perianal and Ischiorectal abscess			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Deep seated pus may not be evident on inspection of perineum</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Perianal abscess including the role of the anal glands and the relevant microbiology</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Microbiological cultures</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Drains</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>Features of Fournier's gangrene/necrotising fasciitis (<i>See Skin &amp; Soft Tissue Module</i>)</li> </ul>		
<b>Does</b>	<ul style="list-style-type: none"> <li>Surgical drainage of perianal and ischiorectal abscess</li> </ul>		

Ano-rectal Incontinence			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Different types of incontinence eg. urge, insensible, overflow, as a function of stool consistency/flatus only</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Rectum</li> <li>Anal Canal</li> <li>Anal sphincters</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Use of anorectal physiology studies (endoanal ultrasound, manometry, pudendal nerve latency)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Biofeedback in conservative management</li> </ul>		
<b>ME5, TE1, and TE2:</b> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Stoma formation (open and laparoscopic)</li> </ul>	<ul style="list-style-type: none"> <li>Surgical techniques for anal incontinence: anterior anal sphincter repair</li> <li>Sacral nerve stimulation</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>Stoma formation (open and laparoscopic)</li> </ul>	

Anal Fistula			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Fistula classification</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Endoanal ultrasound</li> <li>MRI</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>High and low fistula</li> <li>Use of seton drains</li> <li>Low and complex anal fistula</li> <li>Need to exclude Crohn's disease in complex fistula</li> <li>Medical management of Crohn's fistula</li> </ul>		
<b>ME5, TE1, and TE2:</b> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Anal fistulotomy</li> <li>Use of seton drains</li> </ul>		<ul style="list-style-type: none"> <li>Surgery for complex or high fistula</li> <li>Advancement flap repair</li> <li>LIFT procedure</li> <li>Fibrin glue</li> <li>Fistula plugs</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>Anal fistulotomy</li> <li>Use of seton drains</li> </ul>	

Rectal Prolapse			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Differentiate rectal mucosal prolapse from full thickness prolapse</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Normal supporting structures of the rectum in the pelvis</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Defecating proctography</li> <li>Colonoscopy</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Patient selection including abdominal and perineal approaches</li> <li>Change in bowel function post operatively</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>			<ul style="list-style-type: none"> <li>Laparoscopic resection/rectopexy</li> <li>Abdominal resection/rectopexy</li> <li>Perineal approaches</li> </ul>

Colorectal Polyps			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Significance of family history</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Colonic neoplasia</li> <li>Genetic syndromes</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Colonoscopy</li> <li>Faecal occult blood tests</li> <li>Histology</li> <li>Genetic testing</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Surveillance and follow-up</li> <li>Familial cancer syndromes</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Colonoscopy and polypectomy</li> <li>Open colectomy, anterior resection</li> </ul>	<ul style="list-style-type: none"> <li>Endoscopic tattoo</li> <li>Transanal local excision</li> <li>Total proctocolectomy and ileal pouch anal anastomosis</li> <li>Laparoscopic bowel resection</li> <li>Minimally invasive transanal</li> </ul>	<ul style="list-style-type: none"> <li>Transanal endoscopic microsurgery</li> <li>Advanced colonoscopic polypectomy</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>Colonoscopy and polypectomy</li> <li>Open colectomy, anterior resection</li> </ul>	

Diverticular disease			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Hinchey Classification system</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Pathogenesis of colonic pseudo-diverticula</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Imaging modalities</li> <li>• Colonoscopy</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Stomal therapy (if indicated)</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Colonoscopy</li> <li>• Anterior resection</li> <li>• Hartmann's procedure</li> </ul>	<ul style="list-style-type: none"> <li>• Laparoscopic bowel resection</li> </ul>	<ul style="list-style-type: none"> <li>• Restoration of continuity after Hartmann's procedure</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Colonoscopy</li> <li>• Anterior resection</li> <li>• Hartmann's procedure</li> </ul>	

Ulcerative colitis			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Features of toxic mega-colon</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Genetic associations; cancer risk</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Colonoscopy</li> <li>• Imaging modalities</li> <li>• Haematological and biochemical tests</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Pharmacological therapy</li> <li>• Ileo-anal pouch complications</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Colonoscopy, including surveillance biopsies</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency subtotal colectomy and ileostomy</li> </ul>	<ul style="list-style-type: none"> <li>• Total proctocolectomy and ileal pouch anal anastomosis</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Colonoscopy, including surveillance biopsies</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency subtotal colectomy and ileostomy</li> </ul>

Colorectal Cancer			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• TNM and Dukes classification systems</li> <li>• DRE of rectal lesions</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Colon and rectum including its blood supply and lymphatic drainage and autonomic nerve supply</li> <li>• Genetic syndromes including FAP and Lynch syndrome</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Tumour markers</li> <li>• Colonoscopy</li> <li>• Imaging modalities</li> <li>• Staging tests including CT, ultrasound, MRI and PET scan</li> <li>• Genetic tests</li> <li>• Faecal occult blood tests</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Screening programs</li> <li>• Genetic counselling, prevention and surveillance</li> <li>• Adjuvant and neoadjuvant therapies</li> <li>• Curative and palliative surgery</li> <li>• Stomal therapy</li> <li>• TME dissection</li> <li>• Selection of patients for restorative resections</li> <li>• Recurrent cancer, including surgical management, endoscopic, irradiation and chemotherapy</li> </ul>		
<b>ME5, TE1, and TE2:</b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Colonoscopy</li> <li>• Colectomy</li> <li>• Right hemicolectomy</li> <li>• High anterior resection</li> <li>• Ileostomy and colostomy (end and loop) and reversal</li> <li>• Hartmann's procedure</li> </ul>	<ul style="list-style-type: none"> <li>• Colonic stenting</li> <li>• Laparoscopic colectomy</li> </ul>	<ul style="list-style-type: none"> <li>• Ultralow anterior resection +/- colonic pouch</li> <li>• Abdominoperineal resection</li> <li>• Coloanal anastomosis</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Colonoscopy</li> <li>• Colectomy</li> <li>• Right hemicolectomy</li> <li>• High anterior resection</li> <li>• Ileostomy and colostomy (end and loop) and reversal</li> <li>• Hartmann's procedure</li> </ul>	

Crohn's Disease			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Similarities and differences with ulcerative colitis</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Colonoscopy</li> <li>• Imaging modalities</li> <li>• Haematological and biochemical tests</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Pharmacological therapy and immuno-therapy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Loop ileostomy</li> <li>• Small and large bowel resection</li> <li>• Surgical drainage of perianal and ischiorectal abscess</li> <li>• Use of setons</li> <li>• Use of drains</li> </ul>	<ul style="list-style-type: none"> <li>• Laparoscopic bowel resection</li> <li>• Emergency subtotal colectomy and ileostomy</li> </ul>	<ul style="list-style-type: none"> <li>• Surgery for complex fistula in Crohn's</li> <li>• Strictureplasty</li> <li>• Panproctocolectomy and ileostomy</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Loop ileostomy</li> <li>• Small and large bowel resection</li> <li>• Surgical drainage of perianal and ischiorectal abscess</li> <li>• Use of setons</li> <li>• Use of drains</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency subtotal colectomy and ileostomy</li> </ul>

Colitis/Proctocolitis/Proctitis			
<ul style="list-style-type: none"> <li>○ radiation</li> <li>○ ischaemic</li> <li>○ bacterial, including pseudomembranous colitis</li> <li>○ parasitic</li> <li>○ other, e.g. microscopic colitis</li> </ul>			
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Stool cultures</li> <li>• Colonoscopy</li> <li>• Imaging modalities</li> <li>• Haematological and biochemical tests</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Resection (Hartmann's procedure; total colectomy and end ileostomy)</li> </ul>	<ul style="list-style-type: none"> <li>• Topical formalin application</li> <li>• Argon beam coagulation therapy</li> </ul>
<b>Does</b>			<ul style="list-style-type: none"> <li>• Resection (Hartmann's procedure; total colectomy and end ileostomy)</li> </ul>

**Carcinoma anus/anal warts/perianal malignancies including Paget's disease**

<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Biology of high-risk HPV types</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Biopsy</li> <li>• Imaging modalities</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Chemo-radiotherapy</li> <li>• Topical and ablative management of warts</li> <li>• Chemo-radiotherapy for anal cancer, including role and timing of biopsy</li> <li>• Screening of high risk populations</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Biopsy</li> <li>• Local excision</li> </ul>	<ul style="list-style-type: none"> <li>• Inguinal node dissection</li> <li>• Pap smear</li> <li>• High resolution anoscopy</li> </ul>	<ul style="list-style-type: none"> <li>• Abdomino-perineal resection</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Biopsy</li> <li>• Local excision</li> </ul>	<ul style="list-style-type: none"> <li>• Defunctioning colostomy</li> </ul>

**Large bowel obstruction/volvulus/pseudo-obstruction**

<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Imaging</li> <li>• Colonoscopy</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Colonic stents</li> <li>• Pharmacological therapy for pseudo-obstruction</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Resection</li> <li>• Anastomosis</li> <li>• Colostomy formation</li> <li>• Colonoscopic decompression of pseudo-obstruction/volvulus</li> </ul>	<ul style="list-style-type: none"> <li>• On table lavage</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Placement of rectal tube</li> </ul>	<ul style="list-style-type: none"> <li>• Resection</li> <li>• Anastomosis</li> <li>• Colonic resection/colostomy formation</li> <li>• Colonoscopic decompression of pseudo-obstruction/volvulus</li> </ul>	

## Emergency conditions

- haemorrhage
- perforation
- fistula both internal and external
- ischaemia
- trauma and foreign bodies
- complications of surgery
- complications of colonoscopy
- anastomotic dehiscence

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Risk factors for anastomotic dehiscence</li> <li>• Acute post-surgical complications</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Pathophysiology and microbiology of septic shock/peritonitis</li> <li>• Pathophysiology of hypovolaemic shock</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Radiological tests</li> <li>• Nuclear medicine imaging</li> <li>• Endoscopic investigations</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Management protocols</li> <li>• Principles of peritoneal sepsis</li> <li>• Removal of foreign bodies</li> <li>• Massive transfusion and reversal of anticoagulation</li> <li>• Assess perineal/rectal trauma</li> <li>• Interventional radiology</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• On table gastroscopy and colonoscopy</li> <li>• Colonic resection</li> <li>• Colostomy and ileostomy</li> <li>• Repair of perforation</li> <li>• Foreign body removal</li> </ul>	<ul style="list-style-type: none"> <li>• On table lavage</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Diagnostic laparoscopy/laparotomy</li> </ul>	<ul style="list-style-type: none"> <li>• On table gastroscopy and colonoscopy</li> <li>• Colonic resection</li> <li>• Colostomy and ileostomy</li> <li>• Repair of perforation</li> <li>• Foreign body removal</li> </ul>	

Constipation/obstructed defecation/megacolon			
<u>ME3</u> and <u>JCDM1</u> :	<ul style="list-style-type: none"> <li>• Contrast studies</li> <li>• Colonic motility studies</li> <li>• Colonoscopy</li> <li>• Imaging for obstructed defecation</li> </ul>		
<u>ME4</u> , <u>JCDM1</u> and <u>JCDM2</u> :	<ul style="list-style-type: none"> <li>• Various aperients and other motility agents</li> </ul>		
<u>ME5</u> , <u>TE1</u> , and <u>TE2</u> : Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows		<ul style="list-style-type: none"> <li>• Appendicostomy</li> </ul>	
Does		<ul style="list-style-type: none"> <li>• Colonoscopy</li> <li>• Colectomy and ileo-rectal anastomosis</li> </ul>	

Stoma (ileostomy/colostomy)			
<u>ME1</u> :	<ul style="list-style-type: none"> <li>• Stomal complications</li> </ul>		
<u>ME4</u> , <u>JCDM1</u> and <u>JCDM2</u> :	<ul style="list-style-type: none"> <li>• Correct stomal sighting</li> </ul>		
<u>ME5</u> , <u>TE1</u> , and <u>TE2</u> : Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows	<ul style="list-style-type: none"> <li>• Formation (open and laparoscopic)</li> <li>• Closure</li> </ul>		<ul style="list-style-type: none"> <li>• Parastomal hernia repair</li> <li>• Stoma revision</li> </ul>
Does		<ul style="list-style-type: none"> <li>• Formation (open and laparoscopic)</li> <li>• Closure</li> </ul>	

Irritable bowel syndrome Non-surgical/non-specific abdominal pain			
<u>ME3</u> and <u>JCDM1</u> :	<ul style="list-style-type: none"> <li>• Imaging modalities</li> <li>• Colonoscopy</li> </ul>		
<u>ME5</u> , <u>TE1</u> , and <u>TE2</u> : Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows	<ul style="list-style-type: none"> <li>• Colonoscopy</li> </ul>		
Does		<ul style="list-style-type: none"> <li>• Colonoscopy</li> </ul>	

#### 10.6.4. Emergency

<b>Suggested Reading</b>	<p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <ul style="list-style-type: none"> <li>○ Doherty, G.M., Current Diagnosis &amp; Treatment: Surgery. 15th ed. 2020, New York, N.Y: McGraw-Hill Education LLC.</li> <li>○ 2Nessen, S.C., D.E. Lounsbury, and S.P. Hetz, War surgery in Afghanistan and Iraq [electronic resource] : a series of cases, 2003-2007 / edited by Shawn Christian Nessen, Dave Edmond Lounsbury, Stephen P. Hetz. Textbooks of military medicine. 2008: Falls Church, Va. : Washington, DC : Office of the Surgeon General, United States Army ; Borden Institute : Walter Reed Army Medical Center, 2008.</li> <li>○ CCrISP Manual</li> </ul>
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Acute Appendicitis			
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Judicious use of imaging to aid in diagnosis</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Management of delayed presentation/complicated appendicitis</li> <li>• Unexpected pathology</li> <li>• Appendiceal tumours</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Open appendectomy</li> <li>• Laparoscopic appendectomy</li> </ul>	<ul style="list-style-type: none"> <li>• Drainage of appendiceal abscess</li> <li>• Conversion to hemicolectomy</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>• Open appendectomy</li> <li>• Laparoscopic appendectomy</li> </ul>	

Abdominal haemorrhage			
<ul style="list-style-type: none"> <li>○ Abdominal wall</li> <li>○ Intra-peritoneal</li> <li>○ Retroperitoneal</li> </ul>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Coagulation disorders</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Anticoagulant medications and their reversal</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Interventional radiology</li> <li>• Intra-abdominal haemorrhage control</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>			<ul style="list-style-type: none"> <li>• Drainage and control of retroperitoneal haemorrhage</li> </ul>

Spontaneous bacterial peritonitis			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Microbiology</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Peritonitis in the presence of liver disease</li> <li>• Antibiotics               <ul style="list-style-type: none"> <li>○ clearance</li> <li>○ resistance</li> </ul> </li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Laparotomy</li> </ul>	<ul style="list-style-type: none"> <li>• Removal and insertion of peritoneal dialysis catheter</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>• Laparotomy</li> </ul>	

Urinary retention and urinary tract infection			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Renal tract anatomy</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Ultrasound</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Antibiotics for UTI</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Catheterisation</li> <li>• Suprapubic catheterisation</li> </ul>		

Phimosis and paraphimosis			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Penis and foreskin anatomy</li> <li>• Balanitis (acute and chronic) and foreskin adhesions (in children)</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Circumcision               <ul style="list-style-type: none"> <li>○ elective</li> <li>○ acute</li> </ul> </li> </ul>		
<b>Does</b>	<ul style="list-style-type: none"> <li>• Non-operative reduction of paraphimosis</li> </ul>	<ul style="list-style-type: none"> <li>• Circumcision               <ul style="list-style-type: none"> <li>○ elective</li> <li>○ acute</li> </ul> </li> </ul>	

Epididymo-orchitis			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Pathogenesis</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Microbiological investigations</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Exploration of scrotum</li> <li>• Drainage of scrotal abscess</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Does</b>	<ul style="list-style-type: none"> <li>• Incision and drainage of scrotal abscess</li> </ul>		

Testicular torsion			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Variations in testicular/epididymal anatomy that may predispose to torsion</li> <li>• Testicular infarction</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Ultrasound</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Scrotal exploration of testes and orchidopexy</li> <li>• Trans-scrotal orchidectomy (where indicated)</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Scrotal exploration of testes and orchidopexy</li> <li>• Trans-scrotal orchidectomy (where indicated)</li> </ul>	

Ureteric obstruction, including calculi and pyonephrosis			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Ureteric obstruction and sepsis</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Ultrasound</li> <li>• CT scan</li> <li>• Urinary cultures</li> <li>• Biochemical tests of renal function</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Emergency ureteric stenting for infected obstructed kidney</li> </ul>	

Ectopic pregnancy			
<u>ME3</u> and <u>JCDM1</u> :	<ul style="list-style-type: none"> <li>• Pelvic ultrasound</li> <li>• Pregnancy tests</li> </ul>		
<u>ME5</u> , <u>TE1</u> , and <u>TE2</u> : Procedures	GSET1	GSET2-3	GSET4-5
Knows		<ul style="list-style-type: none"> <li>• Operations for ectopic pregnancy, repair of Fallopian tube</li> </ul>	

Ovarian cysts			
<u>ME3</u> and <u>JCDM1</u> :	<ul style="list-style-type: none"> <li>• Pelvic ultrasound</li> </ul>		
<u>ME4</u> , <u>JCDM1</u> and <u>JCDM2</u> :	<ul style="list-style-type: none"> <li>• Cystic lesions of the ovary</li> <li>• Rhesus isoimmunisation</li> <li>• Adnexal masses</li> <li>• Appropriate follow up for ovarian pathology</li> </ul>		
<u>ME5</u> , <u>TE1</u> , and <u>TE2</u> : Procedures	GSET1	GSET2-3	GSET4-5
Knows	<ul style="list-style-type: none"> <li>• Ovarian cystectomy</li> </ul>	<ul style="list-style-type: none"> <li>• Oophorectomy</li> </ul>	
Does		<ul style="list-style-type: none"> <li>• Ovarian cystectomy</li> </ul>	

Epistaxis			
<u>ME2</u> :	<ul style="list-style-type: none"> <li>• Nasal cavity</li> </ul>		
<u>ME4</u> , <u>JCDM1</u> and <u>JCDM2</u> :	<ul style="list-style-type: none"> <li>• Control of haemorrhage (including interventions)</li> <li>• Control medical factors</li> </ul>		
<u>ME5</u> , <u>TE1</u> , and <u>TE2</u> : Procedures	GSET1	GSET2-3	GSET4-5
Knows		<ul style="list-style-type: none"> <li>• Nasal packing</li> </ul>	

Sepsis Syndrome <i>(See Sepsis and the Critically Ill or Compromised Patient Syllabus)</i>			
<u>ME4</u> , <u>JCDM1</u> and <u>JCDM2</u> :	<ul style="list-style-type: none"> <li>• Antibiotics, resuscitative fluids, and vasoactive agents</li> <li>• Organ dysfunction</li> </ul>		
<u>ME5</u> , <u>TE1</u> , and <u>TE2</u> : Procedures	GSET1	GSET2-3	GSET4-5
Does	<ul style="list-style-type: none"> <li>• Gain access for central line placement</li> </ul>		

<b>Focal Sepsis</b>			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Focal sepsis as it relates to skin, the limbs, solid organs, and body cavities</li> <li>• Microbiology</li> <li>• Fournier’s gangrene: <i>See Skin &amp; Soft Tissue Module</i></li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• CT Scans</li> <li>• Ultrasound</li> <li>• Plain X Rays</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Level of severity of sepsis</li> <li>• Resuscitation</li> <li>• Antibiotics and their side effects</li> <li>• Methods of drainage, either open or image guided percutaneous drainage</li> <li>• Drainage tubes</li> <li>• Necrotising conditions</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Debride necrotising fasciitis: <i>See Skin &amp; Soft Tissue Syllabus</i></li> <li>• Open drainage of abscesses of the abdominal cavity and abdominal solid organs</li> </ul>	<ul style="list-style-type: none"> <li>• Debride Fournier’s gangrene</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Drainage of an abscess</li> </ul>	<ul style="list-style-type: none"> <li>• Debride necrotising fasciitis</li> <li>• Open drainage of abscesses of the abdominal cavity and abdominal solid organs</li> </ul>	<ul style="list-style-type: none"> <li>• Debride Fournier’s gangrene</li> </ul>

**Peritonitis of various aetiologies, pancreatitis, cholangitis and gastro intestinal bleeding** (*See Upper GI and HPB – Hepatic, Pancreatic & Biliary, Colorectal, Small Bowel, and Transplantation Syllabus*)

## 10.6.5. Endocrine

<b>Suggested Reading</b>	Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources. <ul style="list-style-type: none"><li>○ Clark, O.H., Q.-Y. Duh, and E. Kebebew, Textbook of endocrine surgery. 2nd ed. ed. 2006: W.B. Saunders.</li></ul>
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### Thyroid goitre, thyroid nodule, hyperthyroidism, thyroiditis, thyroglossal remnant

#### ME1:

- Medical/family history relevant to thyroid pathology
  - Benign goitre
  - Thyroid malignancy (including familial/hereditary syndromes; eg. MEN)
- Thyroid malignancy risk factors (eg. family history; radiation exposure)
- Systemic examination for thyroid function/dysfunction
- Thyroid gland examination; central/lateral neck nodal basin examination
- Thyroglossal remnant examination
- Laryngoscopy (direct/indirect)

#### ME2:

- Goitre
  - Endemic
  - Multinodular goitre
  - Toxic goitre
  - Retrosternal goitre
- Multinodular goitre
- Thyroid nodule
  - Benign nodule
  - Toxic nodule
  - Malignant nodule
- Hyperthyroidism
  - Graves' disease
  - Toxic MNG
  - Toxic nodule
- Thyroiditis
  - Hashimoto's disease
  - Reidel's thyroiditis
  - Subacute/De Quervain's thyroiditis
  - Postpartum thyroiditis
- Thyroid embryology
  - Thyroglossal remnant (duct/cyst)
  - Thyroid rest
- Thyroid hormone/iodine metabolism (hyper-/hypothyroidism)

	<ul style="list-style-type: none"> <li>• Surgical anatomy of the thyroid, nodal basin neck levels (I-VII), cervical aerodigestive tract, extra-cranial cranial nerves and cervical plexus</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Thyroid function (TSH/T3/T4)</li> <li>• Thyroid autoantibodies</li> <li>• Thyroglobulin</li> <li>• Imaging (ultrasound; nuclear medicine; CT; MRI; PET)</li> <li>• Fine needle aspiration cytology (Bethesda Classification)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Active surveillance (benign goitre; nodule surveillance; thyroid cancer follow-up)</li> <li>• Medical therapy (anti-thyroid medication)</li> <li>• Nuclear medical therapy (for benign and malignant disease)</li> <li>• Perioperative management (pre-operative)</li> <li>• Pre-operative medical optimisation (eg. management of hyperthyroidism)</li> <li>• Perioperative management (intra-operative) <ul style="list-style-type: none"> <li>○ Neuromonitor application/troubleshooting</li> <li>○ Management of nerve injury; parathyroid glands</li> <li>○ Thyroid storm</li> </ul> </li> <li>• Perioperative management (post-operative) <ul style="list-style-type: none"> <li>○ Recurrent laryngeal nerve palsy; external branch of superior laryngeal nerve palsy</li> <li>○ Hypocalcaemia/hypoparathyroidism</li> <li>○ Post thyroidectomy haemorrhage</li> <li>○ Thyroid hormone replacement therapy</li> </ul> </li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Intraoperative neuromonitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Hemithyroidectomy</li> <li>• Parathyroid autotransplantation</li> <li>• Excision of thyroglossal remnant</li> </ul>	<ul style="list-style-type: none"> <li>• Total Thyroidectomy</li> <li>• Sternotomy</li> <li>• Central neck dissection</li> <li>• Lateral neck dissection</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Neck wound closure</li> </ul>	<ul style="list-style-type: none"> <li>• Intraoperative neuromonitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Hemithyroidectomy</li> <li>• Parathyroid autotransplantation</li> </ul>

<b>Hyperparathyroidism, parathyroid tumours, hypoparathyroidism</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Hypercalcaemia symptoms (neurocognitive; cardiovascular; renal; bone)</li> <li>• Hypercalcaemia complications (neurocognitive; cardiovascular; renal; bone)</li> <li>• Personal history of endocrinopathy (thyroid, parathyroid, adrenal)</li> <li>• Family history of endocrinopathy and known familial/hereditary syndromes (eg. MEN)</li> <li>• Hypocalcaemia complications (neurocognitive; cardiovascular; renal; bone)</li> <li>• Laryngoscopy (direct/indirect)</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Parathyroid embryology/anatomy (including operative anatomy and ectopic sites)</li> <li>• Parathyroid physiology (calcium/bone/renal homeostasis)</li> <li>• Primary, secondary and tertiary hyperparathyroidism</li> <li>• Primary hyperparathyroidism (sporadic vs hereditary syndromes, eg. MEN I, II)</li> <li>• Parathyroid carcinoma</li> <li>• Familial hypocalciuric hypercalcaemia (FHH)</li> <li>• Hypoparathyroidism</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Biochemical diagnosis of hyperparathyroidism</li> <li>• Urinary biochemical exclusion of FHH</li> <li>• Imaging localisation for primary hyperparathyroidism (ultrasound, sestamibi, multiphase CT scans)</li> <li>• Investigation of end organ manifestations (eg. DEXA bone scan; renal tract ultrasound)</li> <li>• Genetic testing (MEN1, CDC73, RET, CDKN1B)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Primary hyperparathyroidism (bilateral neck exploration and parathyroidectomy; focussed parathyroidectomy)</li> <li>• Secondary/Tertiary hyperparathyroidism (bilateral neck exploration and parathyroidectomy)</li> <li>• Intraoperative adjuncts for parathyroidectomy (eg. intra-operative PTH)</li> <li>• Parathyroid carcinoma (operative en bloc strategy)</li> <li>• Medical/non-operative management of hypercalcemia</li> <li>• Post-operative hypocalcemia and hungry bone syndrome</li> <li>• Persistent and recurrent disease (management of failed parathyroid exploration)</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Cervical neck access/closure</li> </ul>	<ul style="list-style-type: none"> <li>• Bilateral neck exploration</li> <li>• Open/minimally invasive parathyroidectomy</li> <li>• Parathyroid auto-transplantation</li> </ul>	<ul style="list-style-type: none"> <li>• Cervical thymectomy</li> <li>• Re-operative parathyroidectomy</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Cervical neck wound closure</li> </ul>	<ul style="list-style-type: none"> <li>• Cervical neck access/closure</li> </ul>	<ul style="list-style-type: none"> <li>• Bilateral neck exploration</li> <li>• Open/minimally invasive parathyroidectomy</li> <li>• Parathyroid auto-transplantation</li> </ul>

**Pancreatic and gastrointestinal neuroendocrine tumours (see also Upper GI & HPB - Hepatic, Pancreatic & Biliary Module; Colorectal)**

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Neuroendocrine tumour hypersecretion syndromes (eg. carcinoid)</li> <li>• Personal history of endocrinopathy (thyroid, parathyroid, adrenal, pancreas, gut)</li> <li>• Family history of endocrinopathy and known familial/hereditary syndromes (eg. MEN I)</li> <li>• Obstructive jaundice (see Upper GI - HPB)</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Pancreatic head, body, tail anatomy and relations</li> <li>• Liver anatomy (inflow, outflow, biliary drainage; lobes, sectors, segments)</li> <li>• Pancreatic endocrine/exocrine function</li> <li>• Pancreatic functional tumours (eg. insulinoma; gastrinoma; VIPoma)</li> <li>• Pancreatic non-functional tumours</li> <li>• Gastrointestinal neuroendocrine tumours</li> <li>• Neuroendocrine liver metastases</li> <li>• Pathophysiological effects of neuroendocrine hormone excess</li> <li>• Hereditary syndromes (eg. MEN I)</li> <li>• Pharmacology of somatostatin analogues</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Biochemical diagnosis of functional neuroendocrine tumours (blood/urine)</li> <li>• Imaging investigation (ultrasound, multiphase CT scans, MRI, PET, nuclear medicine)</li> <li>• Endoscopic techniques for investigations/management (endoscopy; endoscopic ultrasound; ERCP)</li> <li>• Fine needle aspiration and core biopsy investigation</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Perioperative optimisation</li> <li>• Role of surgical resection: pancreas (enucleation; pancreatectomy)</li> <li>• Role of surgical resection: liver (non-anatomical resection; anatomical resection)</li> <li>• Role of surgical resection: small bowel (small bowel resection; right hemicolectomy)</li> <li>• Intra-operative ultrasound</li> <li>• Liver metastases: regional/ablative/directed therapies (eg. radiofrequency ablation)</li> <li>• Neo-/Adjuvant/Palliative therapies: somatostatin analogues; peptide receptor radionuclide therapy)</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Small bowel resection</li> <li>• Liver biopsy</li> </ul>	<ul style="list-style-type: none"> <li>• Pancreatic tumour enucleation</li> <li>• Distal pancreatectomy</li> <li>• Non-anatomical liver resection</li> </ul>	<ul style="list-style-type: none"> <li>• Pancreatoduodenectomy</li> <li>• Anatomical liver resection</li> <li>• Non-anatomical liver resection</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Abdominal wall wound closure</li> </ul>	<ul style="list-style-type: none"> <li>• Small bowel resection</li> <li>• Liver biopsy</li> </ul>	

Adrenal incidentaloma, functional adrenal tumours, paraganglioma			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Cushing's syndrome</li> <li>• Conn's Syndrome</li> <li>• Catecholamine excess</li> <li>• Sex Hormone excess</li> <li>• Personal history of hypertension or malignancy</li> <li>• Family history of endocrinopathy and known familial/hereditary syndromes (eg. MEN, VHL, NF-1)</li> <li>• Asymptomatic (eg. adrenal incidentaloma)</li> <li>• Adrenal insufficiency (surgical/iatrogenic; medical/autoimmune)</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Adrenal gland anatomy and relations</li> <li>• Adrenal endocrine function</li> <li>• Adrenal incidentaloma</li> <li>• Adrenal tumours: benign (eg. adenoma; myelolipoma; cyst)</li> <li>• Adrenal tumours: malignant (eg. adrenocortical carcinoma; adrenal metastasis)</li> <li>• Adrenal tumours: functional (eg. Conn's/Cushing's adenoma; pheochromocytoma/paraganglioma)</li> <li>• Hereditary syndromes (eg. MEN II, VHL, NF-1)</li> <li>• Pathophysiological effects of adrenal cortical or medullary hormone excess</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Biochemical (blood/urine) screening for functional tumours (eg. Conn's; pheochromocytoma)</li> <li>• Biochemical confirmatory tests (eg. low dose dexamethasone suppression test; seated saline suppression test; adrenal venous sampling)</li> <li>• Medical imaging characterisation (multiphase CT; MRI; PET; nuclear medicine scans)</li> <li>• Staging for potential adrenal cancer or metastatic disease</li> <li>• Genetic testing for pheochromocytoma/paraganglioma (<i>RET, SDH, VHL</i>)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Perioperative care: pre-operative preparation (eg. <math>\alpha</math>-blockade; medical management of hypertension and/or electrolytes)</li> <li>• Perioperative care: operative approach (eg. open adrenalectomy; minimally invasive adrenalectomy: trans-/retroperitoneal)</li> <li>• Perioperative care: post-operative adrenal insufficiency and management</li> <li>• Medical management of hypertension/electrolyte disturbance</li> <li>• Adjuvant therapies for adrenocortical carcinoma (eg. mitotane)</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Surgical access to abdomen/retroperitoneum (open; minimally invasive techniques)</li> </ul>	<ul style="list-style-type: none"> <li>• Mobilisation of intra-abdominal structures to access adrenal glands</li> </ul>	<ul style="list-style-type: none"> <li>• Adrenalectomy (open; minimally invasive techniques)</li> <li>• Retroperitoneal lymph node dissection</li> <li>• En bloc resection of adjacent structures (eg. kidney/pancreas/spleen)</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Abdominal wall wound closure</li> </ul>	<ul style="list-style-type: none"> <li>• Surgical access to abdomen/retroperitoneum (open; minimally invasive techniques)</li> </ul>	<ul style="list-style-type: none"> <li>• Mobilisation of intra-abdominal structures to access adrenal glands</li> </ul>

### 10.6.6. Endoscopy, Gastroscopy and Colonoscopy

<b>Suggested Reading</b>	<p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <ul style="list-style-type: none"> <li>○ Canard, J.M., et al., <i>Gastrointestinal endoscopy in practice</i>. 2011: Churchill Livingstone.</li> </ul>
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Endoscopy, Gastroscopy And Colonoscopy			
<b><u>ME1:</u></b>	<ul style="list-style-type: none"> <li>• Risk factors for conscious sedation</li> <li>• Risk factors for procedural complications</li> </ul>		
<b><u>ME2:</u></b>	<ul style="list-style-type: none"> <li>• Anatomy of the gastrointestinal tract</li> <li>• Normal and abnormal endoscopic findings (anatomical variants, mucosal lesions, post surgical)</li> <li>• Sedation pharmacology, risks and complications</li> <li>• Anticoagulation; risks, complications and management</li> </ul>		
<b><u>ME4, JCDM1 and JCDM2:</u></b>	<ul style="list-style-type: none"> <li>• Indications and contraindications for endoscopy</li> <li>• Risks of diagnostic and therapeutic endoscopy</li> <li>• Alternatives to endoscopy</li> <li>• Preparation for gastroscopy; fasting protocol</li> <li>• Preparation for colonoscopy; diet and bowel preparation</li> <li>• Pre and post procedure management of anticoagulation</li> <li>• Pre and post procedure management of comorbidities</li> <li>• Risk of rebleeding in peptic ulcer disease</li> <li>• Risks and alternatives for therapeutic interventions including mucosal resection, polypectomy and dilatation</li> <li>• Assessment of polyps</li> <li>• Polypectomy and surveillance intervals</li> <li>• Gastrointestinal pathologies identified at endoscopy</li> <li>• Post endoscopy management plan</li> </ul>		
<b><u>ME5, TE1, and TE2:</u></b>	<ul style="list-style-type: none"> <li>• Structure and function of the endoscope</li> <li>• Monopolar/bipolar diathermy and argon plasma coagulation</li> <li>• Electrical hazards in diathermy</li> <li>• Supplemental oxygen in conscious sedation</li> <li>• Ancillary equipment including biopsy forceps, snares, clips and injectors</li> <li>• Equipment reprocessing, sterilisation and storage</li> <li>• Methods to improve detection of pathology in endoscopy</li> </ul>		
<b><u>ME5, TE1, and TE2:</u></b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Monitor sedation, sedation titration and reversal of conscious sedation</li> </ul>	<ul style="list-style-type: none"> <li>• Approach to difficult oesophageal intubation</li> </ul>	<ul style="list-style-type: none"> <li>• Endoscopic Retrograde Cholangio-Pancreatography</li> </ul>

	<ul style="list-style-type: none"> <li>• Correction of technical problems with endoscope</li> <li>• Deplore and use a snare</li> <li>• Gastroscopy insertion to second part of duodenum and withdrawal</li> <li>• Assessment of pathology during gastroscopy</li> <li>• Colonoscopy - insertion to caecum or terminal ileum and withdrawal</li> <li>• Assessment of pathology during colonoscopy</li> <li>• Digital rectal examination prior to introduction of the colonoscope</li> <li>• Maintain luminal visualisation</li> <li>• Use of biopsy forceps</li> <li>• Deploy and use a cold or hot snare</li> <li>• Endoscopic haemostatic techniques to treat or prevent bleeding</li> </ul>	<ul style="list-style-type: none"> <li>• Mucosal visualisation manoeuvres for endoscopy</li> <li>• Removal of food bolus or foreign body</li> <li>• Placement of PEG</li> <li>• Management of stricture or obstruction</li> <li>• Colonoscope insertion techniques including aspiration, water injection, torque steering and minimal insufflation</li> <li>• Strategies for passing an acute angle in colonoscopy</li> <li>• Ileal intubation</li> <li>• Uses adjunct equipment for haemostasis</li> <li>• Deployment of endoscopic clips to repair mucosal damage</li> <li>• Strategies to increase polyp detection</li> <li>• Assessment of polyps</li> <li>• Polypectomy techniques</li> <li>• Injection of fluid into submucosal space</li> <li>• Placement of tattoo</li> <li>• Retrieval of resected specimens for pathology</li> </ul>	<ul style="list-style-type: none"> <li>• Endoscopic Ultrasound</li> <li>• Capsule Endoscopy</li> <li>• Endoscopic Submucosal Dissection</li> </ul>
<p><b>Does</b></p>	<ul style="list-style-type: none"> <li>• Prepare an endoscopy video processor and endoscope</li> <li>• Deploy a diathermy unit</li> <li>• Oesophageal intubation</li> <li>• Utilises the scope guide</li> </ul>	<ul style="list-style-type: none"> <li>• Correction of technical problems with endoscope</li> <li>• Gastroscopy - insertion to second part of duodenum and withdrawal</li> <li>• Assessment of pathology during gastroscopy</li> <li>• Colonoscopy - insertion to caecum or terminal ileum and withdrawal</li> <li>• Assessment of pathology during colonoscopy</li> <li>• Digital rectal examination prior to introduction of the colonoscope</li> <li>• Maintain luminal visualisation</li> <li>• Use of biopsy forceps</li> <li>• Deploy and use a cold or hot snare</li> <li>• Endoscopic haemostatic techniques to treat or prevent bleeding</li> </ul>	<ul style="list-style-type: none"> <li>• Approach to difficult oesophageal intubation</li> <li>• Mucosal visualisation manoeuvres for endoscopy</li> <li>• Removal of food bolus or foreign body</li> <li>• Placement of PEG</li> <li>• Management of stricture or obstruction</li> <li>• Colonoscope insertion techniques including aspiration, water injection, torque steering and minimal insufflation</li> <li>• Strategies for passing an acute angle in colonoscopy</li> <li>• Ileal intubation</li> <li>• Uses adjunct equipment for haemostasis</li> </ul>

			<ul style="list-style-type: none"><li>• Deployment of endoscopic clips to repair mucosal damage</li><li>• Strategies to increase polyp detection</li><li>• Assessment of polyps</li><li>• Polypectomy techniques</li><li>• Injection of fluid into submucosal space</li><li>• Placement of tattoo</li><li>• Retrieval of resected specimens for pathology</li></ul>
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### 10.6.7. Head and Neck

Upper aero-digestive tract neoplasia			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Oral cavity, oropharyngeal and cervical lymph node examination, cranial nerve examination</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Upper aerodigestive tract anatomy</li> <li>• Neoplasms of the upper aerodigestive tract</li> <li>• Biological behaviour including patterns of lymphatic drainage and potential spread</li> <li>• Epidemiology and risk factors including the role of HPV</li> <li>• Pre-malignant oral cavity lesions</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Staging investigations (regional and distant)</li> <li>• Fine-needle aspiration biopsy, incisional biopsy oral cavity</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Flexible nasendoscopy, microlaryngoscopy</li> <li>• Open cervical node biopsy, incisional oral cavity biopsy</li> <li>• Management and maintenance of upper airway and enteral nutrition</li> <li>• Adjuvant treatment in head and neck mucosal malignancy</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Open feeding gastrostomy or PEG</li> <li>• Tracheostomy</li> </ul>	<ul style="list-style-type: none"> <li>• Oral cavity resection</li> <li>• Microlaryngoscopy</li> </ul>	<ul style="list-style-type: none"> <li>• Selective neck dissection</li> <li>• Oral cavity resection</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Cervical lymph node biopsy</li> <li>• Oral cavity biopsy</li> </ul>	<ul style="list-style-type: none"> <li>• Open feeding gastrostomy or PEG</li> <li>• Tracheostomy</li> </ul>	

Upper airway foreign body/occlusion/trauma			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Symptoms and signs of upper airway obstruction</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Upper aero digestive tract anatomy</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Plain X-rays of cervical soft tissues, CT</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Flexible nasendoscopy</li> <li>• Awake fibre optic intubation</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Cricothyroidotomy</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency tracheostomy</li> </ul>	<ul style="list-style-type: none"> <li>• Extracting foreign body (rigid oesophagoscopy)</li> <li>• Awake fiberoptic intubation</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Cricothyroidotomy</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency tracheostomy</li> </ul>

Salivary gland pathology			
○ tumour			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Parotid, submandibular and sublingual gland anatomy, cranial nerve examination</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Primary and secondary salivary gland neoplasms and biological behaviour</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Fine-needle aspiration biopsy, imaging assessment (US, CT, MRI)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Facial nerve palsy management principles, adjuvant treatment</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>Facial nerve trunk exposure</li> <li>Submandibular gland excision</li> </ul>	<ul style="list-style-type: none"> <li>Excision of submandibular gland and level Ib</li> <li>Superficial, partial, radical parotidectomy</li> <li>Sublingual gland excision</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>Cervical lymph node biopsy</li> </ul>		

Salivary gland pathology			
○ infections			
○ inflammatory disease			
○ calculi			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Parotid and submandibular gland anatomy</li> <li>Palpate stone in submandibular duct</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Calculus disease pathophysiology, Sjogren's disease</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Ultrasound</li> <li>CT</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Sialendoscopy in stone disease</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>Drainage of acute suppuration</li> </ul>	<ul style="list-style-type: none"> <li>Submandibular gland excision</li> </ul>	<ul style="list-style-type: none"> <li>Total parotidectomy</li> <li>Submandibular sialendoscopy</li> <li>Transoral submandibular duct calculus extraction and meatoplasty</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>Minor salivary gland biopsy</li> </ul>	<ul style="list-style-type: none"> <li>Drainage of acute suppuration</li> </ul>	<ul style="list-style-type: none"> <li>Submandibular gland excision</li> </ul>

Cervical infections lymphadenitis/abscess			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Abscess formation, dental anatomy</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Fascial compartments of the neck</li> <li>Pathogenesis</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Microbiology</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Awake fiberoptic intubation, post-operative management</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>Incision and drainage of cervical abscess</li> <li>Emergency tracheostomy</li> </ul>	<ul style="list-style-type: none"> <li>Surgical approaches to the parapharyngeal and mastication spaces</li> </ul>
<b>Does</b>			<ul style="list-style-type: none"> <li>Incision and drainage of cervical abscess</li> <li>Emergency tracheostomy</li> </ul>

Lumps in the neck			
<ul style="list-style-type: none"> <li>carotid body tumour</li> <li>branchial cyst/sinus</li> <li>thyroglossal (<i>See Endocrine Syllabus</i>)</li> <li>pharyngeal pouch</li> </ul>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Clinical features of thyroglossal cyst, carotid body tumour, branchial cyst/sinus and pharyngeal pouch</li> <li>Neck examination including thyroid, cranial nerve, oral cavity and scalp and facial skin</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Pharyngeal pouch</li> <li>Origin of thyroglossal cyst and branchial cyst/sinus</li> <li>Parapharyngeal tumours including paragangliomas, neurogenic tumours</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>MRI, barium swallow, CT, functional imaging (dotatate PET)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>MEN syndrome and endocrinopathies affecting the head and neck</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>Excision of branchial cyst</li> <li>Excision of thyroglossal cyst/fistula</li> </ul>	<ul style="list-style-type: none"> <li>Pharyngeal pouch excision (open and endoscopic)</li> </ul>

**Parathyroid (*See Endocrine Syllabus*)**

**Head and neck trauma (*See Trauma Syllabus*)**

### 10.6.8. Sepsis and the Critically Ill or Compromised Patient

<b>Suggested Reading</b>	<p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <ul style="list-style-type: none"> <li>○ CCrISP Manual</li> <li>○ Paterson-Brown, S. and H.M. Paterson, Core Topics in General and Emergency Surgery E-Book: Companion to Specialist Surgical Practice. 2018, Philadelphia: Elsevier.</li> </ul>
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<b>Critically ill surgical patient e.g.:</b>	
<ul style="list-style-type: none"> <li>○ severe pancreatitis, anastomotic leak</li> <li>○ strangulated small bowel/ischaemic colon/perforated small bowel/colon</li> <li>○ massive haemorrhage (<i>see Emergency Syllabus</i>)</li> <li>○ Severe cholangitis (<i>See also Upper GI &amp; HPB - Hepatic, Pancreatic &amp; Biliary Syllabus</i>)</li> </ul>	
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Patient at risk of becoming critically ill</li> <li>• Life threatening conditions</li> <li>• SIRS</li> <li>• Shock</li> </ul>
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Spectrum of pathologies responsible for critical illness</li> <li>• Pathophysio-genesis and consequences of:               <ul style="list-style-type: none"> <li>○ SIRS</li> <li>○ MODS</li> <li>○ Adult Respiratory Distress Syndrome</li> <li>○ Shock</li> <li>○ Sepsis &amp; sepsis syndrome</li> </ul> </li> </ul>
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Multimodal assessment</li> <li>• Scoring systems in relation to critically ill patients</li> <li>• Serum inflammatory markers</li> <li>• Acid-base status</li> <li>• Fluid and electrolyte balance</li> </ul>
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Prophylaxis and risk mitigation</li> <li>• Application of CCrISP® algorithm</li> <li>• Recognition and resuscitation</li> <li>• Response to resuscitation</li> <li>• Pharmacological agents and their limitations and complications</li> <li>• Procedural details of definitive surgical management</li> <li>• Imaging and interventional radiology</li> <li>• Nutritional support – enteral, parenteral</li> <li>• Advanced organ and system support:               <ul style="list-style-type: none"> <li>○ cardiovascular</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ respiratory</li> <li>○ renal</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Cricothyroidotomy/tracheostomy</li> <li>• Establish and maintain emergency airway</li> <li>• Needle thoracostomy/intercostal chest drain</li> <li>• Establish definitive emergency vascular access - central and peripheral</li> <li>• Use of PICC and central venous lines</li> </ul>		
<b>Does</b>	<ul style="list-style-type: none"> <li>• Bag-Mask ventilation (incl NPA and ORA)</li> <li>• Establish peripheral venous access</li> </ul>	<ul style="list-style-type: none"> <li>• Establish and maintain emergency airway</li> <li>• Needle thoracostomy/intercostal chest drain</li> <li>• Establish definitive emergency vascular access - central and peripheral</li> </ul>	

### Wounds and soft tissue infections (including ulcers)

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Clinical manifestations</li> <li>• Aetiological and risk factors</li> <li>• Mechanism of wounding</li> <li>• Pathogenesis of ulcers</li> <li>• Risk factors for contamination and infection</li> <li>• Wound infection signs and symptoms</li> <li>• Synergistic soft tissue infection</li> </ul>
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Normal tissue healing</li> <li>• Factors influencing wound healing</li> <li>• Classification of wounds, ulcers</li> <li>• Associated microbiology and synergistic infections</li> </ul>
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Possible microbiology</li> <li>• Associated conditions and risk factors</li> <li>• Septic screen</li> <li>• Pathogenesis of ulcers and wounds</li> <li>• Synergistic soft tissue infection</li> <li>• Sampling for microbiology</li> </ul>
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Universal precautions</li> <li>• Non-surgical wound management including dressings</li> </ul>

	<ul style="list-style-type: none"> <li>• Application of CCrISP® algorithm</li> <li>• Nutritional assessment</li> <li>• Antimicrobial management</li> <li>• Exploration and debridement</li> <li>• Timely sepsis control</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Surgical management of synergistic soft tissue infections</li> </ul>	<ul style="list-style-type: none"> <li>• Surgical management of complex wounds</li> <li>• Simple wound reconstruction</li> </ul>	<ul style="list-style-type: none"> <li>• Advanced wound closure techniques</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Wound debridement</li> <li>• Simple wound dressings and use of drains</li> </ul>	<ul style="list-style-type: none"> <li>• Surgical management of synergistic soft tissue infection</li> </ul>	<ul style="list-style-type: none"> <li>• Simple wound reconstruction</li> </ul>

### Subphrenic/pelvic/intra-abdominal abscess

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Sepsis</li> <li>• Abscesses in various sites in the abdomen</li> <li>• Pathogenesis, risk factors</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Abdominal and pelvic cavity</li> <li>• Forms of abscess</li> <li>• Microbiology</li> <li>• SIRS responses</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Clinical assessment</li> <li>• Role of imaging</li> <li>• Septic screen</li> <li>• Blood tests</li> <li>• Sampling for microbiology</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Therapeutic and prophylactic role of antibiotics, including dosage of common antibiotics</li> <li>• Empirical and targeted antimicrobial agents</li> <li>• Application of CCrISP® algorithm</li> <li>• Role of interventional radiology</li> <li>• Nutritional support – enteral and parenteral</li> <li>• Multi-organ support</li> <li>• Monitoring response</li> <li>• Surgical intervention</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Radiologically guided drainage</li> <li>• Endoscopic feeding tubes</li> </ul>	<ul style="list-style-type: none"> <li>• Transrectal drainage</li> <li>• Trans/Retroperitoneal drainage</li> </ul>	

		<ul style="list-style-type: none"> <li>Laparotomy/laparostomy/minimally invasive techniques for drainage of complex abscesses</li> <li>Laparotomy for sepsis control</li> <li>Operative feeding tube</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>Open/percutaneous drainage procedures</li> <li>Naso-enteric feeding tubes</li> </ul>	<ul style="list-style-type: none"> <li>Endoscopic feeding tube</li> </ul>	<ul style="list-style-type: none"> <li>Laparotomy for sepsis control</li> <li>Operative feeding tube</li> </ul>

### Soft tissue abscess

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Clinical manifestations</li> <li>Aetiological and risk factors</li> <li>Microbiology</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Muscle compartments, fascial planes and spaces</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Imaging</li> <li>Septic screen</li> <li>Sampling for microbiology</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Antibiotic therapy – empirical and targeted</li> <li>Percutaneous and Open drainage</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Radiologically guided drainage</li> <li>Placement of irrigation and suction drains at open surgery</li> </ul>	<ul style="list-style-type: none"> <li>Trans/Retroperitoneal drainage</li> <li>Drainage of interfascial abscess (incl fasciotomy)</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>Open/percutaneous drainage procedures and packing</li> </ul>	<ul style="list-style-type: none"> <li>Placement of irrigation and suction drains at open surgery</li> </ul>	<ul style="list-style-type: none"> <li>Fasciotomy</li> </ul>

### Intra-abdominal sepsis/peritonitis (See Subphrenic/pelvic/intra-abdominal abscess above)

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Clinical manifestations of peritonitis</li> <li>Clinical manifestations of organ-specific sources of sepsis</li> <li>Clinical scenarios that may mask the signs of peritonitis</li> <li>Pathogenesis and risk factors</li> </ul>
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Abdominal and pelvic cavity and associated organs</li> <li>Location of occult sepsis</li> <li>Microbiology</li> <li>SIRS response</li> </ul>
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Clinical assessment</li> <li>Imaging</li> <li>Septic screen</li> </ul>

	<ul style="list-style-type: none"> <li>Blood tests</li> <li>Sampling for microbiology</li> </ul>		
<b><u>ME4, JCDM1 and JCDM2:</u></b>	<ul style="list-style-type: none"> <li>Therapeutic and prophylactic role of antibiotics, including dosage of common antibiotics</li> <li>Empirical and targeted antimicrobial agents</li> <li>Application of CCrisp® algorithm</li> <li>Role of interventional radiology</li> <li>Nutritional support – enteral and parenteral</li> <li>Multi-organ support</li> <li>Delayed closure</li> <li>Drains</li> </ul>		
<b><u>ME5, TE1, and TE2:</u></b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Laparotomy for sepsis control</li> <li>Endoscopic feeding tube</li> <li>Stoma formation</li> <li>Enteric access for feeding</li> </ul>	<ul style="list-style-type: none"> <li>Laparostomy</li> <li>Minimally invasive drainage procedures</li> <li>End and loop intestinal stomas</li> <li>Operative feeding tube</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>Open/percutaneous drainage procedures</li> <li>Naso-enteric feeding tubes</li> </ul>	<ul style="list-style-type: none"> <li>Laparotomy for sepsis control</li> <li>Endoscopic feeding tube</li> </ul>	<ul style="list-style-type: none"> <li>Laparostomy</li> <li>End and loop intestinal stomas</li> <li>Operative feeding tube</li> </ul>

### Immuno-suppressed patient (See Transplantation Syllabus)

<b><u>ME1:</u></b>	<ul style="list-style-type: none"> <li>Impending decompensation in an immuno-suppressed patient</li> <li>Predisposition to immuno-compromised state</li> </ul>		
<b><u>ME2:</u></b>	<ul style="list-style-type: none"> <li>Humoral and cellular immunity and the factors that modify immunity</li> </ul>		
<b><u>ME3 and JCDM1:</u></b>	<ul style="list-style-type: none"> <li>Haematological assessment</li> <li>Multi-disciplinary assessment</li> </ul>		
<b><u>ME4, JCDM1 and JCDM2:</u></b>	<ul style="list-style-type: none"> <li>Universal precautions</li> <li>Application of CCrisp® algorithm</li> <li>Multi-disciplinary involvement</li> <li>Escalation of care</li> </ul>		
<b><u>ME5, TE1, and TE2:</u></b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>			<ul style="list-style-type: none"> <li>Surgical strategies in the critically ill patient</li> </ul>

### HIV/AIDS and other Atypical infections including TB, hydatid, fungal, synergistic infections (See Immuno-suppressed patient above)

<b><u>ME1:</u></b>	<ul style="list-style-type: none"> <li>Clinical manifestations</li> <li>Aetiological and risk factors</li> </ul>
<b><u>ME2:</u></b>	<ul style="list-style-type: none"> <li>Known progression of disease</li> </ul>

	<ul style="list-style-type: none"> <li>Immune suppression as it relates to HIV/AIDS</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Haematological and microbiological tests, such as helper/suppressor cell ratios and viral load</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Universal precautions</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>Ultrasound guided Insertion of central venous access with management</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>Ultrasound guided Insertion of central venous access with management</li> </ul>	

### Hyposplenism/asplenism *(See Immuno-suppressed patient above)*

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Abdominal examination to identify splenomegaly</li> <li>Conditions associated with functional hyposplenism</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Role of the spleen in certain haematological disorders such as hereditary spherocytosis and idiopathic thrombocytopenic purpura</li> <li>Role of the spleen in certain infectious conditions such as infectious mononucleosis and malaria</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Imaging and haematological investigations</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Preventive management for overwhelming post-splenectomy infection (OPSI) following splenectomy including antibiotics and immunisation</li> <li>Consequences and sequelae of splenectomy</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>Open elective splenectomy</li> </ul>	<ul style="list-style-type: none"> <li>Laparoscopic elective splenectomy</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>Open elective splenectomy</li> </ul>	

### Nutritional support

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Patient at risk of nutritional deficiencies</li> <li>Nutritional deficiencies</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Components of nutrition and their functions</li> <li>Normal fluid, electrolytic and other nutritional requirements</li> <li>Specific nutritional demands associated with different pathologies</li> <li>Complications associated with nutritional replacement</li> <li>Influences on outcome</li> <li>Pathophysiology of re-feeding syndrome</li> <li>Impact of nutritional deficiencies on tissue healing, immune response, post-operative recovery</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Biochemical assessment of nutrition</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Nutritional support in the management of surgical pathologies and the role of ERAS</li> <li>Indications for enteral and parenteral nutritional routes and the associated complications</li> <li>Response to nutritional support</li> </ul>		

	<ul style="list-style-type: none"> <li>Techniques to establish routes for administering nutrition</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Feeding gastrostomy/jejunostomy (open, endoscopic, and laparoscopic)</li> <li>Vascular access for nutrition (including surgical and radiological implantable and tunnelled devices)</li> </ul>		
<b>Does</b>	<ul style="list-style-type: none"> <li>Naso-gastric feeding tube</li> </ul>	<ul style="list-style-type: none"> <li>Feeding gastrostomy/jejunostomy (open, endoscopic, and laparoscopic)</li> <li>Vascular access for nutrition (including surgical and radiological implantable and tunnelled devices)</li> </ul>	

### Acute pain control

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Pain scoring system</li> <li>Abnormal behaviour in response to pain</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Pathophysiology of acute pain</li> <li>Causes of pain in the surgical patient</li> <li>Effect of pain on various physiological functions</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Preventive measures</li> <li>Pain control in patient outcome</li> <li>Prescribe and monitor response to pharmacological agents and adjust accordingly</li> <li>Multimodal therapy for pain control</li> <li>Analgesic therapy</li> <li>Preferred route(s) for administering analgesia</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Role of intra-operative local anaesthesia infiltration</li> </ul>	<ul style="list-style-type: none"> <li>Use of wound infusion devices for pain management</li> <li>Insertion of wound infusion devices</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>Simple administration of local anaesthesia including digital blocks</li> </ul>		<ul style="list-style-type: none"> <li>Insertion of wound infusion devices</li> </ul>

**Gangrene/necrotising fasciitis** (*See Skin & Soft Tissue Syllabus*)

**Post transplantation patients** (*See Transplantation Syllabus*)

### 10.6.9. Skin and Soft Tissue

Skin cancer			
<ul style="list-style-type: none"> <li>○ Basal cell carcinoma</li> <li>○ Squamous cell carcinoma</li> <li>○ Intra-epithelial carcinoma</li> <li>○ Merkel cell tumour</li> <li>○ Melanoma (See Surgical Oncology Syllabus)</li> </ul>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Appearance of skin cancers</li> <li>• Risk factors e.g. family history, immunosuppression</li> <li>• Melanoma precursors e.g. dysplastic naevi</li> <li>• Atypical presentations e.g. subungual melanoma</li> <li>• Regional lymph node and systemic examination</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Types of skin cancer and their biological behaviour</li> <li>• Epidemiology/risk factors</li> <li>• Anatomy of cervical, axillary and inguinal lymph node basins</li> <li>• Cosmesis: Langer's lines</li> <li>• Wound healing</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Punch biopsy</li> <li>• Excision biopsy</li> <li>• Skin surface microscopy</li> <li>• Staging investigations</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Excision margins</li> <li>• Orientation of specimens</li> <li>• Moh's micrographic surgery</li> <li>• Topical therapy e.g. Imiquimod</li> <li>• Poor prognosis features and indications for referral to MDM</li> <li>• Radiotherapy</li> <li>• Advanced reconstructive techniques</li> <li>• Regional lymph node management</li> </ul>		
<b>ME5, TE1, and TE2:</b> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Excision of skin cancer and wound closure using                             <ul style="list-style-type: none"> <li>○ cutaneous flaps</li> <li>○ full-thickness/split skin grafts</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Block dissection of regional lymph nodes</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Simple excision of skin cancer and primary closure</li> </ul>	<ul style="list-style-type: none"> <li>• Excision of skin cancer and wound closure using:                             <ul style="list-style-type: none"> <li>○ cutaneous flaps</li> <li>○ full-thickness/split skin grafts</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Sentinel lymph node biopsy</li> </ul>

## Benign skin and subcutaneous lesions

- Nevus
- Solar keratosis
- Papilloma/wart
- Seborrheic keratosis
- Lipoma
- Sebaceous cyst
- Keloid and hypertrophic scar

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Appearance of benign skin lesions</li> <li>• Risk factor for malignant transformation</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Histological features and biological behaviour of specific lesions</li> <li>• Wound healing</li> <li>• Cosmesis: Langer's lines</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Red flags and investigations for large lipomas</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Appropriate choice of local anaesthetic agent and dosage</li> <li>• Topical therapies e.g. 5-fluorouracil cream</li> <li>• Immunisation for HPV</li> </ul>		
<b>ME5, TE1, and TE2:</b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Excision of lesions and wound closure using:                             <ul style="list-style-type: none"> <li>○ cutaneous flaps</li> <li>○ full-thickness/split skin grafts</li> </ul> </li> </ul>		
<b>Does</b>	<ul style="list-style-type: none"> <li>• Simple excision of skin lesions</li> <li>• Diathermy ablation/curettage (warts)</li> <li>• Excision of lipoma</li> </ul>	<ul style="list-style-type: none"> <li>• Excision of lesions and wound closure using:                             <ul style="list-style-type: none"> <li>○ cutaneous flaps</li> <li>○ full-thickness/split skin grafts</li> </ul> </li> </ul>	

## Ingrown toenail

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Distinction of ingrown toenail and onychogryphosis and onychomycosis</li> <li>• Risks for poor healing</li> </ul>
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Finger or toe:                             <ul style="list-style-type: none"> <li>○ Digital artery and nerves</li> <li>○ Nail matrix</li> </ul> </li> </ul>
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Fungal swabs where indicated</li> <li>• Assessment of diabetic foot</li> <li>• Dopplers and ABIs</li> </ul>

<b><u>ME4, JCDM1 and JCDM2:</u></b>	<ul style="list-style-type: none"> <li>• Use of systemic antifungals</li> <li>• Conservative measures</li> </ul>		
<b><u>ME5, TE1, and TE2:</u></b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Zadek's operation</li> </ul>		
<b>Does</b>	<ul style="list-style-type: none"> <li>• Nail avulsion</li> <li>• Wedge resection of nail</li> </ul>	<ul style="list-style-type: none"> <li>• Zadek's operation</li> </ul>	

### Cellulitis, soft tissue abscess, wound infection

<b><u>ME1:</u></b>	<ul style="list-style-type: none"> <li>• Assess the risk of wound infection</li> <li>• Vascular assessment</li> <li>• Risks for recurrent abscess</li> <li>• MRSA carriage</li> <li>• Red flags for possible necrotising infection</li> </ul>		
<b><u>ME2:</u></b>	<ul style="list-style-type: none"> <li>• Pathogens</li> <li>• Pathogenesis of cellulitis and abscess formation</li> <li>• Hidradenitis suppurativa pathogenesis</li> <li>• Unusual abscesses e.g. psoas abscess</li> <li>• Fistulating disease</li> </ul>		
<b><u>ME3 and JCDM1:</u></b>	<ul style="list-style-type: none"> <li>• Interpretation of microbiology results</li> <li>• Vascular investigations</li> </ul>		
<b><u>ME4, JCDM1 and JCDM2:</u></b>	<ul style="list-style-type: none"> <li>• Choice of: <ul style="list-style-type: none"> <li>○ surgical prophylactic antibiotics</li> <li>○ percutaneous vs open drainage</li> <li>○ treatment antibiotics</li> <li>○ dressing</li> </ul> </li> <li>• MRSA eradication</li> <li>• Infection control principles</li> <li>• Prevention of recurrent abscess</li> <li>• Management of hidradenitis suppurativa</li> </ul>		
<b><u>ME5, TE1, and TE2:</u></b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Wide excision and reconstruction for hidradenitis suppurativa</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Incision and drainage of abscess</li> <li>• Wound debridement</li> </ul>		

**Synergistic soft tissue infections (e.g, Fournier’s gangrene, Gas gangrene, Necrotising fasciitis, etc.)**

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Risk factors for necrotising infections</li> <li>• Vascular assessment</li> <li>• Comorbidities</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Pathogenic mechanisms</li> <li>• Pathogens</li> <li>• Classification of necrotising fasciitis</li> <li>• Systemic inflammatory response syndrome</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Vascular investigations</li> <li>• CT scan</li> <li>• Diagnostic incision</li> <li>• Interpretation of microbiology results</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Resuscitation</li> <li>• Technique for extensive debridement</li> <li>• Choice of antibiotics</li> <li>• Role of amputation</li> <li>• Role of hyperbaric oxygen</li> <li>• Role of colostomy</li> <li>• Vacuum dressing</li> <li>• Reconstructive techniques</li> <li>• Palliation</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Extensive wound debridement/amputation</li> <li>• Defunctioning colostomy (as indicated)</li> </ul>	<ul style="list-style-type: none"> <li>• Reconstructive techniques</li> </ul>	<ul style="list-style-type: none"> <li>• Advanced reconstructive techniques</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• VAC dressing</li> </ul>	<ul style="list-style-type: none"> <li>• Extensive wound debridement/amputation</li> <li>• Defunctioning colostomy (as indicated)</li> </ul>	

<b>Chronic leg ulcer/pressure ulcers (See Vascular Syllabus)</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Typical appearance and features of ulcers of different aetiology</li> <li>• Vascular assessment of the leg</li> <li>• Buerger's test</li> <li>• Tourniquet tests for level of venous incompetence</li> <li>• Identification of critical ischaemia</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Arterial and venous anatomy of the leg</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Performance and interpretation of doppler assessment of ankle-brachial index</li> <li>• Interpretation of venous and arterial dopplers</li> <li>• Interpretation of arterial angiography</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Indications for ulcer biopsy</li> <li>• Indications for referral to Vascular Surgeon</li> <li>• Compression dressings/bandaging</li> <li>• Anticoagulation/antiplatelet agents</li> <li>• Prevention of pressure ulcer</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Flap repair of pressure ulcers</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Wound debridement</li> <li>• Split skin grafting</li> </ul>		

<b>Pilonidal sinus/abscess</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Identification of pilonidal disease</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Pathogenesis and risk factors</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Aware of perianal fistula differential diagnosis that need further investigation</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Knowledge of surgical techniques e.g Limberg flap</li> <li>• Wound care techniques including vacuum dressings</li> <li>• Prevention of recurrent disease</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Excision and primary closure with or without a flap</li> </ul>		
<b>Does</b>	<ul style="list-style-type: none"> <li>• Incision and drainage of abscess</li> <li>• Excision and marsupialisation</li> </ul>	<ul style="list-style-type: none"> <li>• Excision and primary closure with or without a flap</li> </ul>	

<b>High risk foot (diabetic/neuropathic) (See Vascular Syllabus)</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Assessment of high risk foot</li> <li>• Vascular assessment of the leg</li> <li>• Neurological assessment of the foot</li> <li>• Deformities</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Foot anatomy</li> <li>• Microbiology/likely pathogens</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Interpretation of Xrays</li> <li>• Interpretation of HbA1c</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Principles of offloading</li> <li>• Podiatry input</li> <li>• Patient optimisation including diabetic control</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Wound debridement</li> <li>• Local amputations</li> </ul>	<ul style="list-style-type: none"> <li>• Major limb amputations</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>• Wound debridement</li> <li>• Local amputations</li> </ul>	

<b>Soft tissue hand surgery</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Hand and wrist examination</li> <li>• Clinical diagnosis of ganglion</li> <li>• Carpal tunnel symptoms</li> <li>• Identification of ulnar nerve symptoms and sites of entrapment</li> <li>• Diagnosis of Dupuytren's disease</li> <li>• Allen's test for ulnar artery patency</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Hand and wrist anatomy</li> <li>• Anatomy of hand spaces vulnerable to infection</li> <li>• Aetiology and pathogenesis of conditions</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Nerve conduction studies</li> <li>• Role of ultrasound</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Conservative management of hand conditions</li> <li>• Role of Hand Therapist</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Carpal tunnel release</li> <li>• Volar wrist ganglion excision</li> </ul>	<ul style="list-style-type: none"> <li>• Ulnar neurolysis (elbow and Guyon's canal)</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Dorsal wrist ganglion excision</li> </ul>	<ul style="list-style-type: none"> <li>• Carpal tunnel release</li> <li>• Volar wrist ganglion excision</li> </ul>	

<b>Peripheral nerve injuries and entrapments</b>			
<b><u>ME1:</u></b>	<ul style="list-style-type: none"> <li>• Common nerve entrapment syndromes e.g. meralgia paraesthetica</li> <li>• Nerves at risk in operations e.g. inguinal hernia repair</li> <li>• Nerves at risk of pressure injuries</li> </ul>		
<b><u>ME2:</u></b>	<ul style="list-style-type: none"> <li>• Regional anatomy, sensory and motor functions of peripheral nerves that are commonly injured</li> <li>• Pathogenetic mechanisms and natural history of nerve injury</li> </ul>		
<b><u>ME3 and JCDM1:</u></b>	<ul style="list-style-type: none"> <li>• Nerve conduction or electromyographic studies</li> </ul>		
<b><u>ME4, JCDM1 and JCDM2:</u></b>	<ul style="list-style-type: none"> <li>• Preventive measures for peripheral nerve injuries on the operating table</li> <li>• Primary nerve repair for acute injuries</li> <li>• Medicolegal aspects and consent process</li> <li>• Chronic pain management and appropriate referral</li> </ul>		
<b><u>ME5, TE1, and TE2:</u></b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Potential for iatrogenic nerve injury</li> </ul>	<ul style="list-style-type: none"> <li>• Acute primary nerve repair</li> <li>• Neurolysis</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>• Can demonstrate ilioinguinal nerve in open hernia repair and manage</li> </ul>	

## 10.6.10. Small Bowel

<b>Suggested Reading</b>	<p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <ul style="list-style-type: none"> <li>○ Clark, S., <i>Colorectal Surgery E-Book: Companion to Specialist Surgical Practice</i>. 2018, Philadelphia: Elsevier.</li> <li>○ Paterson-Brown, S. and H.M. Paterson, <i>Core Topics in General and Emergency Surgery E-Book: Companion to Specialist Surgical Practice</i>. 2018, Philadelphia: Elsevier.</li> </ul>
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Small bowel obstruction (SBO)			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Signs of strangulation</li> <li>• Acute postoperative obstruction vs. Ileus</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Pathophysiological changes associated with SBO</li> <li>• Internal herniation</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Investigations to distinguish post-operative ileus from obstruction</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Indications for resection</li> <li>• Second-look laparotomy</li> <li>• Recurrent SBO</li> <li>• SBO in the patient with advanced malignancy</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Laparotomy</li> <li>• Division of adhesions</li> <li>• Bowel resection/bypass</li> </ul>	<ul style="list-style-type: none"> <li>• Laparoscopy</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>• Laparotomy</li> <li>• Division of adhesions</li> <li>• Bowel resection/bypass</li> </ul>	

Intussusception			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Underlying aetiology</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• CT images</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Small bowel resection</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Small bowel resection</li> </ul>	

### Foreign bodies in the GI tract

<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Classification</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Radiology</li> <li>• Endoscopy</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Gallstone ileus</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Enterotomy and closure</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Enterotomy and closure</li> </ul>	

### Duodenal adenoma and carcinoma

<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Duodenal anatomy</li> <li>• Genetic associations</li> </ul>		
<b>ME3 and JCDM1:</b>	<b>Modalities for diagnosis and staging</b>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>			<ul style="list-style-type: none"> <li>• Endoscopic duodenal stenting</li> <li>• Surgical resection/pancreatico-duodenectomy</li> </ul>

### Duodenal/gastric outlet obstruction

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Underlying causes</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Electrolytic imbalance</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Open gastrojejunostomy</li> <li>• Duodeno-jejunostomy</li> </ul>	<ul style="list-style-type: none"> <li>• Distal gastrectomy</li> </ul>	<ul style="list-style-type: none"> <li>• Laparoscopic gastrojejunostomy</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Open gastrojejunostomy</li> <li>• Duodeno-jejunostomy</li> </ul>	<ul style="list-style-type: none"> <li>• Distal gastrectomy</li> </ul>

Duodenal diverticula			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Classification</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Difficulty/risk of perforation with ERCP</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Duodenal diverticulectomy</li> </ul>	

Small bowel ischaemia ( <i>See also Vascular Syllabus</i> )			
<ul style="list-style-type: none"> <li>○ acute</li> <li>○ chronic</li> </ul>			
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• CT angiography</li> <li>• Serum lactate</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Autoimmune SB arteritis</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Resection</li> </ul>	<ul style="list-style-type: none"> <li>• Revascularisation</li> <li>• Embolectomy</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>• Resection</li> </ul>	

Small bowel neoplasia/tumours			
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• CT/MR enterography</li> <li>• Enteroscopy</li> <li>• Capsule endoscopy</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Diagnostic/therapeutic laparoscopy</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Diagnostic laparoscopy</li> <li>• Bowel resection/bypass</li> <li>• Mesenteric nodal resection</li> </ul>		<ul style="list-style-type: none"> <li>• Laparoscopic resection/bypass</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Diagnostic laparoscopy</li> <li>• Bowel resection/bypass</li> <li>• Mesenteric nodal resection</li> </ul>	

Small bowel bleeding			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Massive bleed</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• CT angiography</li> <li>• Enteroscopy</li> <li>• Capsule endoscopy</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Occult bleeding</li> <li>• Transfusion requirements and assessment of haemodynamic stability</li> <li>• Endovascular management</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Bowel resection</li> </ul>		<ul style="list-style-type: none"> <li>• On table enteroscopy</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Bowel resection</li> </ul>	

Meckel's diverticulum			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Lower gastrointestinal haemorrhage</li> <li>• Small bowel obstruction</li> <li>• Meckel's diverticulitis</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Scintigraphy</li> <li>• CT angiography</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Incidental finding of a Meckel's diverticulum</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Meckel's diverticulectomy</li> <li>• Small bowel resection</li> </ul>		<ul style="list-style-type: none"> <li>• Laparoscopic Meckel's diverticulectomy</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Meckel's diverticulectomy</li> <li>• Small bowel resection</li> </ul>	

Small bowel fistula	
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Effects of an enteric fistula at different levels</li> <li>• Underlying aetiology</li> <li>• Distal obstruction</li> </ul>
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Fistulogram</li> <li>• CT scan with oral/rectal contrast</li> </ul>
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Resuscitation</li> <li>• Fluid and electrolyte management</li> <li>• Nutrition</li> <li>• Sepsis control</li> </ul>

	<ul style="list-style-type: none"> <li>• Skin care</li> <li>• Pharmacological therapy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Small bowel resection</li> <li>• Defunctioning Jenunostomy/Ileostomy</li> </ul>	<ul style="list-style-type: none"> <li>• Management of open abdomen</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>• Small bowel resection</li> <li>• Defunctioning Jenunostomy/Ileostomy</li> </ul>	

### Inflammatory conditions of the small bowel *(See also Colorectal Module)*

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Small bowel Crohn's disease</li> <li>• Complications of IBD</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• When to defunction</li> <li>• Pharmacological and immunological therapy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Small bowel resection</li> <li>• Ileocolic resection</li> </ul>	<ul style="list-style-type: none"> <li>• Laparoscopic ileocolic resection</li> </ul>	<ul style="list-style-type: none"> <li>• Laparoscopic assisted small bowel resection</li> <li>• Strictureoplasty</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Small bowel resection</li> <li>• Ileocolic resection</li> </ul>	

### Infectious disorders of the small bowel

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Infectious diseases</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Microbiology</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Indications for surgical intervention</li> <li>• Antibiotic therapy</li> <li>• Infection control precautions</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Small bowel resection</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Small bowel resection</li> </ul>	

Diverticulosis of the small intestine			
<u>ME1:</u>	<ul style="list-style-type: none"> <li>• Malabsorption syndromes</li> <li>• Small bowel diverticulitis</li> </ul>		
<u>ME3 and JCDM1:</u>	<ul style="list-style-type: none"> <li>• CT scan/enterography</li> </ul>		
<u>ME4, JCDM1 and JCDM2:</u>	<ul style="list-style-type: none"> <li>• Indications for surgical intervention</li> <li>• Conservative management</li> </ul>		
<u>ME5, TE1, and TE2:</u> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows	<ul style="list-style-type: none"> <li>• Small bowel resection</li> <li>• Diverticulectomy</li> </ul>		
Does		<ul style="list-style-type: none"> <li>• Small bowel resection</li> <li>• Diverticulectomy</li> </ul>	

Intestinal failure (including post Bariatric bypass) (See also Sepsis and the Critically Ill or Compromised Patient Syllabus - Nutrition)			
<u>ME1:</u>	<ul style="list-style-type: none"> <li>• Short gut syndrome</li> </ul>		
<u>ME2:</u>	<ul style="list-style-type: none"> <li>• Gastrointestinal tract</li> <li>• Functions of the small intestine</li> <li>• Causes and classification of intestinal failure</li> <li>• Complications of long-term TPN</li> </ul>		
<u>ME4, JCDM1 and JCDM2:</u>	<ul style="list-style-type: none"> <li>• Nutritional support - enteral &amp; parenteral</li> <li>• Enzymatic replacement therapy</li> <li>• Indications and contraindications for small bowel transplantation</li> </ul>		
<u>ME5, TE1, and TE2:</u> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows	<ul style="list-style-type: none"> <li>• Insertion of a tunnelled central venous line for long-term TPN</li> </ul>		
Does		<ul style="list-style-type: none"> <li>• Insertion of a tunnelled central venous line for long-term TPN</li> </ul>	

## Malabsorption syndromes

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Steatorrhoea</li> </ul>
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Pathologies causing malabsorption</li> </ul>
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Laboratory</li> <li>• Radiological</li> <li>• Gastroenterological investigations</li> </ul>
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Nutritional and metabolic support</li> <li>• Pharmacological management</li> <li>• Antibiotic management</li> </ul>

## Radiation enteritis

<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Range of acute and chronic pathologies that follow radiation therapy</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Nutritional support</li> <li>• Indications for surgical intervention</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Small bowel resection</li> <li>• Small bowel bypass</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Small bowel resection</li> <li>• Small bowel bypass</li> </ul>	

## Other small bowel problems including functional bowel disease and slow transit

<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Slow transit</li> </ul>
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Transit studies</li> </ul>
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Pharmacological therapy</li> </ul>

## Small bowel trauma (See Trauma Module)

### 10.6.11. Surgical Oncology

<b>Fundamentals of cancer biology</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Local versus systemic manifestations of malignant disease</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Mechanisms of metastasis</li> </ul>		
<b>Familial cancer syndromes including:</b>			
<ul style="list-style-type: none"> <li>FAP</li> <li>HNPCC</li> <li>BRCA1,2</li> <li>Li Fraumeni</li> <li>Neurofibromatosis</li> <li>MEN syndrome</li> </ul>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Family history</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Genetic counselling and testing</li> <li>Preventive surgery</li> </ul>		
<b>Carcinoma including breast, colon, oesophageal, gastric, pancreatic, skin, thyroid (See also individual syllabus – tumours)</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Staging</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Histology reporting</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Immunotherapy</li> <li>Systemic chemotherapy</li> <li>Regional chemotherapy</li> <li>Radiotherapy</li> <li>Vaccine options and delivery thereof</li> <li>Biological therapy</li> <li>Intent of therapy – downstaging vs neoadjuvant vs adjuvant vs definitive vs palliative</li> <li>Options for curative intent treatment for metastatic disease</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Regional nodes</li> </ul>	<ul style="list-style-type: none"> <li>Regional lymphadenectomy</li> </ul>	<ul style="list-style-type: none"> <li>Oncologic resection</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>Regional nodes</li> </ul>	

Melanoma			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Premalignant lesions</li> <li>• Malignant melanoma</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Premalignant lesions</li> <li>• Clarke's levels and Breslow's thickness</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Biopsy options</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Systemic therapy</li> <li>• Local, regional and distant recurrence</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Appropriate resection +/- skin grafting</li> </ul>	<ul style="list-style-type: none"> <li>• Regional node dissection</li> <li>• Sentinel node biopsy</li> </ul>	<ul style="list-style-type: none"> <li>• Isolated limb infusion/perfusion</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Appropriate resection +/- skin grafting</li> </ul>	<ul style="list-style-type: none"> <li>• Sentinel node biopsy</li> </ul>

Sarcoma			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Soft tissue tumours</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Limb preservation</li> <li>• Soft Tissue Sarcoma (STS)</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>			<ul style="list-style-type: none"> <li>• Limb sacrifice and reconstruction</li> </ul>

Sarcoma – Retroperitoneal ( <i>See Endocrine Syllabus</i> )			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Benign, borderline and malignant primary tumours</li> <li>• Tumours which metastasise</li> <li>• Molecular targeted therapy</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Biopsy options and tests to exclude non-sarcoma</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Radiotherapy</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>			<ul style="list-style-type: none"> <li>• Radical resection of retroperitoneum</li> <li>• Reconstruction</li> </ul>

Metastatic disease of unknown primary			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Probability of potential primary sites based on location of metastases and patient symptomatology</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Mode of spread and likely anatomical distribution of metastases of various primary tumours</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Order of investigations and diagnostic yield of investigations to elucidate primary site</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Active treatment</li> <li>• Palliative intent</li> <li>• Palliative resection/surgery</li> <li>• Systemic therapy</li> <li>• Disease monitoring</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Open biopsy</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Open biopsy</li> </ul>	

Lymphatic malignancies			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Lymphadenopathy</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Lymphatic basins and related structures</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• FNA/core/excisional biopsy</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Laparoscopic biopsy</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Lymph node excision and specimen handling</li> </ul>		

Vascular access ( <i>See Vascular Syllabus</i> )			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Subclavian and jugular veins</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Choice of most appropriate site</li> <li>• Options for long-term vascular access</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Removal of above devices</li> </ul>	<ul style="list-style-type: none"> <li>• Insertion of subcutaneous venous access port/Hickman catheter (open and percutaneous)</li> </ul>	

## Malignant ascites/pleural effusions

- Peritoneal malignancy
- Pseudomyxoma
- Mesothelioma

<u>ME2:</u>	<ul style="list-style-type: none"> <li>• Ascites and effusions</li> </ul>		
<u>ME4, JCDM1 and JCDM2:</u>	<ul style="list-style-type: none"> <li>• Unexpected operative finds</li> <li>• Palliation for malignant ascites/pleural effusion</li> <li>• Hyperthermic intraperitoneal chemotherapy</li> </ul>		
<u>ME5, TE1, and TE2:</u> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows		<ul style="list-style-type: none"> <li>• Denver shunt</li> </ul>	

## Palliative care and pain management

<u>ME2:</u>	<ul style="list-style-type: none"> <li>• Pain pathways</li> </ul>		
<u>ME4, JCDM1 and JCDM2:</u>	<ul style="list-style-type: none"> <li>• Step-wise progression of techniques for pain management and nausea management</li> <li>• Pressure care</li> <li>• Nutrition</li> <li>• End-of-life decision making/advanced health directives</li> </ul>		

## 10.6.12. Transplantation

<b>Suggested Reading</b>	<p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <ul style="list-style-type: none"> <li>○ Forsythe, J.L.R., Transplantation. 2013: Saunders.</li> </ul>
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<b>Renal Transplant and renal failure</b> <ul style="list-style-type: none"> <li>○ Acute</li> <li>○ Chronic</li> </ul>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Acute and chronic renal failure</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Kidney and urinary tract anatomy</li> <li>• Anatomical locations of the transplanted kidney</li> <li>• Causes and prevention of acute kidney injury</li> <li>• Causes and prevention of chronic renal failure</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Biochemical, radiological and histological tests to identify:               <ul style="list-style-type: none"> <li>○ cause</li> <li>○ effects</li> <li>○ associated diseases</li> <li>○ Electrolytes, urinary protein, Hba1C, drug levels, renal biopsy, nuclear medicine scans, ultrasound, imaging for renal calculi)</li> </ul> </li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Methods of management of acute kidney injury and chronic renal failure</li> <li>• Implications of operating on patients with acute kidney injury and chronic renal failure</li> <li>• Temporary and permanent vascular access and peritoneal dialysis procedures</li> <li>• General surgical problems presenting in patients with acute or chronic renal failure</li> <li>• General surgical problems presenting in patients following renal transplantation</li> <li>• Consent for living kidney donation</li> <li>• Consent for kidney transplant</li> <li>• Contraindications to renal transplantation</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Placement of central venous dialysis catheter</li> </ul>	<ul style="list-style-type: none"> <li>• Placement of peritoneal dialysis catheter</li> </ul>	<ul style="list-style-type: none"> <li>• Multi-organ donation</li> <li>• Living donor</li> <li>• Kidney donation:               <ul style="list-style-type: none"> <li>○ laparoscopic</li> <li>○ open</li> </ul> </li> <li>• Renal transplantation</li> <li>• AV fistula and management of complications</li> </ul>

Acute and chronic rejection following renal transplantation			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Importance of compliance with immunosuppression following renal transplant</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Immunology of HLA matching in renal transplantation</li> <li>Immunosuppression</li> <li>Physiology of organ rejection</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Tests to identify a rejection episode (e.g. creatinine, renal biopsy)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Consultation with a transplant unit when managing general surgical conditions in renal transplant patients</li> <li>Approach to immunosuppression management in renal transplant patients with general surgical conditions</li> <li>Complications of renal biopsy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Renal Biopsy</li> </ul>		<ul style="list-style-type: none"> <li>Transplant nephrectomy</li> </ul>

Tertiary hyperpara-thyroidism ( <i>See Endocrine Syllabus</i> )			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Hypercalcaemia</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Physiology of hyperpara-thyroidism in renal failure</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Biochemical and radiological investigations required to diagnose hyperpara-thyroidism (e.g. serum calcium, parathyroid hormone levels)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Prevention of hyperpara-thyroidism</li> <li>Influence of renal transplantation on hyperpara-thyroidism</li> <li>Indications and contraindications of parathyroidectomy</li> <li>Complications of parathyroidectomy</li> <li>Post operative management of parathyroidectomy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>Parathyroidectomy associated with renal failure</li> </ul>	<ul style="list-style-type: none"> <li>Parathyroid autotransplantation</li> </ul>

Brain Death Donation (BBD)/Donation after cardiac death (DCD)	
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Criteria for brain death and how they are assessed</li> <li>Difference between brain death donation and donation after cardiac death</li> <li>Factors present in the organ donor that may place the recipient at risk – malignancy, infectious diseases, obesity, organ impairment, cause of death, high risk drug and alcohol behaviours, age</li> </ul>
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Physiology of the development of brain death</li> <li>Implications of organ ischaemia following donation after cardiac death</li> <li>Physiology of ABO blood group compatibility</li> </ul>
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Essential tests to evaluate relevant organ function</li> <li>Tests that may be required to determine brain death e.g. CT head, clinical</li> </ul>

	<ul style="list-style-type: none"> <li>Tests that are required to ensure that transplantation of the organ will not place the recipient at risk – HIV, Hepatitis B/C, CMV, EBV, Toxoplasmosis, CT scan, Urea, Creatinine, liver biopsy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>			<ul style="list-style-type: none"> <li>Operation of multi-organ donation</li> </ul>

### Malignancy in transplantation

<b>ME1:</b>	<ul style="list-style-type: none"> <li>History of malignancy in potential transplant recipients and its implications</li> <li>Pre-transplant assessment for malignancy - Screening</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Underlying disorders that predispose transplant recipients to malignancies e.g sun exposure, smoking history, obesity</li> <li>Behaviour of pre-existing malignancy following transplantation</li> <li>Transplant as a therapy for malignancy e.g. Hepatocellular carcinoma, neuroendocrine tumour, hepatic haemangioma, cholangiocarcinoma</li> <li>Malignancy associated with transplantation e.g Post-transplant lymphoproliferative disorder, skin malignancy</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Screening tests to identify malignancies in pre and post transplant recipients; e.g. CT scans, mammogram, upper and lower GI endoscopy, skin checks</li> <li>Tests to follow up for patients that are transplanted for malignancy. CT scan abdomen and chest, Ultrasound</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Care of malignant skin conditions in the post-transplant patient</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Treatment of skin cancer in the immunosuppressed patient</li> <li>Biopsy of nodal disease to diagnose lymphoma</li> <li>General surgical treatments for malignancy in transplant patients e.g. colectomy, mastectomy</li> <li>Upper and lower GI endoscopy for the assessment of malignancy</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>Treatment of skin cancer in the immunosuppressed patient</li> <li>Biopsy of nodal disease to diagnose lymphoma</li> <li>General surgical treatments for malignancy in transplant patients e.g. colectomy, mastectomy</li> <li>Upper and lower GI endoscopy for the assessment of malignancy</li> </ul>	

<b>Hepatic failure and Liver Transplantation</b>			
<ul style="list-style-type: none"> <li>○ Acute (fulminant)</li> <li>○ Chronic (cirrhosis)</li> </ul>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Fulminant and chronic hepatic failure</li> <li>• Risk factors for chronic liver disease e.g Alcohol and drug history, obesity, diabetes, inflammatory bowel disease</li> <li>• Child-Pugh score and its use</li> <li>• Importance of compliance with immunosuppression following renal transplant</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Liver and biliary tract anatomy</li> <li>• Liver Transplant anatomy</li> <li>• Causes and prevention of fulminant and chronic hepatic failure</li> <li>• Pathophysiology of ascites and portal hypertension</li> <li>• Hepatic malignancy in patients with cirrhosis</li> <li>• Implications of obesity and hepatic/biliary disease – Steatohepatitis, gallstone disease in patients with cirrhosis</li> <li>• Hepatic failure in the development of ventral and inguinal hernia</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Computer Tomography findings in cirrhosis of the liver</li> <li>• Other imaging for cirrhosis of the liver – Fibroscan, Indocyanine Green Clearance</li> <li>• Biochemical tests in cirrhosis of the liver e.g. INR, Albumin, Bilirubin, MELD – Model of Endstage Liver Disease Score, Platelets</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Assessment of risk of surgery in patients with cirrhosis</li> <li>• Ascites</li> <li>• Portal hypertension</li> <li>• Management of patient requiring surgery in the presence of coagulopathy and thrombocytopenia including the use of intravenous and topical haemostatic agents</li> <li>• Indications for liver transplantation</li> <li>• Approach to immunosuppression management in liver transplant patients with general surgical conditions</li> <li>• Management of general surgical problems presenting in patients with chronic hepatic failure and cirrhosis e.g. hernia, cholecystitis</li> <li>• General surgical problems and the implications of immunosuppression in a liver transplant patient.</li> <li>• Treatment options for patients with cirrhosis and hepatic malignancy e.g curative therapies such as resection, transplant and bridging therapy such as radio-frequency ablation, Trans arterial chemoembolization, external beam radiation and selective internal radiation therapy (SIRT)</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Upper GI endoscopy and interventions for bleeding</li> <li>• Laparoscopic assessment of the liver, including ultrasound</li> </ul>	<ul style="list-style-type: none"> <li>• Interventions to treat portal hypertension</li> <li>• Surgical procedure of liver transplantation</li> <li>• Hernia repair in patients with cirrhosis</li> <li>• Hernia repair in immunosuppressed patients following liver transplant</li> </ul>

			<ul style="list-style-type: none"> <li>• Bowel surgery in immunosuppressed patients following liver transplant</li> <li>• Cholecystectomy in patients with Child's A cirrhosis</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Abdominal paracentesis</li> </ul>		

### Pancreatic endocrine disease (see Upper GI and HPB – Hepatic, Pancreatic & Biliary syllabus)

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Diabetes mellitus and its end organ complications</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Anatomy of the Pancreas</li> <li>• Physiology and endocrine function of the Islets of Langerhans</li> <li>• Types, causes and prevention of diabetes mellitus</li> <li>• Neuroendocrine tumours of the pancreas</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Biochemical tests for assessment of diabetes and diabetic control e.g. glucose tolerance test, Hba1C.</li> <li>• Testing for functional neuroendocrine tumours eg. Chromogranin A, VIP, serum gastrin,</li> <li>• Radiological tests for Neuroendocrine pancreatic disease eg PET dotate scanning, FDG PET</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Long-term complications of diabetes mellitus and their management</li> <li>• Pre and post operative management of the general surgery patient with diabetes</li> <li>• Management of insulin and oral hypoglycaemics in the pre-and postoperative diabetic patient</li> <li>• Indications for pancreas transplantation</li> <li>• Management of neuroendocrine disease of the pancreas</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>			<ul style="list-style-type: none"> <li>• Multi-organ donation</li> </ul>

### Short bowel syndrome (See Small Bowel Syllabus)

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• High output stomas/fistulas/chronic diarrhoea</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Causes of short bowel syndrome</li> <li>• Gastrointestinal tract anatomy</li> <li>• Physiology related to enteroatmospheric fistula and short bowel syndrome including nutritional and electrolyte deficiencies</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Biochemical tests – Sodium, potassium, pH balance, vitamin levels, albumin</li> <li>• Imaging for patients undergoing surgery for fistulas and stomas e.g contrast studies, fistulograms</li> <li>• Endoscopic tests for patients undergoing surgery for fistulas and stomas</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Nutritional, fluid and electrolyte support including enteral and parenteral supplementation</li> <li>• Complications of parenteral nutrition</li> <li>• Complications of central venous lines</li> <li>• Enzymatic replacement therapy</li> <li>• Medical strategies to increase and decrease bowel motility</li> <li>• Stoma management, skin care, types of ostomies</li> <li>• Fistula management</li> </ul>		

	<ul style="list-style-type: none"> <li>• Indications and contraindications for small bowel transplantation</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Insertion of intravenous line for long-term total parenteral nutrition</li> </ul>	<ul style="list-style-type: none"> <li>• Surgery for fistula</li> <li>• Formation of ileostomy and colostomy</li> </ul>	<ul style="list-style-type: none"> <li>• Multi-organ donation</li> </ul>
<b>Does</b>			<ul style="list-style-type: none"> <li>• Surgery for fistula</li> <li>• Formation of ileostomy and colostomy</li> </ul>

### 10.6.13. Trauma

<b>Suggested Reading</b>	<p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <ul style="list-style-type: none"> <li>○ Feliciano, D.V., P.J. Kenny, and E.E. Moore, Trauma. 9th ed. 2021, New York, N.Y: McGraw-Hill Education LLC.</li> <li>○ Wind, G.G. and R.J. Valentine, Anatomic Exposures in Vascular Surgery. 2013, Philadelphia: Wolters Kluwer.</li> </ul>
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Initial trauma management: Resuscitative phase - ED			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Primary and Secondary survey according to EMST</li> <li>• Recognition/anticipation of immediately and potentially life threatening situations</li> <li>• Triage in multiple casualties</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Lethal triad of trauma</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Imaging adjuncts in the primary survey</li> <li>• CT imaging of the trauma patient</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• EMST principles of initial management and stabilisation of major trauma patients</li> <li>• Coordination of care with other specialties and disciplines</li> <li>• Triage trauma patients presenting simultaneously</li> <li>• Decision on transport and definitive treatment priorities</li> <li>• Indications and initiation of massive transfusion protocol</li> <li>• Indications of angioembolisation</li> <li>• Disaster management</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Focussed Assessment with Sonography for Trauma (FAST)</li> <li>• Laparostomy</li> <li>• Cricothyroidotomy</li> <li>• Intra osseous puncture and access</li> <li>• Central venous access</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency thoracotomy</li> <li>• Damage control laparotomy</li> </ul>	<ul style="list-style-type: none"> <li>• Retroperitoneal exposure (great vessels)</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Basic airway management techniques</li> <li>• Vascular access</li> <li>• Intercostal catheter</li> <li>• Splinting of extremities</li> <li>• Control of external haemorrhage</li> <li>• Application of pelvic binder</li> <li>• Nasopharyngeal packing</li> <li>• Assess cervical spine</li> </ul>	<ul style="list-style-type: none"> <li>• FAST</li> <li>• Laparostomy</li> <li>• Cricothyroidotomy</li> <li>• Intra osseous puncture and access</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency thoracotomy</li> <li>• Damage control laparotomy</li> </ul>

**Ongoing ICU management: Definitive care phase**

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Tertiary survey</li> <li>• Organ systems and required level of organ support</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Pathophysiology of traumatic shock, ischaemia reperfusion injury, post injury Systemic Inflammatory Response Syndrome (SIRS), sepsis and Multiorgan Failure (MOF), nutrition, compartment syndromes, burn care</li> <li>• Risk factors for venous thromboembolism</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Focused imaging required based on clinical assessment</li> <li>• Abdominal compartment pressure</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Prevention of common post injury complications</li> <li>• SIRS and MOF</li> <li>• Second day resuscitation – optimisation of haemodynamics, core rewarming, correction of coagulopathy</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Laparostomy (open abdomen)</li> <li>• Tracheo(s)tomy</li> <li>• Limb fasciotomy</li> </ul>	<ul style="list-style-type: none"> <li>• Enteral feeding access</li> <li>• Staged abdominal closure</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Compartment pressure measurement</li> </ul>	<ul style="list-style-type: none"> <li>• Laparostomy (open abdomen)</li> <li>• Tracheo(s)tomy</li> <li>• Limb fasciotomy</li> </ul>	<ul style="list-style-type: none"> <li>• Staged abdominal closure</li> </ul>

**Daily ward management: Definitive care phase ward and rehabilitation**

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Post injury/postoperative patients</li> <li>• Comprehensive tertiary survey</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Daily examinations based on the patient condition</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Discharge planning including rehabilitation</li> <li>• Prevention of common post-injury complications</li> <li>• Minor injuries resulting in significant impairment if left untreated</li> <li>• Nutritional management post-injury</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Tracheo(s)tomy</li> </ul>		
<b>Does</b>	<ul style="list-style-type: none"> <li>• Wound/drain care</li> </ul>	<ul style="list-style-type: none"> <li>• Tracheo(s)tomy</li> </ul>	

Skin/Soft Tissues			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Wounds</li> <li>• Body cavity penetration</li> <li>• Distal neuro-vascular assessment</li> <li>• Viability assessment of soft tissues</li> <li>• Burn assessment</li> <li>• Fluid resuscitation in severe burn patients</li> <li>• Inhalation injuries</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Wound healing physiology</li> <li>• Pathophysiology of necrosis/ischaemia</li> <li>• Pathophysiology of burns</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Relevant investigations for foreign bodies and body cavity penetration; See also abdomen, chest</li> <li>• Investigation for injury to deeper neurovascular, aerodigestive, bone and joint structures</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Management priorities of acute traumatic wounds depending on mechanism, location and contamination</li> <li>• Initial management of severe burns</li> <li>• Anticipation and recognition of wound complications</li> <li>• Advanced soft tissue management decisions</li> <li>• Wound management in specific areas</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Surgical airway</li> <li>• Local flap coverage</li> <li>• Negative Pressure Wound Therapy (NPWT) applications</li> </ul>	<ul style="list-style-type: none"> <li>• Wound management in specific areas</li> <li>• Escharotomy</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Wound exploration</li> <li>• Wound debridement</li> <li>• Foreign body removal (use of image intensifier)</li> <li>• Wound closure or open management based on the nature of the soft tissue injury</li> <li>• Split skin grafting</li> </ul>	<ul style="list-style-type: none"> <li>• Surgical airway</li> <li>• Local flap coverage</li> <li>• Negative Pressure Wound Therapy (NPWT) applications</li> </ul>	<ul style="list-style-type: none"> <li>• Escharotomy</li> </ul>

Blast injuries			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Wounds</li> <li>• Life threatening injuries</li> <li>• Tetanus immunisation status</li> <li>• Exposures to toxins, chemicals, or radiological</li> <li>• Mass casualty triaging</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Unique patterns of blast trauma</li> <li>• Pathophysiology of blast injury</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Relevant investigations for barotrauma, penetrating, blunt and burn injuries</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Initial resuscitation</li> <li>• Contaminated wounds</li> <li>• Severe burns</li> <li>• Air embolism</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Surgical airway</li> <li>• Emergency laparotomy</li> <li>• Escharotomy in burns</li> </ul>	<ul style="list-style-type: none"> <li>• Thoracotomy</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Lavage and debride contaminated wounds</li> <li>• Haemorrhage control</li> <li>• Intercostal catheters</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency laparotomy</li> <li>• Escharotomy in burns</li> <li>• Surgical airway</li> </ul>	<ul style="list-style-type: none"> <li>• Thoracotomy</li> </ul>

Head/Brain			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Neurological assessment and documentation of trauma patients</li> <li>• Typical presentations</li> <li>• Concussion syndrome</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Central Nervous System (CNS) anatomy</li> <li>• Pathophysiology of increased intracranial pressure (ICP)</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Neurotrauma imaging</li> <li>• Cognitive function assessment for management of head injury</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Potential head injured patient</li> <li>• Raised ICP and monitoring of this</li> <li>• Timeframes of intervention</li> <li>• Priorities of head injury in polytrauma scenario</li> <li>• Management principles of Post Traumatic Amnesia (PTA)</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Extra dural drainage</li> </ul>	<ul style="list-style-type: none"> <li>• Control of severe maxilla-facial bleeding</li> </ul>	

	<ul style="list-style-type: none"> <li>Definitive wound management of head/face/orbit wounds</li> </ul>	<ul style="list-style-type: none"> <li>For rural practice: craniotomy and craniectomy</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>Control of severe bleeding from scalp lacerations</li> <li>Nasal packing</li> </ul>	<ul style="list-style-type: none"> <li>Definitive wound management of head/face/orbit wounds</li> </ul>	

## Face/Neck

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Vascular, airway, nerve, pharyngeal/oesophageal injury</li> <li>Assessment for orbital compartment syndrome</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Regions of the neck</li> <li>Zones I, II and III of the neck</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>X-ray CT, angiography, endoscopy, contrast studies depending on the zone of injury and patient condition</li> <li>Evaluation of orbital pressure</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Blunt cerebrovascular injury</li> <li>Selective management strategy based on the zone of injury</li> <li>Principles of angioembolisation</li> </ul>		
<b>ME5, TE1, and TE2:</b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Surgical airway</li> </ul>	<ul style="list-style-type: none"> <li>Tracheoscopy</li> <li>Pharyngoscopy</li> <li>Oesophagoscopy</li> <li>Bronchoscopy</li> <li>Access and vascular control in Zone I and III</li> <li>Repair of carotid injury</li> <li>Repair of oesophageal injury</li> <li>Surgical exploration of Zone II</li> <li>Lateral canthotomy</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>Surgical airway</li> </ul>	

Spine			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Safe log-roll and immobilisation</li> <li>• Maintenance of spinal precautions</li> <li>• Detailed peripheral neurological exam to determine level and pattern of injury</li> <li>• Common spinal cord injury syndromes</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Common spine injury patterns</li> <li>• Anatomy and physiology of spine and spinal cord</li> <li>• Pathophysiology of primary and secondary cord injury</li> <li>• Pathophysiology of neurogenic shock</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Imaging depending on the patient condition</li> <li>• Recognition of spinal injury that may require decompression</li> <li>• Recognition of “unstable” spinal fracture</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• ‘Clear the spine’ safely in straightforward scenarios</li> <li>• Decision on transfer and the management priorities of spine injuries in polytrauma scenario</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Application of tongs</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Application of spine immobilisation devices</li> </ul>		

Chest			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Chest/torso for a blunt and penetrating trauma patient</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Anatomy of thoracic wall and thoracic organs</li> <li>• Pathophysiology of immediately and potentially life threatening conditions in the chest</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Interpretation of chest x-ray (recognition of life threatening conditions)</li> <li>• Indication for further imaging</li> <li>• Penetrating chest trauma workup</li> <li>• Pericardial fluid on FAST, limitations of pericardial view</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Urgent lifesaving interventions (decompression, chest tube insertion)</li> <li>• Indications for thoracotomy</li> <li>• Prioritisation of chest injuries in polytrauma scenario</li> <li>• Decision on advanced imaging, timing of aortic tear management</li> <li>• Selective management of penetrating chest trauma</li> <li>• Blunt thoracic aortic rupture</li> <li>• Tracheobronchial injury</li> <li>• Pulmonary contusion</li> <li>• Retained haemothorax</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			

<b>Knows</b>		<ul style="list-style-type: none"> <li>• Diaphragmatic repair from the abdomen</li> <li>• Pericardial window (extra-peritoneal vs. intra-peritoneal)</li> <li>• Diaphragmatic repair from chest</li> <li>• ED resuscitative thoracotomy</li> </ul>	<ul style="list-style-type: none"> <li>• Vascular control in the chest</li> <li>• Periclavicular approaches for the thoracic outlet</li> <li>• Repair simple cardiac wounds</li> <li>• Thoracoscopy, thoracotomy</li> <li>• VATS</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>• Chest tube insertion</li> </ul>		<ul style="list-style-type: none"> <li>• Diaphragmatic repair from the abdomen</li> <li>• ED resuscitative thoracotomy</li> </ul>

<b>Abdomen</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Abdominal/torso assessment in blunt and penetrating trauma</li> <li>• Interpretation of clinical signs in the context of abdominal trauma and other injuries (urgency, importance)</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Penetrating and blunt abdominal trauma mechanism, injury probabilities</li> <li>• Relevant trauma surgical anatomy of abdominal organs</li> <li>• Abdominal organ injury scaling (AAST)</li> <li>• Physiology and pathophysiology of abdominal organs</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• FAST, plain abdominal x-ray and CT scan</li> <li>• Contrast and endoscopic studies</li> <li>• Tests sensitivity, specificity, and operator dependency</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Timing of trauma laparotomy</li> <li>• Isolated blunt and penetrating abdominal trauma</li> <li>• Local wound exploration and laparoscopy in penetrating trauma</li> <li>• Priorities of abdominal injuries in polytrauma patients</li> <li>• Damage control surgery principles and indications</li> <li>• Organs which can be resected and in what extent, which arteries and veins can be ligated at what level without and with (specifically what) consequences</li> <li>• Role of angiography +/- embolisation</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Damage control laparotomy</li> <li>• Temporary abdominal closure</li> <li>• Trauma laparoscopy</li> <li>• Haemorrhage and contamination control</li> <li>• Anatomical liver packing</li> <li>• Pringle manoeuvre</li> <li>• Splenectomy</li> <li>• Repair resection hollow viscus injury</li> </ul>	<ul style="list-style-type: none"> <li>• Exploration of the retroperitoneum – left and right medial visceral rotation manoeuvres</li> <li>• Control of major vessels</li> </ul>	<ul style="list-style-type: none"> <li>• Major abdominal vascular repair</li> <li>• Vascular isolation of the liver</li> <li>• Splenic and kidney salvage techniques</li> <li>• Exploration of the retroperitoneum – left and right medial visceral rotation manoeuvres</li> </ul>

<b>Does</b>	<ul style="list-style-type: none"> <li>Local wound exploration</li> </ul>	<ul style="list-style-type: none"> <li>Damage control laparotomy</li> <li>Temporary abdominal closure</li> <li>Trauma laparoscopy</li> <li>Haemorrhage and contamination control</li> <li>Anatomical liver packing</li> <li>Pringle manoeuvre</li> <li>Splenectomy</li> <li>Repair resection hollow viscus injury</li> </ul>	
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<b>Pelvis</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Pelvic examination, leg length, , deformity, perineal examination, rectal examination</li> <li>Neuro-vascular assessment</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Classification of pelvic fractures</li> <li>Pelvic musculo-skeletal and visceral anatomy and physiology</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Pelvic x-ray interpretation</li> <li>Pelvic CT interpretation (injury to the posterior and anterior ring, contrast blush, pelvic organ injuries)</li> <li>Indications and interpretation of urethrogram, cystogram and pelvic angiography</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Haemodynamically unstable pelvic fracture patients</li> <li>Pelvic binding, packing, external and internal fixation and angiography</li> <li>Priorities in associated abdominal injuries and polytrauma</li> <li>Open pelvic fracture management</li> <li>Temporary pelvic fixation</li> <li>Multidisciplinary management of pelvic injuries where pelvic viscera are involved</li> </ul>		
<b>ME5, TE1, and TE2:</b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Trauma laparotomy</li> <li>Urethrogram</li> </ul>	<ul style="list-style-type: none"> <li>Pelvic packing</li> </ul>	<ul style="list-style-type: none"> <li>Pre-peritoneal packing for pelvic traumas</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>Application of pelvic binder</li> </ul>	<ul style="list-style-type: none"> <li>Trauma laparotomy</li> <li>Urethrogram</li> </ul>	<ul style="list-style-type: none"> <li>Pelvic packing</li> </ul>

<b>Extremities</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Basic trauma musculo-skeletal assessment including the neurovascular status</li> <li>• Hard and soft signs of vascular injuries</li> <li>• Ankle-brachial Index</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Grading of open fractures</li> <li>• Pathophysiology of limb threatening injuries</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Skeletal radiology</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Limb threatening injuries</li> <li>• Tetanus and antibiotic prophylaxis</li> <li>• Viability of limbs</li> <li>• Priorities of damage control or definitive management of extremity injuries in polytrauma scenarios</li> <li>• Tourniquet</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Amputations</li> <li>• Fasciotomy</li> </ul>	<ul style="list-style-type: none"> <li>• Vascular exploration and control on extremities</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Realignment</li> <li>• Splinting</li> <li>• Washout and debridement of open wounds</li> <li>• Application of limb tourniquet</li> </ul>	<ul style="list-style-type: none"> <li>• Amputations</li> <li>• Fasciotomy</li> </ul>	

### 10.6.14. Upper GI and HPB – Bariatric

<b>Morbid Obesity</b>			
<b><u>ME1:</u></b>	<ul style="list-style-type: none"> <li>• Classification of obesity</li> </ul>		
<b><u>ME2:</u></b>	<ul style="list-style-type: none"> <li>• Long term natural history of obesity and associated co-morbidities, and the effects of weight loss on these co-morbidities</li> <li>• Pathophysiology of obesity and understand concept of the weight homeostat</li> </ul>		
<b><u>ME3 and JCDM1:</u></b>	<ul style="list-style-type: none"> <li>• Laboratory investigations and imaging specific to the morbidly obese patient undergoing any surgical procedure</li> <li>• Laboratory investigations that assist in the diagnosis of the causes and complications of obesity</li> </ul>		
<b><u>ME4, JCDM1 and JCDM2:</u></b>	<ul style="list-style-type: none"> <li>• Suitability for weight loss surgery based on currently accepted criteria</li> <li>• Selection of a patient for obesity surgery</li> <li>• Why may a certain operation be selected over another</li> <li>• Early and late complications of bariatric surgical operations</li> <li>• Nutritional deficiencies likely to occur as a result of weight loss surgery and appropriate methods of supplementation</li> <li>• Management of complications of Intra-gastric balloon</li> </ul>		
<b><u>ME5, TE1, and TE2:</u></b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Gastric band fluid adjustment</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of gastric band (open or laparoscopic) in emergency situations</li> <li>• Management of internal hernia after gastric bypass in emergency situations</li> <li>• Removal of intra-gastric balloon as emergency procedure</li> </ul>	<ul style="list-style-type: none"> <li>• Options for managing operative and nutritional complications</li> <li>• Management of strictures post sleeve gastrectomy or gastric bypass procedures</li> <li>• Management of leaks post sleeve gastrectomy and bypass procedures</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Gastric band fluid adjustment</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of gastric band (open or laparoscopic) in emergency situations</li> <li>• Management of internal hernia after gastric bypass in emergency situations</li> <li>• Removal of intra-gastric balloon as emergency procedure</li> </ul>

### 10.6.15. Upper GI and HPB – Hepatic, Pancreatic & Biliary

<b>Suggested Reading</b>	<p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <ul style="list-style-type: none"> <li>○ Jarnagin, W.R., Blumgart's surgery of the liver, pancreas and biliary tract. 2016: Elsevier.</li> <li>○ Parks, R.W., Hepatobiliary and Pancreatic Surgery: A Companion to Specialist Surgical Practice, Sixth Edition. 2018: Elsevier.</li> </ul>
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<b>Primary liver malignancy</b>			
<ul style="list-style-type: none"> <li>○ HCC</li> <li>○ Cholangiocarcinoma (intra and extrahepatic)</li> <li>○ other</li> </ul>			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Classification of portal hypertension</li> <li>• Classification of severity of liver disease (Childs-Pugh)</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Degree of hepatic dysfunction</li> <li>• Location and operability of the lesion</li> <li>• Ablative treatments</li> <li>• Presence of and effect of portal hypertension</li> <li>• Future liver remnant (FLR)</li> <li>• Systemic therapies (neoadjuvant, adjuvant, palliative)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Post-operative liver failure</li> <li>• Post-operative collections</li> <li>• Post treatment surveillance</li> <li>• Techniques for improving future liver remnant (FLR)</li> <li>• Management of the patient with cirrhosis</li> <li>• Indications for liver transplant referral</li> <li>• Indications for resectional or ablative therapy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Staging Laparoscopy with techniques of tumour and liver biopsy</li> <li>• Identification of cirrhosis or abnormal hepatic parenchyma (eg steatosis)</li> </ul>	<ul style="list-style-type: none"> <li>• Intraoperative ultrasound (IOUS)</li> </ul>	<ul style="list-style-type: none"> <li>• Hepatic mobilisation, localisation of the tumour, control of hepatic inflow and outflow, and division of the liver parenchyma</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Staging Laparoscopy with techniques of tumour and liver biopsy</li> </ul>	<ul style="list-style-type: none"> <li>• Intraoperative ultrasound (IOUS)</li> </ul>

Liver metastases			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Staging</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Staging techniques including: <ul style="list-style-type: none"> <li>○ Cross sectional imaging</li> <li>○ Functional imaging</li> <li>○ Laparoscopy</li> <li>○ Laparoscopic or open IOUS</li> </ul> </li> <li>• Factors for tumour operability or tumour ablation</li> <li>• Measurement of the future liver remnant (FLR)</li> <li>• Systemic therapies (neoadjuvant, adjuvant and palliative)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Techniques for improving future liver remnant (FLR)</li> <li>• Post treatment surveillance</li> <li>• Post-operative liver failure</li> <li>• Post-operative collections</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Staging laparoscopy</li> <li>• Staging at laparotomy</li> <li>• Indication for and technique of laparoscopic liver biopsy</li> </ul>	<ul style="list-style-type: none"> <li>• Intraoperative ultrasound</li> </ul>	<ul style="list-style-type: none"> <li>• Hepatic mobilisation, localisation of the tumour, control of hepatic inflow and outflow, and division of the liver parenchyma</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Staging laparoscopy</li> <li>• Staging at laparotomy</li> <li>• Indication for and technique of laparoscopic liver biopsy</li> </ul>	<ul style="list-style-type: none"> <li>• Intraoperative ultrasound</li> </ul>

Incidental liver lesions	
<ul style="list-style-type: none"> <li>○ adenoma</li> <li>○ FNH</li> <li>○ haemangioma</li> <li>○ non-parasitic cysts</li> </ul>	
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Natural history of each entity</li> <li>• Differentiate between the various pathologies utilising cross-sectional imaging</li> <li>• Lesional biopsy</li> </ul>
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Lesions which require further management and/or referral for further investigations or treatment</li> <li>• Long term surveillance strategy</li> <li>• Risk stratification of adenoma sub-types</li> <li>• Immune-histochemical and genetic profiling of biopsies</li> <li>• Indication for hepatic resection (adenomata)</li> <li>• Indication for fenestration/drainage/resection non-parasitic cysts</li> </ul>

<b><u>ME5, TE1, and TE2:</u> Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>Intraoperative ultrasound</li> </ul>	<ul style="list-style-type: none"> <li>Hepatic mobilisation, localisation of the lesion, control of hepatic inflow and outflow, and division of the liver parenchyma</li> </ul>
<b>Does</b>			<ul style="list-style-type: none"> <li>Intraoperative ultrasound</li> </ul>

### Liver infections

- abscess pyogenic
- parasitic
- others

<b><u>ME2:</u></b>	<ul style="list-style-type: none"> <li>Microbiology of pyogenic abscess</li> <li>Microbiology of parasitic infections of the liver</li> <li>Appreciation of at-risk populations and epidemiology for pyogenic abscess and parasitic infections of the liver</li> </ul>		
<b><u>ME4, JCDM1 and JCDM2:</u></b>	<ul style="list-style-type: none"> <li>Systemic therapy in treatment</li> </ul>		
<b><u>ME5, TE1, and TE2:</u> Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Percutaneous drainage</li> <li>Surgical drainage open or laparoscopic</li> </ul>	<ul style="list-style-type: none"> <li>Intraoperative ultrasound</li> </ul>	<ul style="list-style-type: none"> <li>Hepatic mobilisation, localisation of the lesion, control of hepatic inflow and outflow, and division of the liver parenchyma</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>Surgical drainage (open or laparoscopic)</li> </ul>	<ul style="list-style-type: none"> <li>Intraoperative ultrasound</li> </ul>

### Ascites

<b><u>ME4, JCDM1 and JCDM2:</u></b>	<ul style="list-style-type: none"> <li>Medical, surgical, and radiological management</li> <li>Medical and paracentesis for symptom management</li> <li>Impact of ascites on abdominal surgery</li> <li>Perioperative management of patient with ascites</li> </ul>		
<b><u>ME5, TE1, and TE2:</u> Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Ascitic tap</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>Ascitic tap</li> </ul>	

Portal hypertension			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Acute or chronic liver disease and portal hypertension</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Classification of portal hypertension</li> <li>Classification of severity of liver disease (Childs-Pugh)</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Acute or chronic liver disease in relation to peri-operative care and portal hypertension</li> <li>Medical, radiological and endoscopic management</li> <li>Management (medical, radiological, endoscopic, surgical) of variceal bleeding (oesophageal and other sites eg stoma)</li> <li>Perioperative care of the patient with portal hypertension and/or chronic liver disease</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Operative strategies for patient with portal hypertension and/or chronic liver disease</li> </ul>		<ul style="list-style-type: none"> <li>Surgical management of variceal bleeding</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>Operative strategies for patient with portal hypertension</li> </ul>	

Hepatic trauma <i>(See also Trauma Syllabus)</i>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>Severity of injury</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Patterns of injury</li> <li>Complications of blunt and penetrating trauma</li> <li>Natural history of each type of injury</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>CT grading of liver injuries</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Indications for operative and non-operative management</li> <li>Interventional radiological management</li> <li>Systemic and haemostatic agents (systemic and local)</li> <li>Low CVP anaesthesia in liver injuries</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>Trauma laparotomy</li> <li>Methods to obtain definitive or temporary haemostasis including packing a liver injury for referral/transfer</li> </ul>	
<b>Does</b>			<ul style="list-style-type: none"> <li>Trauma laparotomy</li> <li>Methods to obtain definitive or temporary haemostasis including packing a liver injury for referral/transfer</li> </ul>

<b>Hepatic Failure (Acute &amp; Chronic)</b>			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Causes of acute and chronic liver failure</li> <li>• Pathophysiology of acute and chronic liver failure</li> <li>• Indications for referral to transplant unit</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Perioperative management of acute and chronic liver failure</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Techniques (local and systemic) to obtain haemostasis in the coagulopathic patient</li> </ul>	
<b>Does</b>			<ul style="list-style-type: none"> <li>• Techniques (local and systemic) to obtain haemostasis in the coagulopathic patient</li> </ul>

<b>Gallstone disease</b>			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Biliary caculous disease</li> <li>• Biliary anatomy (intra and extra hepatic)</li> <li>• Hepatic vasculature (intra and extrahepatic)</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Endoscopic retrograde cholangiopancreatography</li> <li>• Transcystic bile duct exploration</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Laparoscopic cholecystectomy for uncomplicated and complicated disease, including performance of operative cholangiography</li> <li>• Open exploration of the common bile duct</li> <li>• Laparoscopic transcystic exploration of the common bile duct</li> </ul>	<ul style="list-style-type: none"> <li>• Open cholecystectomy and laparoscopic techniques for the “difficult” gall bladder (subtotal cholecystectomy)</li> </ul>	<ul style="list-style-type: none"> <li>• Laparoscopic exploration of the common bile duct (trans-ductal)</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Laparoscopic cholecystectomy for uncomplicated and complicated disease, including performance of operative cholangiography</li> <li>• Open exploration of the common bile duct</li> <li>• Laparoscopic transcystic exploration of the common bile duct</li> </ul>	<ul style="list-style-type: none"> <li>• Open cholecystectomy and laparoscopic techniques for the “difficult” gall bladder (subtotal cholecystectomy)</li> </ul>

Gall bladder polyp			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Natural history of causes</li> <li>Populations at risk for malignant transformation</li> <li>Investigations for surveillance</li> <li>Indications for cholecystectomy</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Investigations for surveillance</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Populations at risk for malignant transformation</li> <li>Indications for laparoscopic cholecystectomy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>Laparoscopic IOUS</li> <li>Laparoscopic cholecystectomy</li> <li>Intraoperative ultrasound</li> </ul>	<ul style="list-style-type: none"> <li>Hepatic mobilisation, localisation of the tumour, control of hepatic inflow and outflow, and division of the liver parenchyma</li> </ul>
<b>Does</b>			<ul style="list-style-type: none"> <li>Laparoscopic IOUS</li> <li>Laparoscopic cholecystectomy</li> <li>Intraoperative ultrasound</li> </ul>

Gallbladder carcinoma/extrahepatic cholangiocarcinoma			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Tumour Staging</li> <li>Role of radiological and endoscopic investigation in tumour staging</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Indications for resection</li> <li>Indications for non-curative treatment</li> <li>Techniques for palliation of jaundice when present</li> <li>Techniques for palliation of intestinal obstruction when present</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Role of systemic therapies (neoadjuvant, adjuvant, palliative)</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Staging laparoscopy</li> <li>Laparoscopic liver or tumour biopsy</li> </ul>	<ul style="list-style-type: none"> <li>Laparoscopic IOUS</li> <li>Intraoperative ultrasound</li> </ul>	<ul style="list-style-type: none"> <li>Hepatic mobilisation, localisation of the tumour, control of hepatic inflow and outflow, and division of the liver parenchyma</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>Staging laparoscopy</li> <li>Laparoscopic liver or tumour biopsy</li> </ul>	<ul style="list-style-type: none"> <li>Laparoscopic IOUS</li> <li>Intraoperative ultrasound</li> </ul>

Benign biliary bile duct/strictures injuries			
<u>ME2:</u>	<ul style="list-style-type: none"> <li>• Benign biliary strictures</li> <li>• Classification of bile duct injuries</li> <li>• Mechanism for bile duct injuries</li> <li>• Biliary anatomy</li> <li>• Hepatic vascular anatomy</li> <li>• Radiological and endoscopic investigations in diagnosis</li> </ul>		
<u>ME4, JCDM1 and JCDM2:</u>	<ul style="list-style-type: none"> <li>• Bile duct injury recognised</li> <li>• Vascular injuries and consequences</li> </ul>		
<u>ME5, TE1, and TE2:</u> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows	<ul style="list-style-type: none"> <li>• Laparoscopic or open drainage</li> <li>• Intraoperative drain</li> </ul>		<ul style="list-style-type: none"> <li>• Roux-en-Y hepatico-jejunostomy or hepatic resection</li> <li>• Endoscopic management</li> </ul>
Does		<ul style="list-style-type: none"> <li>• Laparoscopic or open drainage</li> <li>• Intraoperative drain</li> </ul>	

Choledochal anomalies			
<u>ME2:</u>	<ul style="list-style-type: none"> <li>• Classification of choledochal anomalies</li> <li>• Surveillance</li> </ul>		
<u>ME3 and JCDM1:</u>	<ul style="list-style-type: none"> <li>• Endoscopic and radiological investigations in diagnosis</li> </ul>		
<u>ME4, JCDM1 and JCDM2:</u>	<ul style="list-style-type: none"> <li>• Indications for pancreaticoduodenectomy</li> </ul>		
<u>ME5, TE1, and TE2:</u> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows			<ul style="list-style-type: none"> <li>• Roux-en-Y hepatico-jejunostomy</li> <li>• Technique of biliary resection</li> <li>• Other techniques of biliary reconstruction</li> </ul>

Acute pancreatitis	
<u>ME1:</u>	<ul style="list-style-type: none"> <li>• Risk stratification</li> <li>• Presentation of complications</li> </ul>
<u>ME2:</u>	<ul style="list-style-type: none"> <li>• Exocrine pancreas</li> <li>• Pathophysiology of acute pancreatitis</li> </ul>
<u>ME3 and JCDM1:</u>	<ul style="list-style-type: none"> <li>• Indicators of severity</li> </ul>

<a href="#">ME4, JCDM1 and JCDM2:</a>	<ul style="list-style-type: none"> <li>• Acute episode</li> <li>• ERCP</li> <li>• Indications for minimally invasive (percutaneous, endoscopic, laparoscopic) or open drainage</li> </ul>		
<a href="#">ME5, TE1, and TE2:</a> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows			<ul style="list-style-type: none"> <li>• Open, laparoscopic and endoscopic cysto-gastrostomy</li> <li>• Open or minimally invasive necrosectomy</li> </ul>

### Chronic pancreatitis

<a href="#">ME1:</a>	<ul style="list-style-type: none"> <li>• Exocrine and endocrine deficiencies</li> <li>• Pancreatic mass in chronic pancreatitis</li> </ul>		
<a href="#">ME2:</a>	<ul style="list-style-type: none"> <li>• Pathophysiology of the changes associated with chronic pancreatitis</li> </ul>		
<a href="#">ME4, JCDM1 and JCDM2:</a>	<ul style="list-style-type: none"> <li>• Medical, radiological, and endoscopic criteria for management</li> <li>• Indications for surgical intervention (resection, drainage)</li> <li>• Management of chronic pain</li> <li>• Indications for splenic preservation</li> </ul>		
<a href="#">ME5, TE1, and TE2:</a> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows			<ul style="list-style-type: none"> <li>• Surgical drainage procedure (eg longitudinal pancreaticojejunostomy)</li> <li>• Pancreatic resection (pancreaticoduodenectomy and distal pancreatectomy)</li> <li>• Technique for splenic preservation</li> </ul>

### Periampullary and ductal pancreatic carcinoma

<a href="#">ME2:</a>	<ul style="list-style-type: none"> <li>• Staging</li> <li>• Radiological investigations and endoscopy in staging</li> <li>• Resectable, borderline resectable and unresectable disease</li> <li>• Systemic therapy (neoadjuvant, adjuvant and palliative)</li> <li>• Pathophysiological changes associated with obstructive jaundice</li> </ul>		
<a href="#">ME4, JCDM1 and JCDM2:</a>	<ul style="list-style-type: none"> <li>• Resectability intra-operatively</li> </ul>		
<a href="#">ME5, TE1, and TE2:</a> Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows	<ul style="list-style-type: none"> <li>• Laparoscopic staging</li> </ul>	<ul style="list-style-type: none"> <li>• Gastro-enterostomy</li> <li>• Distal pancreatectomy</li> </ul>	<ul style="list-style-type: none"> <li>• Pancreaticoduodenectomy</li> <li>• Biliary-enteric anastomosis</li> </ul>

<b>Does</b>		<ul style="list-style-type: none"> <li>• IOUS</li> <li>• Laparoscopic staging</li> </ul>	<ul style="list-style-type: none"> <li>• Pancreatic anastomosis</li> <li>• Gastro-enterostomy</li> <li>• Distal pancreatectomy</li> <li>• IOUS</li> </ul>
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### Pancreatic cysts & Cystic tumours trauma

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Natural history</li> <li>• Risk stratification</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Staging</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Endoscopic ultrasound</li> <li>• Fine needle aspiration (FNA)</li> <li>• Cyst fluid biochemistry and cytology</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Surgical intervention</li> <li>• Endoscopic intervention</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Laparoscopic staging</li> </ul>	<ul style="list-style-type: none"> <li>• Distal pancreatectomy</li> <li>• Gastro-enterostomy</li> <li>• IOUS</li> </ul>	<ul style="list-style-type: none"> <li>• Pancreaticoduodenectomy</li> <li>• Biliary-enteric anastomosis</li> <li>• Pancreatic anastomosis</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Laparoscopic staging</li> </ul>	<ul style="list-style-type: none"> <li>• Gastro-enterostomy</li> <li>• Distal pancreatectomy</li> <li>• IOUS</li> </ul>

### Other pancreatic tumours including: (See Endocrine Syllabus)

- endocrine tumours
- incidental tumours

<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Staging</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Endoscopic ultrasound</li> <li>• Role of radiological investigations</li> <li>• Role of functional imaging</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Indications for resection and assessment of resectability</li> <li>• Role and indications for ablative therapy (PRRT)</li> <li>• Control of systemic symptoms</li> <li>• Risk stratification</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Laparoscopic staging</li> </ul>	<ul style="list-style-type: none"> <li>• Gastro-enterostomy</li> <li>• Distal pancreatectomy</li> <li>• IOUS</li> </ul>	<ul style="list-style-type: none"> <li>• Pancreaticoduodenectomy</li> <li>• Biliary-enteric anastomosis</li> <li>• Pancreatic anastomosis</li> </ul>

<b>Does</b>		<ul style="list-style-type: none"> <li>Laparoscopic staging</li> </ul>	<ul style="list-style-type: none"> <li>Gastro-enterostomy</li> <li>Distal pancreatectomy</li> <li>IOUS</li> </ul>
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### Pancreatic-duodenal trauma (See Trauma Syllabus)

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Assess the extent of injury at laparotomy</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Patterns of injury</li> <li>Classification for duodenal and pancreatic trauma</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Damage control</li> <li>Trauma laparotomy</li> </ul>	<ul style="list-style-type: none"> <li>Trauma laparotomy</li> <li>Methods to obtain definitive or temporary haemostasis and drainage of a pancreaticoduodenal injury for referral/transfer</li> <li>Distal pancreatectomy</li> <li>Duodenal exclusion</li> <li>Gastro-enterostomy</li> </ul>	<ul style="list-style-type: none"> <li>Pancreaticoduodenectomy</li> <li>Biliary-enteric anastomosis</li> <li>Pancreatic anastomosis</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>Damage control</li> <li>Trauma laparotomy</li> </ul>	<ul style="list-style-type: none"> <li>Trauma laparotomy</li> <li>Methods to obtain definitive or temporary haemostasis and drainage of a pancreaticoduodenal injury for referral/transfer</li> <li>Distal pancreatectomy</li> <li>Duodenal exclusion</li> <li>Gastroenterostomy</li> </ul>

### ERCP complications

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Post ERCP complications</li> </ul>
<b>ME2:</b>	<ul style="list-style-type: none"> <li>haemorrhage</li> <li>perforation</li> <li>cholangitis</li> <li>pancreatitis</li> </ul>

Splenic trauma			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Spleen</li> <li>Patterns and classification of injury</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Resuscitation</li> <li>Systemic and local haemostatic agents</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Trauma splenectomy</li> </ul>		<ul style="list-style-type: none"> <li>Splenorrhaphy</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>Trauma splenectomy</li> </ul>	

ITP/other indications for splenectomy			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Indications for elective splenectomy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Elective splenectomy for a normal sized spleen</li> <li>Open splenectomy</li> </ul>	<ul style="list-style-type: none"> <li>Laparoscopic splenectomy</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>Elective splenectomy for a normal sized spleen</li> <li>Open splenectomy</li> </ul>	<ul style="list-style-type: none"> <li>Laparoscopic splenectomy</li> </ul>

Massive spleen			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Indications for lymph node biopsy</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Cytology</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Lymph node biopsy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Open abdominal nodal biopsy</li> </ul>	<ul style="list-style-type: none"> <li>Laparoscopic abdominal nodal biopsy</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>Open node biopsy; <ul style="list-style-type: none"> <li>cervical</li> <li>axillary</li> <li>inguinal</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Open abdominal nodal biopsy</li> </ul>	<ul style="list-style-type: none"> <li>Laparoscopic abdominal nodal biopsy</li> </ul>

## 10.6.16. Upper GI and HPB – Oesophago-gastric

<b>Gastro-oesophageal reflux (GOR) disease</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Stricture, respiratory symptoms and Barrett's/dysplasia related to reflux disease</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Anatomy, embryology, and physiology of Oesophagus</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Investigation of GERD</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Medical management of GERD</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Endoscopic assessment of GOR</li> </ul>		<ul style="list-style-type: none"> <li>• Laparoscopic/open fundoplication</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Endoscopic assessment of GOR</li> </ul>	

<b>Hiatus hernia/paraoesophageal hernia</b>			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Classification of hiatus hernia</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Investigation of hiatus hernia/paraoesophageal hernia</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Management of incarcerated hernia</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Endoscopic assessment of GOR</li> </ul>		<ul style="list-style-type: none"> <li>• Laparoscopic/open fundoplication of paraoesophageal hernia</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Endoscopic assessment of GOR</li> </ul>	

<b>Oesophageal strictures:</b>			
<ul style="list-style-type: none"> <li>○ Peptic and corrosive strictures</li> <li>○ Schatzki ring and webs</li> </ul>			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Aetiology of stricture</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Investigation of stricture</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Endoscopic assessment of the stricture</li> <li>• Endoscopic dilatation</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Endoscopic assessment of the stricture</li> <li>• Endoscopic dilatation</li> </ul>	

Oesophageal malignancies			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Diagnosis and Aetiology</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Staging</li> <li>• Anatomy, physiology, embryology, and pathology</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Neo adjuvant and Adjuvant treatment</li> <li>• Palliation</li> <li>• Post-resection functional problems</li> <li>• High grade dysplasia</li> <li>• Complications from major resections of the oesophagus and stomach</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Endoscopic diagnosis and assessment</li> <li>• Feeding jejunostomy</li> <li>• Laparoscopic staging</li> </ul>	<ul style="list-style-type: none"> <li>• Palliative stenting</li> </ul>	<ul style="list-style-type: none"> <li>• Resection/reconstruction options</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Endoscopic diagnosis and assessment</li> <li>• Feeding jejunostomy</li> <li>• Laparoscopic staging</li> </ul>	<ul style="list-style-type: none"> <li>• Palliative stenting</li> </ul>

Other tumours			
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Benign tumours of the oesophagus: Anatomy, physiology, embryology, and pathology</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Diagnosis of benign tumours including endoscopy and imaging</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Management of benign tumours</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Endoscopic diagnosis and assessment</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• Endoscopic diagnosis and assessment</li> </ul>	

Motility disorders			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Diagnosis of motility disorders</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Motility diseases of the oesophagus: Anatomy, physiology, embryology and pathology</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Investigation of motility disorders</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Endoscopic assessment</li> </ul>		<ul style="list-style-type: none"> <li>• Endoscopic Management</li> <li>• Laparoscopic Heller's myotomy</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Endoscopic assessment</li> </ul>	

<b>Oesophageal foreign bodies</b>			
<a href="#">ME3</a> and <a href="#">JCDM1</a> :	<ul style="list-style-type: none"> <li>• Diagnosis and investigation of foreign body</li> </ul>		
<a href="#">ME4</a> , <a href="#">JCDM1</a> and <a href="#">JCDM2</a> :	<ul style="list-style-type: none"> <li>• Complications of foreign bodies and management of complications</li> <li>• Management of oesophageal foreign body</li> </ul>		
<a href="#">ME5</a> , <a href="#">TE1</a> , and <a href="#">TE2</a> : Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows	<ul style="list-style-type: none"> <li>• Endoscopic assessment and removal</li> </ul>		
Does		<ul style="list-style-type: none"> <li>• Endoscopic assessment and removal</li> </ul>	

<b>Oesophageal varices</b>			
<a href="#">ME2</a> :	<ul style="list-style-type: none"> <li>• Associated disease and extent/severity of associated disease/pathology</li> <li>• Diagnosis and Aetiology: Anatomy, physiology, embryology, and pathology of varices</li> </ul>		
<a href="#">ME4</a> , <a href="#">JCDM1</a> and <a href="#">JCDM2</a> :	<ul style="list-style-type: none"> <li>• Management of varices: <ul style="list-style-type: none"> <li>○ Radiological and operative</li> <li>○ Gastroscopy and endoscopic therapy</li> </ul> </li> <li>• Management of underlying aetiology or pathology</li> </ul>		
<a href="#">ME5</a> , <a href="#">TE1</a> , and <a href="#">TE2</a> : Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows	<ul style="list-style-type: none"> <li>• Endoscopic assessment</li> </ul>		<ul style="list-style-type: none"> <li>• Endoscopic management</li> </ul>
Does		<ul style="list-style-type: none"> <li>• Endoscopic assessment</li> </ul>	

<b>Oesophageal perforation</b>			
<a href="#">ME1</a> :	<ul style="list-style-type: none"> <li>• Diagnosis of Oesophageal Perforation</li> </ul>		
<a href="#">ME2</a> :	<ul style="list-style-type: none"> <li>• Aetiology and presentation of oesophageal perforation</li> </ul>		
<a href="#">ME3</a> and <a href="#">JCDM1</a> :	<ul style="list-style-type: none"> <li>• Management of oesophageal perforation and complications</li> </ul>		
<a href="#">ME4</a> , <a href="#">JCDM1</a> and <a href="#">JCDM2</a> :	<ul style="list-style-type: none"> <li>• Operative, endoscopic and conservative management options</li> </ul>		
<a href="#">ME5</a> , <a href="#">TE1</a> , and <a href="#">TE2</a> : Procedures	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
Knows			<ul style="list-style-type: none"> <li>• Operative repair</li> <li>• Endoscopic stenting</li> </ul>

### Peptic ulcers (gastric and duodenal)

<b>ME2:</b>	<ul style="list-style-type: none"> <li>Anatomy, physiology, and pathology of peptic ulcer disease</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Investigation of peptic ulcer disease</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Complications of peptic ulcer disease</li> <li>Management of peptic ulcer disease</li> </ul>		
<b>ME5, TE1, and TE2:</b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Gastroscopy:                             <ul style="list-style-type: none"> <li>Elective</li> <li>Emergency</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Endoscopic haemostasis</li> <li>Operative management of bleeding</li> <li>Operative management of perforation</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>Gastroscopy:                             <ul style="list-style-type: none"> <li>Elective</li> <li>Emergency</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Endoscopic haemostasis</li> <li>Operative management of bleeding</li> <li>Operative management of perforation</li> </ul>

### Gastric carcinoma

<b>ME2:</b>	<ul style="list-style-type: none"> <li>Diagnosis and Aetiology: Anatomy, physiology, embryology and pathology</li> <li>Staging</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Palliation</li> <li>Post-resection functional problems</li> <li>Neo adjuvant and Adjuvant treatment</li> </ul>		
<b>ME5, TE1, and TE2:</b> <b>Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Endoscopic and laparoscopic staging</li> <li>Gastro-enterostomy</li> <li>Feeding jejunostomy</li> </ul>	<ul style="list-style-type: none"> <li>Resectional procedures dependent on site</li> </ul>	
<b>Does</b>		<ul style="list-style-type: none"> <li>Endoscopic and laparoscopic staging</li> <li>Gastro-enterostomy</li> <li>Feeding jejunostomy</li> </ul>	

**Other gastric tumours e.g. GIST (See Surgical Oncology Syllabus)**

<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Staging</li> <li>• Diagnosis and Aetiology: Anatomy, physiology, embryology and pathology</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Adjuvant, neoadjuvant and palliative therapies</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Endoscopic assessment</li> <li>• Operative principles for resection</li> </ul>	<ul style="list-style-type: none"> <li>• Local gastric resection or distal gastrectomy (lap/open)</li> <li>• Distal gastrectomy</li> </ul>	<ul style="list-style-type: none"> <li>• Open total gastrectomy</li> <li>• Laparoscopic local gastric resection</li> <li>• Laparoscopic distal gastrectomy</li> </ul>
<b>Does</b>		<ul style="list-style-type: none"> <li>• Endoscopic assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Open local gastric resection</li> <li>• Distal gastrectomy</li> </ul>

## 10.6.17. Vascular - Arterial, Venous & Lymphatic Systems

Acute ischaemia			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Limb viability</li> <li>• Compartment syndrome requiring urgent intervention</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Mechanisms of trauma that lead to vascular injury and/or haemorrhage</li> <li>• Acute ischemia</li> <li>• Local and systemic effects of acute ischemia</li> <li>• Points of access for treatment of acute ischemia</li> <li>• Mechanisms of reperfusion phenomena</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Non-invasive and invasive imaging</li> <li>• Multimodality therapy including:                             <ul style="list-style-type: none"> <li>○ medical</li> <li>○ radiological</li> <li>○ surgical treatment</li> </ul> </li> <li>• Thrombolysis</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Emergency treatment</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Endovascular treatment including thrombolysis</li> <li>• Embolectomy:                             <ul style="list-style-type: none"> <li>○ brachial</li> <li>○ femoral</li> </ul> </li> <li>• Fasciotomy</li> </ul>	
<b>Does</b>			<ul style="list-style-type: none"> <li>• Fasciotomy</li> </ul>

Peripheral vascular disease (chronic)	
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• ABPI</li> <li>• Arterial risk factors</li> </ul>
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Causes and anatomical distribution of arterial lesions causing chronic ischaemia</li> <li>• Chronic limb ischemia</li> <li>• Local pathological sequelae of chronic ischaemia</li> </ul>
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Non-invasive versus invasive imaging</li> </ul>
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Multimodality therapy including:                             <ul style="list-style-type: none"> <li>○ Medical</li> <li>○ Radiological</li> <li>○ Surgical treatment</li> </ul> </li> </ul>

<u>ME5, TE1, and TE2:</u> Procedures	GSET1	GSET2-3	GSET4-5
<b>Knows</b>	•	<ul style="list-style-type: none"> <li>Peripheral vascular reconstruction/bypass procedures</li> <li>Dissection and isolation of vessels in the groin</li> <li>Arterial anastomosis</li> <li>Arteriotomy closure</li> <li>Below knee amputation</li> <li>Above knee amputation</li> </ul>	
<b>Does</b>			<ul style="list-style-type: none"> <li>Below knee amputation</li> <li>Above knee amputation</li> </ul>

### Aneurysmal disease

<u>ME1:</u>	<ul style="list-style-type: none"> <li>Ruptured intra abdominal aneurysm</li> <li>Presence of peripheral aneurysm</li> </ul>		
<u>ME2:</u>	<ul style="list-style-type: none"> <li>Common sites of aneurysmal disease</li> <li>Pathophysiological sequelae of aneurysmal disease</li> <li>Pathological basis of abdominal aortic aneurysmal disease</li> <li>True and false aneurysm</li> <li>Anatomical and pathophysiological features that may exclude aneurysmal repair</li> </ul>		
<u>ME3 and JCDM1:</u>	<ul style="list-style-type: none"> <li>Non-invasive and invasive imaging</li> </ul>		
<u>ME4, JCDM1 and JCDM2:</u>	<ul style="list-style-type: none"> <li>Screening for aortic aneurysm</li> <li>Incidentally identified aneurysm</li> <li>Impact of concomitant medical conditions on management in elective and emergent situations</li> <li>Endoluminal and open techniques for AAA repair</li> <li>AAA in the presence of other intra-abdominal pathologies</li> <li>Colonic ischaemia</li> </ul>		
<u>ME5, TE1, and TE2:</u> Procedures	GSET1	GSET2-3	GSET4-5
<b>Knows</b>		<ul style="list-style-type: none"> <li>Exposure of aorta and common iliac arteries</li> </ul>	<ul style="list-style-type: none"> <li>Repair of AAA</li> <li>Clamp neck of AAA</li> <li>Supra-coeliac clamp of abdominal aorta</li> </ul>

## Diabetic vascular disease

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Diabetic foot disease including: <ul style="list-style-type: none"> <li>○ Ulceration</li> <li>○ Digital gangrene</li> <li>○ Sepsis</li> </ul> </li> <li>• Ankle-brachial pressure index (abpi)</li> <li>• Diabetic neuropathy</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Pathophysiological effects of diabetes on the vascular system and the foot</li> <li>• Relative effect of neuropathy versus vasculopathy</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Non-invasive and invasive imaging</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Medical management of diabetes</li> <li>• Indications for and level of amputation</li> <li>• “Off-loading “ strategies</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Primary closure versus secondary healing</li> </ul>	<ul style="list-style-type: none"> <li>• Application of Negative Pressure Wound Therapy (NPWT)</li> <li>• Transmetatarsal amputations</li> <li>• Revascularisation procedures</li> </ul>	
<b>Does</b>	<ul style="list-style-type: none"> <li>• Digital amputations</li> </ul>		

## Venous disease (including varicose veins)

<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Exclude concomitant arterial disease</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Underlying causes</li> <li>• Pathophysiology of venous ulceration</li> <li>• Deep, superficial, and perforating venous systems</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>• Role of duplex in assessing venous disease</li> <li>• ABIs (Ankle Brachial Index) in venous ulcer assessment</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Modalities available for treatment of varicose veins (open and endovascular)</li> <li>• Compression therapy in venous disease</li> <li>• Non vascular aetiologies of ulceration; <i>See also Skin &amp; Soft Tissue Module</i></li> <li>• Complications of chronic venous stasis</li> </ul>		
<b>ME5, TE1, and TE2:</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Procedures</b>			
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Operative treatment of varicose veins (open)</li> </ul>		<ul style="list-style-type: none"> <li>• Operations for recurrent varicose veins</li> </ul>

<b>Does</b>		<ul style="list-style-type: none"> <li>Operative treatment of varicose veins (open)</li> </ul>	
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### Vascular access

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Access site suitability</li> <li>Testing of access sites</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Vessels used for central vascular access (venous only)</li> <li>Arteries and veins used for haemodialysis access</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Clinical tests for adequacy of blood supply</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Protection of future vascular access sites</li> <li>Establishing vascular access</li> <li>Vascular versus peritoneal dialysis techniques; <i>See also Transplant Module</i></li> <li>Access procedures</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>Arterio-venous anastomosis</li> <li>Portacath and/or Hickman's insertion (including complications of CVL insertion)</li> </ul>	<ul style="list-style-type: none"> <li>Arterio venous graft access techniques</li> </ul>
<b>Does</b>	<ul style="list-style-type: none"> <li>Central line insertion</li> </ul>		<ul style="list-style-type: none"> <li>Portacath and/or Hickman's insertion (including complications of CVL insertion)</li> </ul>

### Thrombo-embolic disease (DVT and PE)

<b>ME1:</b>	<ul style="list-style-type: none"> <li>Lower limb DVT</li> <li>Axillary vein thrombosis</li> <li>Australasian guidelines on prevention and treatment of DVT/PE</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>Causes of hypercoagulable states</li> <li>Pathophysiology of VTE</li> </ul>		
<b>ME3 and JCDM1:</b>	<ul style="list-style-type: none"> <li>Medical imaging and relevant laboratory investigations</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>Methods of thromboprophylaxis and risk assessment/stratification of DVT formation</li> <li>Emergency treatment</li> <li>Anticoagulation and thrombolysis</li> <li>Role of radiological intervention for DVT</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>Thrombolysis</li> <li>IVC filter insertion</li> </ul>	<ul style="list-style-type: none"> <li>Thrombectomy</li> </ul>	

Superficial thrombophlebitis			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Lower limb SVT</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Cause of hypercoagulable states</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• High saphenous ligations</li> </ul>		
<b>Does</b>		<ul style="list-style-type: none"> <li>• High saphenous ligations</li> </ul>	

Mesenteric ischaemia			
<ul style="list-style-type: none"> <li>○ Acute</li> <li>○ Chronic</li> </ul>			
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Early recognition</li> <li>• Recognition of associated medical conditions</li> <li>• Medical therapy</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>	<ul style="list-style-type: none"> <li>• Laparotomy <ul style="list-style-type: none"> <li>○ resection of nonviable bowel</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Role of secondary laparotomy</li> <li>• Laparotomy</li> <li>• Resection of nonviable bowel</li> </ul>	<ul style="list-style-type: none"> <li>• Mesenteric embolectomy/revascularisation procedures</li> </ul>
<b>Does</b>			<ul style="list-style-type: none"> <li>• Role of secondary laparotomy</li> <li>• Laparotomy</li> <li>• Resection of nonviable bowel</li> </ul>

Vascular trauma			
<b>ME1:</b>	<ul style="list-style-type: none"> <li>• Patterns of vascular injury</li> <li>• Hard and soft signs of vascular injury</li> </ul>		
<b>ME2:</b>	<ul style="list-style-type: none"> <li>• Vessels most vulnerable to trauma, including iatrogenic</li> </ul>		
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"> <li>• Vascular repair</li> <li>• Stab injuries to neck, groin, and upper limbs</li> <li>• Thoracic injuries including widened mediastinum</li> </ul>		
<b>ME5, TE1, and TE2: Procedures</b>	<b>GSET1</b>	<b>GSET2-3</b>	<b>GSET4-5</b>
<b>Knows</b>		<ul style="list-style-type: none"> <li>• Exposure of major abdominal vessels</li> </ul>	
<b>Does</b>			<ul style="list-style-type: none"> <li>• Exposure of major abdominal vessels</li> </ul>

## Lymphatic disease

<b>ME1:</b>	<ul style="list-style-type: none"><li>• Swollen limb, especially the unilateral</li></ul>
<b>ME2:</b>	<ul style="list-style-type: none"><li>• Pathogenesis of lymphodema and lymphocele</li><li>• Microbiology of cellulitis in lymphedematous limbs</li></ul>
<b>ME4, JCDM1 and JCDM2:</b>	<ul style="list-style-type: none"><li>• Complications of lymphatic disease, especially cellulitis</li></ul>

## Variant anatomy and non-anatomical reconstruction

<b>ME1:</b>	<ul style="list-style-type: none"><li>• Vascular anomalies</li></ul>
<b>ME4:</b>	<ul style="list-style-type: none"><li>• Non-anatomic reconstruction</li></ul>

## 11. ACKNOWLEDGEMENTS

The Curriculum Working Party consisted of the following General Surgeons, Trainees, staff, and educationalist.

Member	Role
Ee Jun Ban FRACS	General Surgeon
Simon Bann FRACS	General Surgeon
Magdalena Biggar FRACS	General Surgeon
Monica Carrarini	GSA Director – Education and Training and Curriculum Project Manager
Joanne Dale FRACS	General Surgeon
Elizabeth Dennett FRACS	General Surgeon
Simon Harper FRACS	General Surgeon
Jonathon Hong FRACS	General Surgeon
Brian Kirkby FRACS	General Surgeon
John Lengyel FRACS	General Surgeon
Priscilla Martin FRACS	General Surgeon
Roderick McMurrick FRACS	Trainee Representative
Debbie Paltridge	Educationalist
Jeremy Rossaak FRACS	General Surgeon
Richard Turner FRACS	General Surgeon
Gabriella Vasica FRACS	General Surgeon
Robert Whitfield FRACS	General Surgeon
Marli Williams FRACS	Trainee Representative

The technical modules were reviewed by the following General Surgeons:

Technical Module	General Surgeon(s)
Abdominal Wall	Gabriella Vasica FRACS
Breast	Magdalena Biggar FRACS Robert Tasevski FRACS
Colorectal	Richard Turner FRACS
Endoscopy, Gastroscopy and Colonoscopy	Marianne Lill FRACS
Emergency	Ee Jun Ban FRACS
Endocrine	Simon Harper FRACS Justin Gundara FRACS
Head and Neck	Simon Harper FRACS James Wykes FRACS
Sepsis and Critical Illness	John Lengyel FRACS Adrian Anthony FRACS
Skin and Soft Tissue	John Lengyel FRACS

	Andrew Thompson FRACS
Small Bowel	Richard Turner FRACS
Surgical Oncology	Satish Warriar FRACS
Transplantation	Kellee Slater FRACS
Trauma	Ee Jun Ban FRACS
Upper GI and HPB – Bariatric	Simon Bann FRACS Jacob Chisholm FRACS Sam Baker FRACS
Upper GI and HPB - Hepatic, Pancreatic & Biliary	Jonathan Koea FRACS
Upper GI and HPB - Oesophago-gastric	Simon Bann FRACS
Vascular	Brian Kirkby FRACS

## 12. STAKEHOLDER ENGAGEMENT

In the development of this Curriculum, the following groups were consulted during the stakeholder engagement period:

- Australian and Aotearoa New Zealand Trainees in the Surgical Education and Training Program as at May 2021
- Australasian College for Emergency Medicine
- Australian and New Zealand Endocrine Surgeons
- Australian and New Zealand Gastric & Oesophageal Surgery Association
- Australian and New Zealand Hepatic, Pancreatic & Biliary Association
- Australian and New Zealand Metabolic and Obesity Surgery Society
- Australian and New Zealand Supervisors as at May 2021
- Australian College of Perioperative Nurses
- Australian College of Rural and Remote Medicine
- Australian Indigenous Doctors' Association
- Australian Medical Council
- Australian Orthopaedic Association Federal Training Committee
- Australian Patients Association
- Breast Surgeons of Australia and New Zealand
- Colorectal Surgical Society of Australia and New Zealand
- General Surgeons Australia
- Medical Council of New Zealand
- New Zealand Association of General Surgeons
- New Zealand Orthopaedic Association Specialty Orthopaedic Training Board
- Perioperative Nurses College of NZ Nurses Organisation
- RACS, Australian Board of Plastics and Reconstructive Surgery
- RACS, Board of Cardiothoracic
- RACS, Board of Neurosurgery
- RACS, Board of Otolaryngology - Head and Neck
- RACS, Board of Paediatric Surgery
- RACS, Board of Urology
- RACS, Board of Vascular
- RACS, New Zealand Board of Plastics and Reconstructive Surgery
- Royal Australasian College of Physicians
- Royal Australasian College of Surgeons (RACS)
- Royal Australian College of General Practitioners
- Royal New Zealand College of General Practitioners
- Te Ora (Māori Medical Practitioners)