General Surgery

Training Programme & Curriculum
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Introduction

This document is an indication of the levels of expertise a trainee has to attain before moving to the next level of training. By the end of training, surgeons have to demonstrate:

• Theoretical and practical knowledge related to surgery in general and to their specialty practice;

• Technical and operative skills;

• Clinical skills and judgement;

• Generic professional and leadership skills;

• An understanding of the values that underpin the profession of surgery and the responsibilities that come with being a member of the profession;

• The special attributes needed to be a surgeon;

• A commitment to their ongoing personal and professional development and practice using reflective practice and other educational processes;

• An understanding and respect for the multi-professional nature of healthcare and their role in it; and

• An understanding of the responsibilities of being an employee of a hospital and/or a private practitioner.

In the final stage of training (HST 5 and 6), when the trainee has attained the knowledge and skills required for the essential aspects of the curriculum, there will be the opportunity to extend his/her skills and competences in one or two specific fields. The syllabus is modular in format, with content that covers the major areas of highly specialised practice. The syllabuses are intended to allow the CCT holder to develop an area of clinical interest and expertise upon appointment to a consultant post. Some will require further post CCT training in order to achieve the competences necessary for some of the rarer complex procedures.

This document should be used by the Trainee and the Trainer as a framework for developing a job plan on commencement of an attachment. It is only a guideline and should be treated as such.

Annual Review of Competence Progression (ARCP)

Progress will be assessed continually with consultant assessment forms and trainee feedback. There will also be summative assessments at intervals throughout the year. This may consist of Written, Viva, Clinical, PBA and/or DOPS assessment. It is imperative that logbooks are kept up to date and attendance to educational events will be recorded and taken into account.

A professional approach is required from surgical trainees who will be expected to have a deep understanding of the subjects, to the minimum standard outlined below. It is expected that trainees will read beyond textbooks and to make critical use, where appropriate of original literature and peer scrutinised review articles in the related scientific and clinical literature such that they can aspire to an excellent standard in surgical practice.

Progression from one year to another is not time-based but competence-based.
**BST 1 to BST 2 level**

To progress from BST 1 to BST 2 the candidates need to attain a minimum number of 60 points as follows:

Positive consultant report x 6mths 10 points
Positive consultant report x 6mths 10 points
Logbook 10 points
MRCS Part 1 10 points
MRCS Part 2 10 points
Eur Board Part 1 10 points
Papers (Local journals) 5 points
Papers (International journals) 10 points
Courses attended:
- 1 hour 1 point
- 1 Session 3 points
- 1 day 6 points

**BST 2 to HST level**

In order to pass from BST to HST level Trainees must:
1. Pass all parts of the MRCS
2. Completed surgical skills course approved by the UK surgical colleges or equivalent
3. Successfully completed the Advanced Trauma Life Support or equivalent
4. The Certificate of Completion of Basic Speciality Training” (CCBST)
5. 3 months in 4 different surgical specialities
6. Pass an interview

**The Exit Exam and CCST**

An exit exam is an essential part of CCST. Candidates can take both the European Board exam and the Intercollegiate exit exam in UK (FRCS).

Recently “The Joint Surgical Colleges Fellowship Examinations (JSCFE)” became available. This exam is equivalent to the FRCS and each can be taken at the end of year 4 HST where the candidate has to show that he /she is Emergency Competent and Generally Competent.

1. To sit for the FRCS, one must be in a possession of the MRCS.
2. To sit for the European Exit Exam one must have had FORMAL training in an established post-graduate training centre.
3. The MRCS is NOT required to sit for the JSCFE.
4. Candidates can sit for the JSCFE after:
   a. completing four years of satisfactory training following 2 years of BST training
   b. AND have exhausted ALL attempts for MRCS.
5. If a trainee achieves the JSCFE but does not have the MRCS, that trainee will be considered to have reached HST4 level equivalent.
6. CCST will only be given if candidates have:
   a. obtained all other requirements for CCBST and CCST.
   b. exit exam (FRCS or European Exit Exam)
   OR if they become Fellows of one of the Surgical Royal Colleges after achieving The JSCFE,
   c. AND have the total number of years required for general surgery ie 8years,
   d. AND have a positive assessment equivalent to level of HST6.
KEY STAGES in the Clinical Domain of GENERAL SURGERY

The key stages, in the Clinical Domain of General Surgery, that trainees will be expected to have obtained at each level are as follows:

A. **Knowledge** – Graded as follows
   - 1 knows of
   - 2 knows basic concepts
   - 3 knows generally
   - 4 knows specifically and broadly

B. **Clinical skills**

1. **Has observed** – the trainee acts as an ‘Assistant’
   From complete novice through to being a competent assistant

   At end of level 1 the trainee:
   a. Has adequate knowledge of the steps through direct observation.
   b. Demonstrates that he/she can handle instruments relevant to the procedure appropriately and safely.
   c. Can perform some parts of the procedure with reasonable fluency

2. **Can do with assistance** - a trainee is able to carry out the procedure ‘Directly Supervised’
   From being able to carry out parts of the procedure under direct supervision (trainer scrubbed) through to being able to complete the whole procedure under lesser degrees of direct supervision (e.g. trainer immediately available in theatre or in suite)

   At the end of level 2 the trainee
   a. Knows all the steps - and the reasons that lie behind the methodology.
   b. Can carry out a straightforward procedure fluently from start to finish.
   c. Knows and demonstrates when to call for assistance/advice from the supervisor (knows personal limitations).

3. **Can do whole but may need assistance** – a trainee is able to do the procedure ‘Indirectly Supervised’
   From being able to carry out the whole procedure under direct supervision (trainer immediately available in theatre) through to being able to carry out the whole procedure without direct supervision i.e. trainer available but not in direct contact with the trainee

   At the end of level 3 the trainee
   a. Can adapt to well known variations in the procedure encountered, without direct input from the trainer.
   b. Recognises and makes a correct assessment of common problems that are encountered.
   c. Is able to deal with most of the common problems.
   d. Knows and demonstrates when he/she needs help.
   e. Requires advice rather than help that requires the trainer to scrub.
4. **Competent to do without assistance, including complications** – a trainee is at CCT level and ‘Finishing’ for the common procedures in a specialty. From being able to carry out the procedure without direct input from the trainer (e.g. can deal with the majority of operative problems and complications, but may need occasional help or advice) through to competent to carry out the procedure without supervision - i.e. can deal with the accepted range of foreseeable problems. This level includes supervising a more junior trainee.

At the end of level 4 the trainee:
   a. Can deal with straightforward and difficult cases to a satisfactory level and without the requirement for external input to the level at which one would expect a consultant surgeon to function.
   b. Is capable of supervising trainees.

C. **Technical skills and procedures**
   1. **Has observed**
   2. **Can do with assistance**
   3. **Can do whole but may need assistance**
   4. **Competent to do without assistance, including complications**

D. **Professional & Behaviour skills including Leadership**

There will also be assessment in the professional and behaviour skills, and leadership abilities
Examples of areas of special interest

Upper gastrointestinal surgery
Hepatopancreaticobiliary
Colorectal
GI / laparoscopic surgery
Vascular surgery
Transplant Surgery
Breast (including oncoplastic) surgery
Endocrine Surgery
Paediatric Surgery

In the UK there are also specialties in
Remote and rural surgery
Military Surgery

There are other specialties that run through from HST1 and are not included in this document:
Urology
Neurosurgery
Academic surgery
THE SYLLABUS
BST 1 and 2

Overview of the BST

The aim of the first 2 years are to provide a broad based initial training in surgery with attainment of knowledge, skills and professional behaviours relevant to the practice of surgery in any specialist surgical discipline. This is also the syllabus of the MRCS.

It is expected that trainees in BST1 will take the first part of MRCS during BST1 if they have not already passed it in foundation. They are required to have obtained the MRCS, have successfully completed a Surgical Skills course by the end of BST2. They should also have successfully completed the Advanced Trauma Life Support (ATLS) course or the European Trauma Course (ETC) or the Care of the Critically Ill Surgical Patient (CCrISP) course.

If trainees do not reach the level of competencies and/or acquire the examinations and courses needed for CCBST they will not be promoted to HST.
Recommended textbooks

**Anatomy**
Last's Anatomy: Regional and Applied (MRCS Study Guides) by R.J. Last and Chummy S

**Physiology**
Ganong's Review of Medical Physiology, 23rd Edition (Lange Basic Science)

**Pathology**
Robbins Basic Pathology: by Vinay Kumar MBBS MD FRCPath, Abul K. Abbas MBBS, Nelson Fausto MD, and Richard Mitchell MD PhD

**Pharmacology**
Principles and Practice of Surgery: by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor
Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O’Connell (Editor)

**Microbiology**
Principles and Practice of Surgery: by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor
Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O’Connell (Editor)

**Radiology**
Principles and Practice of Surgery: by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor
Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O’Connell (Editor)

**Common surgical conditions**
Principles and Practice of Surgery: by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor, Andrew W. Bradbury BSc MB ChB MD MBA FRCS(Ed) FRCS, and Rowan W Parks
Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O’Connell (Editor)

**Surgical skills**
Basic surgical skills course and curriculum

**Peri-operative care including critical care**
ATLS course
CriSP course
Principles and Practice of Surgery: by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor
Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O’Connell (Editor)

**Surgical care of children**
Principles and Practice of Surgery: by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor
Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O’Connell (Editor)
Care of the dying
Principles and Practice of Surgery: by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor Bailey and Love’s Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O’Connell (Editor)

Organ transplantation
Principles and Practice of Surgery: by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor Bailey and Love’s Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O’Connell (Editor)
Core surgical skills and knowledge
Basic sciences

Knowledge

Applied anatomy:
4 Development, organs and structures, surface and imaging anatomy of thorax, abdomen, pelvis, perineum, limbs, neck as appropriate for surgical operations

Physiology:
4 Homeostasis
3 Thermoregulation
3 Metabolic pathways and abnormalities
4 Blood loss and hypovolaemic shock
4 Sepsis and septic shock
4 Fluid balance and fluid replacement therapy
3 Metabolic abnormalities
3 bleeding and coagulation
3 Nutrition

Pharmacology:
4 The pharmacology and safe prescribing of drugs used in the treatment of surgical diseases including analgesics, antibiotics, cardiovascular drugs, antiepileptic, anticoagulants, respiratory drugs, renal drugs, drugs used for the management of endocrine disorders (including diabetes) and local anaesthetics.
3 The principles of general anaesthesia
3 The principles of drugs used in the treatment of common malignancies

Pathology:
4 Inflammation
4 Wound healing
4 Cellular injury, Tissue death including necrosis and apoptosis
4 Vascular disorders
4 Disorders of growth, differentiation and morphogenesis
4 Tumours
  - Pathology of neoplasia
  - Classification of tumours
  - Tumour development and growth including metastasis
  - Principles of staging and grading of cancers
  - Principles of cancer therapy including surgery, radiotherapy, chemotherapy, immunotherapy and hormone therapy
  - Principles of cancer registration
  - Principles of cancer screening
4 The pathology of specific organ systems relevant to surgical care including cardiovascular pathology, respiratory pathology, gastrointestinal pathology, genitourinary disease, breast, exocrine and endocrine pathology, central and peripheral, neurological systems, skin, lymphoreticular and musculoskeletal systems
3 Surgical immunology
3 Surgical haematology

Microbiology:
4 Surgically important microorganisms
4 Sources of infection
4 soft tissue infections including cellulitis, abscesses, necrotising faciitis, gangrene
4 Asepsis and antisepsis
4 Sterilisation and disinfection
4 Antibiotics- prophylaxis, therapeutic, resistance
4 High risk patient management
Radiology:
3 Principles of diagnostic and interventional radiology including x-rays, ultrasound, CT, MRI, PET, radionucleotide scanning.

Principles of safe surgery
4 Preparation of the surgeon for surgery
4 Principles of hand washing, scrubbing and gowning
4 Immunisation protocols for surgeons and patients

Administration of local anaesthesia
4 Choice of anaesthetic agent
4 Safe practise

Surgical wounds
4 Classification of surgical wounds
4 Principles of wound management
4 Pathophysiology of wound healing
4 Scars and contractures

Incision of skin and subcutaneous tissue:
4 Langer’s lines
4 Healing mechanism
4 Choice of instrument
4 Safe practice
4 Basic Surgical Skills course

Closure of skin and subcutaneous tissue:
4 Options for closure
4 Suture and needle choice
4 Safe practice

Knot tying:
4 Choice of material for tensile strength, handling characteristics and knotting
4 Safe application of knots for surgical sutures and ligatures

Haemostasis:
4 Techniques
4 Principles of diathermy

Tissue handling and retraction:
4 Choice of instruments

Use of drains:
4 Indications
4 Types
4 Management/removal

Biopsy techniques

Principles of anastomosis

Principles of Surgical endoscopy

Clinical Skills

Preparation of the surgeon for surgery
4 Effective and safe hand washing, gloving and gowning
4 Administration of local anaesthesia
4 Accurate and safe administration of local anaesthetic agent

**Preparation of a patient for surgery**
4 Creation of a sterile field
4 Antisepsis
4 Draping

**Technical skills**

**Preparation of the surgeon for surgery**
4 Effective and safe hand washing, gloving and gowning

**Incision of skin and subcutaneous tissue:**
4 Ability to use scalpel, diathermy and scissors

**Closure of skin and subcutaneous tissue:**
4 Accurate and tension free apposition of wound edges

**Administration of local anaesthesia**
4 Accurate and safe administration of local anaesthetic agent

**Knot tying:**
4 Single handed
4 Double handed
4 Instrument
4 Superficial
4 Deep

**Haemostasis:**
4 Control of bleeding vessel (superficial)
4 Diathermy
4 Suture ligation
4 Tie ligation
4 Clip application
4 Transfixion suture

**Tissue retraction:**
4 Tissue forceps
4 Placement of wound retractors

**Use of drains:**
4 Insertion
4 Fixation
4 Removal

**Tissue handling:**
4 Appropriate application of instruments and respect for tissues
4 tissue biopsy including FNA

**Skill as assistant:**
4 Anticipation of needs of surgeon when assisting
The assessment and management of the surgical patient

Knowledge

3 Anatomy
3 Pathogenesis of shock
1 Differences in children
4 Knowledge of the principles surgical diseases and management to at least the level of Exit of Foundation and keep up to date.

Clinical skills

3 Surgical history and examination (elective and emergency)
3 Construct a differential diagnosis
3 Plan investigations
3 Clinical decision making
3 Case work up and evaluation; risk management
3 Active participation in MDTs
3 Taking consent for intermediate level intervention; emergency and elective
3 Written clinical communication skills
3 Interactive clinical communication skills: patients
3 Interactive clinical communication skills: colleagues
Peri-operative care

Knowledge

Pre-operative assessment and management:
4 Cardio respiratory physiology
3 Diabetes mellitus and other relevant endocrine disorders
3 Renal failure
4 Pathophysiology of blood loss and homeostasis
4 Fluid balance
4 Pathophysiology of sepsis- prevention and prophlaxis
4 Thromboprophylaxis
4 Lab testing and imaging
4 Risk factors for surgery and scoring systems
3 Pre-medication and pre-operative prescribing
3 Principles of day surgery

Intraoperative care:
4 Safety in theatre including patient positioning and avoidance of nerve injury
4 Sharps safety
4 Diathermy, laser use
4 Infection risks
3 Radiation use and risks
4 Tourniquets- indications, effects and complications
4 Principles of invasive and non-invasive monitoring
4 Prevention of venous thrombosis
3 Surgery in Hepatitis and HIV carriers
3 Principles of local, regional and general anaesthesia
4 fluid balance and homeostasis

Post-operative care:
4 Monitoring
4 Cardiorespiratory physiology
4 fluid balance and homeostasis
3 Diabetes mellitus and other relevant endocrine disorders
3 Renal failure
4 Pathophysiology of blood loss
4 Pathophysiology of sepsis, SIRS and shock
4 Multi-organ dysfunction syndrome
4 Complications in general and specific to particular operation
2 Critical care
4 Analgesia

To assess and plan nutritional management
3 Post-operative nutrition
3 Effects of malnutrition, both excess and depletion
3 Metabolic response to injury
3 Methods of screening and assessment of nutritional status
3 Methods of enteral and parenteral nutrition

Haemostasis and Blood Products:
4 Mechanism of haemostasis including the clotting cascade
4 Pathology of impaired haemostasis e.g. haemophilia, liver disease, massive haemorrhage
4 Components of blood
4 Alternatives to use of blood products
4 Principles of administration of blood products
4 Patient safety with respect to blood products
Coagulation, deep vein thrombosis and embolism:
4 Clotting mechanism (Virchow Triad)
4 Effect of surgery and trauma on coagulation
4 Tests for thrombophilia and other disorders of coagulation
4 Methods of investigation for suspected thromboembolic disease
4 Principles of treatment of venous thrombosis and pulmonary embolism including anticoagulation
4 Role of V/Q scanning, CT pulmonary angiography, D-dimer and thrombolysis
4 Place of pulmonary embolectomy
4 Prophylaxis of thromboembolism:
4 Risk classification and management of DVT
4 Knowledge of methods of prevention of DVT, mechanical and pharmacological

Antibiotics:
4 Common pathogens in surgical patients
4 Antibiotic sensitivities
4 Antibiotic side-effects
4 Principles of prophylaxis and treatment

Metabolic and endocrine disorders in relation perioperative management
4 Pathophysiology of thyroid hormone excess and deficiency and associated risks from surgery
4 Causes and effects of hypercalcaemia and hypocalcaemia
4 Complications of corticosteroid therapy
4 Causes and consequences of Steroid insufficiency
4 Complications of diabetes mellitus
4 Causes and effects of hyponatraemia
4 Causes and effects of hyperkalaemia and hypokalaemia

Clinical skills

Pre-operative assessment and management:
4 History and examination
4 Interpretation of pre-operative investigations
3 Management of co morbidity
4 Resuscitation
4 Appropriate preoperative prescribing including premedication

Intraoperative care:
4 Safe conduct of intraoperative care
4 Correct patient positioning
4 Avoidance of nerve injuries
4 Management of sharps injuries

Post-operative care:
4 Writing of medical records
4 Assessment of patient's condition
4 Post-operative analgesia
4 Fluid and electrolyte management
4 Monitoring of post-operative patient
4 Detection of impending organ failure
4 Initial management of organ failure
4 Principles and indications for Dialysis
4 Recognition, prevention and treatment of post-operative complications
4 Use of MDT meetings

Blood products:
4 Recognition of conditions likely to lead to the diathesis
4 Recognition of abnormal bleeding during surgery
4 Appropriate use of blood products
4 Management of the complications of blood product transfusion
Coagulation, deep vein thrombosis and embolism
4 Recognition of patients at risk
4 Awareness and diagnosis of pulmonary embolism and DVT
4 Role of duplex scanning, venography and d-dimer measurement
4 Initiate and monitor treatment of venous thrombosis and pulmonary embolism
4 Initiation of prophylaxis

Antibiotics:
4 Appropriate prescription of antibiotics

Assess and plan preoperative nutritional management
4 Arrange access to suitable artificial nutritional support, preferably via a nutrition team including Dietary supplements, Enteral nutrition and Parenteral nutrition

Metabolic and endocrine disorders
4 History and examination in patients with endocrine and electrolyte disorders
4 Investigation and management of thyrotoxicosis and hypothyroidism
4 Investigation and management of hypercalcaemia and hypocalcaemia
4 Peri-operative management of patients on steroid therapy
4 Peri-operative management of diabetic patients
4 Investigation and management of hyponatraemia
4 Investigation and management of hyperkalaemia and hypokalaemia

Technical skills
3 Central venous line insertion
4 Urethral catheterisation
Assessment and management of injured patients including multi-injured patients and children

Knowledge

General
4 Scoring systems for assessment of the injured patient
4 Major incident triage
4 Differences in children

Shock
4 Pathogenesis of shock
4 Shock and cardiovascular physiology
4 Metabolic response to injury
4 Adult respiratory distress syndrome
4 Indications for using uncross matched blood

Wounds and soft tissue injuries
4 Gunshot and blast injuries
4 Stab wounds
4 Human and animal bites
4 Nature and mechanism of soft tissue injury
4 Principles of management of soft tissue injuries
4 Principles of management of traumatic wounds
4 Compartment syndrome

Burns
4 Classification of burns
4 Principle of management of burns

Fractures
4 Classification of fractures
4 Pathophysiology of fractures
4 Principles of management of fractures
4 Complications of fractures
4 Joint injuries

Organ specific trauma
4 Pathophysiology of thoracic trauma
4 Pneumothorax
4 Head injuries including traumatic intracranial haemorrhage and brain injury
4 Spinal cord injury
4 Peripheral nerve injuries
4 Blunt and penetrating abdominal trauma including spleen
4 Vascular injury including iatrogenic injuries and intravascular drug abuse
4 Crush injury
4 Principles of management of skin loss including use of skin grafts and skin flaps

Clinical skills

4 History and examination and Investigation
4 Resuscitation and early management according to ATLS/ETC and APLS guidelines
3 Referral to appropriate surgical subspecialties
3 Management of the unconscious patient
3 Initial management of skin loss
3 Initial management of burns
3 Prevention and early management of the compartment syndrome
Technical skills

3 Central venous line insertion
3 Chest drain insertion
2 Diagnostic peritoneal lavage
3 Urethral catheterisation
3 Suprapubic catheterisation
**Academic Activity**

**Knowledge**

Research:
2 Research methodology

Teaching:
2 Teaching methods

**Clinical Skills**

Research:
2 Ability to analyse published evidence

Teaching:
3 Ability to teach small groups
Management of the dying patient

Knowledge

Palliative care:
3 Care of the terminally ill
4 Analgesia
3 Antiemetics
3 Laxatives

Principles of organ donation:
3 Circumstances in which consideration of organ donation is appropriate
3 Principles of brain death
3 Understanding the role of the on-call magistrate and the certification of death

Clinical skills

Palliative care:
3 Symptom control in the terminally ill patient
2 Assessment of brain stem death
4 Certification of death
Surgical care of the Paediatric patient

Knowledge

4 Physiological and metabolic response to injury and surgery
4 Fluid and electrolyte balance
4 Thermoregulation Safe prescribing in children
4 Principles of vascular access in children
4 Basic understanding of child protection law
4 Understanding of Children's rights
4 Working knowledge of types and categories of child maltreatment, presentations, signs and other features (primarily physical, emotional, sexual, neglect, professional)
4 Understanding of one personal role, responsibilities and appropriate referral patterns in child protection
4 Understanding of the challenges of working in partnership with children and families

Clinical skills

Ability to:
4 Recognise the possibility of abuse or maltreatment
4 Recognise limitations of own knowledge and experience and seek appropriate expert advice
4 Urgently consult immediate senior in surgery to enable referral to paediatricians
4 Keep appropriate written documentation relating to child protection matters
4 Communicate effectively with those involved with child protection, including children and their families
4 History and examination of the neonatal surgical patient
4 History and examination of paediatric surgical patient
4 Assessment of respiratory and cardiovascular status
4 Undertake consent for surgical procedures (appropriate to the level of training) in paediatric patients
Emergency - Trauma
Intra-abdominal injuries especially splenic, hepatic and pancreatic injuries

Knowledge

3 Anatomy of abdomen
3 Pathogenesis/Pathophysiology and Clinical features of shock
1 Differences in Children
2 Principles of management of severely injured patients
3 Importance of mechanism of injury and possible consequences, e.g. FFH, stabbing, seat belt injuries
3 Indications for use of uncross matched blood
3 Coagulopathy
3 Pathophysiology of peritonitis and sepsis

Clinical skills

4 Resuscitation
4 History and examination
4 Investigation
3 Appropriate use of ultrasound and CT for assessment of abdominal injury
2 Indications for intervention in abdominal injury
2 Recognition of injuries requiring management by other specialities
2 Management of hollow organ injury

Technical skills

3 Diagnostic peritoneal lavage
2 Laparotomy/Laparoscopy
4 Central venous line insertion
1 Liver trauma-debridement/packing
1 Pancreatectomy-distal
2 Splenectomy
1 Splenic repair
3 Chest drain incision
Emergency - Other
Superficial sepsis, including necrotising infections

Knowledge

Infected sebaceous cyst/carbuncle:
3 Natural history
3 Bacteriology
3 Medical conditions associated

Superficial abscess:
4 Aetiology
4 Natural history
4 Bacteriology

Cellulitis:
3 Aetiology
3 Medical conditions associated
3 Immuno-compromised patients
4 Bacteriology
4 Antibiotic therapy

Infected ingrown toenail/paronychia:
4 Aetiology
4 Bacteriology
4 Atherosclerosis
4 Diabetes

Gas Gangrene/ necrotising fasciitis
3 Natural history of condition
3 Vulnerable individuals
3 Physiology of associated conditions; diabetes, atherosclerosis, steroid therapy, immunocompromised etc
3 Knowledge of bacteriology and toxins involved
3 Mechanisms of septic shock
3 Massive blood transfusion complications
3 Knowledge of appropriate antibiotic therapy
2 Knowledge of necrotising fasciitis

Clinical skills

Infected sebaceous cyst/carbuncle:
4 History and examination
3 Medical management of Diabetes peri-operatively

Superficial abscess:
4 History and examination

Cellulitis:
4 History + examination and IV Therapy

Infected ingrown toenail/paronychia:
4 History + examination

Gas Gangrene/ necrotising fasciitis
4 History and examination
2 Recognition of the early warning signs
1 Radical excisional surgery
**Technical skills**

**Infected sebaceous cyst/carbuncle:**
4 Abscess- drainage (not breast/anal/abdominal)
4 Benign skin or subcutaneous lesion-excision biopsy

**Superficial abscess:**
4 Abscess-drainage (not breast/anal/abdominal)

**Infected ingrown toenail/paronychia:**
4 In growing toenail-avulsion/wedge Resection/phenolisation

**Gas Gangrene/ necrotising fasciitis**
1 Fournier’s gangrene/necrotising fasciitis debridement
Assessment of the acute abdomen, Acute appendicitis, Peritonitis

Knowledge

3 Pathophysiology of shock
4 Pathophysiology and management of peritonitis, intraperitoneal sepsis, generalised sepsis and septicemic shock
4 Anatomy of abdomen and pelvis
3 Aetiology and Differential diagnosis of the acute abdomen
4 Natural history of appendicitis
4 Pathophysiology of appendicitis
4 Conditions which do not require surgery

Clinical skills

4 History taking, examination and investigation pertinent to acute abdomen
4 Recognition of severity of illness
4 Resuscitation including antibiotics, invasive monitoring
3 Recognition of indication for surgery
2 Ability to perform emergency laparotomy/laparoscopy
4 Post-operative management
4 Treat symptoms
3 Timing of intervention
2 Recognition of success/failure of nonoperative treatment
2 Recognition and management of complications

Technical skills

3 Central venous line insertion
2 Laparotomy/laparoscopy
3 Appendicectomy
2 Gastro/duodenum-perforated PU closure
1 Hartmann’s procedure
1 Sigmoid colectomy
Acute presentation of gynaecological disease

Knowledge

Pelvic inflammatory disease/endometriosis/salpingitis:
4 Anatomy and physiology of Pelvic organs
2 Infective intra abdominal conditions
1 Appropriate management of likely conditions / Antibiotic treatment / referral pathway

Obstruction secondary to ovarian carcinoma:
4 Anatomy and physiology of pelvic organs
2 Understand investigation of the obstructed colon
2 Understand modern management of ovarian carcinoma

Intra abdominal haemorrhage due to ruptured ovarian cyst or ectopic pregnancy:
4 Anatomy and physiology of pelvic organs
1 Management of abnormality discovered

Iatrogenic injury:
4 Anatomy and physiology of abdominal organs

Clinical skills

Pelvic inflammatory disease/endometriosis/salpingitis:
4 Assessment of acute abdomen - history and examination
2 Organise pelvic ultrasound /pregnancy test /CT/tumour markers
1 Ability to perform diagnostic laparoscopy and/or laparotomy

Obstruction secondary to ovarian carcinoma:
4 Assessment of Acute abdomen - History and examination
2 Non-operative management
2 Perform emergency laparotomy

Intra abdominal haemorrhage due to ruptured ovarian cyst or ectopic pregnancy:
4 Assessment of Acute abdomen - History and examination
2 Organise pelvic ultrasound /Pregnancy test

Iatrogenic injury:
2 Recognition of nature and extent of injury
General – Elective
Lesions of the skin and subcutaneous tissues

Knowledge

Diagnosis of benign lesions of skin and subcutaneous tissues:
4 Anatomy and histology of skin and subcutaneous tissues
3 Pathology of common lesions, such as naevi, sebaceous cysts, vitiligo, Campbell de Morgan spots, basal cell papillomas

Treatment of benign lesions of skin and subcutaneous tissues:
4 Techniques of local anaesthesia
4 Knowledge of non-surgical treatments

Clinical skills

Diagnosis of benign lesions of skin and subcutaneous tissues:
4 Examination techniques
3 Ability to identify those lesions requiring treatment, either surgical or by dermatologist

Treatment of benign lesions of skin and subcutaneous tissues:
4 Local anaesthetic techniques

Technical Skills

Treatment of benign lesions of skin and subcutaneous tissues:
4 Benign skin or subcutaneous lesion-excision biopsy
3 Malignant lesion – excision biopsy
Outpatient skills

Knowledge

2 Relevant anatomy, physiology and clinical knowledge for the system involved

Clinical skills

3 Focused history taking and examination
2 Organise appropriate investigations

Technical skills

3 Sigmoidoscopy-rigid
3 Haemorrhoids-day case treatment (injection, banding or infrared coagulation)
Elective hernia

Knowledge

3 Anatomy of inguinal region including inguinal canal, femoral canal, abdominal wall and related structures e.g. adjacent retroperitoneum and soft tissues
3 Relationship of structure to function of anatomical structures
3 Natural history of abdominal wall hernia including presentation, course and possible complications
3 Treatment options
3 Current methods of operative repair including open mesh, laparoscopic mesh and posterior wall plication, to include the underlying principles, operative steps, risks, benefits, complications and process of each

Clinical skills

4 Diagnose and assess a patient presenting with abdominal wall hernia, including inguinal, femoral, epigastric, umbilical, paraumbilical and incisional hernias
3 Supervise the post-operative course in hospital and on follow-up

Technical skills

2 Hernia repair-epigastric
2 Hernia repair-femoral
2 Hernia repair-incisional
1 Hernia repair-incisional recurrent
3 Hernia repair-inguinal
1 Hernia repair-inguinal recurrent
2 Hernia repair-umbilical/paraumbilical
Conditions affecting the scrotum

Knowledge

Torsion of the testicle:
4 Anatomy of the scrotum and testicle
4 Pathophysiology of torsion
4 Differential diagnosis

Hydrocele:
4 Anatomy of the scrotum and testicle
4 Pathophysiology of hydrocele
4 Differential diagnosis

Epididymal cysts:
4 Anatomy and embryology of the scrotum and testicle
3 Pathophysiology of degenerative conditions of the scrotum
4 Differential diagnosis
4 Complications of surgery for epididymal cyst

Undescended testicle in the adult:
4 Anatomy and embryology of the scrotum and testicle
4 Pathophysiology of undescended testicle
4 Differential diagnosis
4 Indications for specialist consultation

Tumours of the testicle:
4 Anatomy of the scrotum and testicle
4 Pathophysiology of common tumours of the testicle
4 Differential diagnosis

Epididymo-orchitis:
4 Anatomy of the scrotum and testicle
4 Aetiology of epididymo-orchitis
4 Pathophysiology of local infection
4 Differential diagnosis

Clinical skills

Torsion of the testicle:
4 History and physical signs
3 Investigation
4 Treatment including surgery

Hydrocele:
4 Elicit appropriate history and physical signs
4 Management including conservative treatment or drainage where appropriate

Epididymal cysts:
4 History and physical signs
4 Arrange investigation if necessary
4 Management including surgery if indicated

Undescended testicle in the adult:
4 History and physical signs
3 Arrange investigations if necessary
3 Management including surgery
Tumours of the testicle:
4 History and physical signs
3 Arrange investigations
4 Refer to specialist once diagnosis made

Epididymo-orchitis:
4 History and physical signs
4 Arrange investigations
3 Treatment including referral to specialist if appropriate

Technical skills

Torsion of the testicle:
4 Testis-orchidopexy
4 Testis-orchidectomy

Hydrocoele:
4 Testis-hydrocoele repair

Epididymal cysts:
3 Testis-epididymal cyst excision

Undescended testicle in the adult:
3 Testis-orchidopexy
4 Testis-orchidectomy
Bladder and urethra

Knowledge

Urethral stricture:
3 Causes and natural history of urethral stricture
3 Treatment options of urethral stricture

Urinary retention:
4 Pathophysiology of bladder outlet obstruction, including prostatism, stone disease and conditions of the urethral stricture

Clinical skills

Urethral stricture:
4 Recognition of the condition before or during instrumentation

Urinary retention:
3 Diagnose retention and categorise into acute or chronic
4 Appropriate techniques for the relief of urinary retention, including urethral and suprapubic catheterisation
4 Appropriate history, Examination
4 Urethral catheterisation

Technical skills

Urethral stricture:
4 suprapubic catheter insertion
3 catheterisation under direct vision

Urinary retention:
4 suprapublic catheter insertion
3 catheterisation under direct vision
Male genital tract

Knowledge

Conditions affecting the adult foreskin:
4 Anatomy and embryology of the foreskin
4 Knowledge of conditions affecting the foreskin (Balanitis Xerotica Obliterans, Congenital Phimosis, Carcinoma of the Penis)
3 Complications of the condition and treatment

Male sterilisation:
3 Anatomy and embryology of the scrotum and testicle
3 Pathophysiology spermatogenesis and male and female reproduction
3 Male and female sterilisation techniques
3 Complications of sterilisation

Clinical Skills

Conditions affecting the adult foreskin:
4 Appropriate history and examination
3 Management including treatment
3 Recognise cancer of the penis

Male sterilisation:
4 Appropriate history and examination
4 Management of complications

Technical skills

Conditions affecting the adult foreskin:
4 Circumcision – adult

(Male sterilisation)
(4 Vasectomy)
Urinary tract

Knowledge

Urinary tract calculi:
3 Pathophysiology of nephro-uretero lithiasis.
4 Presentation and clinical course of condition
2 Management options
3 Complications of urinary tract calculi

Urinary tract infection:
4 Causes and pathophysiology of urinary tract infections, including the complications
4 Presentation of urinary tract infection
3 Antibiotics and their relevant pharmacology
3 Indications for further investigation of urinary tract infection

Clinical skills

Urinary tract calculi:
4 Diagnosis of possible urinary tract calculi
3 Investigation of possible urinary tract calculi
4 Emergency treatment of uncomplicated urinary tract calculi
4 Detection of severe complications such as obstructed kidney, renal failure, perinephric abscess

Urinary tract infection:
4 Diagnosis of urinary tract infection
4 Management of uncomplicated urinary tract infection
Colorectal
Colorectal neoplasia

Knowledge

Epidemiology of colorectal cancer and polyps:
4 Epidemiology of colorectal cancer and polyps including incidence and prevalence, influence of socio-economic, racial and geographic factors

Aetiology:
Aetiological factors in colorectal neoplasia:
4 Diet: fat, fibre, calcium, selenium, vitamins (antioxidants), dietary inhibitors, alcohol and smoking, prostaglandin inhibitors
4 Adenoma-carcinoma sequence: evidence, categorise adenomas into low risk, intermediate and high risk and discuss screening procedures, significance of metaplastic polyps
4 Susceptibility to colorectal cancer (CRC): family history, Personal Past History (CRC, Polyps, Other Cancers), groups at risk
3 Hereditary nonpolyposis colorectal cancer (HNPCC): clinical features
4 Familial adenomatous polyposis: clinical definition, extracolonic lesions, cancer risk

Colorectal cancer screening - Current screening strategies for the following:
4 The general population
4 Persons at moderate risk
4 Persons at high risk

Clinical presentation:
4 Distribution of CRC within the colon

Staging and prognostic factors:
4 Current staging systems (Dukes, TNM)
4 Clinical prognostic factors: age, mode of presentation, clinical stage, blood transfusion
4 Histological/biochemical features: histological grade, mucin secretion, signet-cell histology, venous invasion
2 The significance of extent of disease including patterns of spread: direct continuity, intramural, transmural, distal margins, circumferential margins, transperitoneal, lymphatic, haematogenous implantation

Management of colon cancer:
3 The indications and contraindications for surgical treatment
4 Pre- and post-operative care
3 Operative technique
3 Outcomes and complications of colon cancer

The detection and treatment of recurrent and metachronous colon:
4 Patterns of recurrence
4 Risks and detection of metachronous lesions

Anal neoplasia:
4 Anatomical, aetiology, and epidemiologic features: The significance of the anatomical distinction between the anal margin and the anal canal tumours
4 Anatomical, aetiology, and epidemiologic features: The differential lymphatic drainage of the anal canal and margin
4 The histological transition of the anal canal

Clinical skills

Clinical presentation:
4 Recognise the clinical signs and symptoms of patients presenting with colorectal cancer

**The detection and treatment of recurrent and metachronous colon:**
4 Methods for detection of recurrence: CEA, colonoscopy, imaging
4 Palliative care

**Miscellaneous malignant lesions of the colon and rectum:**
3 Recognise the clinical presentation, assess prognostic factors, and manage carcinoid – ileal, appendiceal, carcinoid syndrome
Benign anorectal

Knowledge

Haemorrhoids:
4 Aetiology of internal and eternal haemorrhoids
4 Anatomical distinctions between internal and external haemorrhoids
4 Classifications for internal haemorrhoids
2 Modifications of therapy with: Inflammatory bowel disease (IBD), Pregnancy, HIV, Coagulopathies

Anal fissure:
3 Aetiology of anal fissure
4 Anatomical location of a classic anal fissure

Abscess and fistula:
4 The origin of cryptoglandular abscess and fistula
4 Classification of anorectal cryptoglandular abscess-based on anatomical spaces
4 Parks classification of anal fistula
4 The natural history of surgically-treated anal abscess, including the risk of fistula formation
2 Operative strategy for anal fistula based on sphincter involvement/location
3 Complications resulting from abscess/fistula surgery: recurrence, incontinence

Pilonidal disease:
4 Pathophysiology of pilonidal disease

Anal stenosis:
4 Aetiology

Pruritus ani:
4 Aetiology and clinical presentation of pruritus ani

Sexually transmitted diseases:
4 Aetiology of condylomata acuminata

Clinical skills

Haemorrhoids:
4 Assessment of the signs and symptoms of the following: thrombosed external haemorrhoids, internal haemorrhoids by stage, skin tags
3 Management of haemorrhoids including the indications and contraindications for: rubber band ligation, injection sclerotherapy, infrared coagulation, operative haemorrhoidectomy
4 Perform two of the endoscopic techniques
3 Manage the complications resulting from endoscopic management: bleeding, pain, sepsis

Anal fissure:
4 Assessment of the signs and symptoms of anal fissure
3 Nonoperative management of anal fissure, including indications, contraindications, and complications of stool modifications/softeners, topical anaesthetics, topical pharmacology
3 Indications, contraindications, and complications of lateral internal sphincterotomy, anal stretch

Abscess and fistula:
4 Differentiate cryptoglandular abscess and fistula from other causes
3 Assessment of abscess/fistula by techniques designed to elucidate pathological anatomy: Goodsell's rule and digital examination
4 Management of anorectal abscess including pre-operative and post-operative care and the appropriate procedure based on anatomical spaces
4 Modify therapy for: Fournier's gangrene, necrotising fasciitis
3 Assess rectovaginal fistula in terms of aetiology and location

**Hidradenitis suppurativa:**
4 Assess the symptoms and signs of hidradenitis suppurativa

**Pilonidal disease:**
4 Assess the symptoms and signs of pilonidal disease: abscess, sinus
4 Perform surgical management of pilonidal disease

**Pruritus ani:**
4 Medical and surgical management of pruritus ani with attention to: hygiene, diet, anatomical (obesity, deep anal cleft), coexisting anal pathology, systemic disease, gynaecologic-associated, infections, post antibiotic syndrome, contact dermatitis, dermatology, radiation, neoplasm, idiopathic pruritus ani

**Sexually transmitted diseases:**
4 Diagnosis of condylomata acuminata
4 Medical (topical chemicals) and surgical treatment options for condylomata acuminata

**Technical skills**

**Haemorrhoids:**
3 Haemorrhoids-endoscopic treatment (injection, banding or infrared coagulation)
1 Haemorrhoidectomy-operative

**Abscess and fistula:**
3 Abscess-drainage through perineal region

**Pilonidal disease:**
4 Pilonidal sinus-lay open
3 Pilonidal sinus-excision+ suture

**Sexually transmitted diseases:**
4 Anal skin tags/warts-excision
Upper GI
Perforated peptic ulcer

Knowledge

Diagnosis and pre-operative management:
3 Anatomy of abdominal wall and intra abdominal organs
3 Patho-physiology of ulcer development and management
4 Management of Shock
4 ASA Grade of patient
3 Treatment of underlying process

Operative management:
3 Other pathologies found in upper abdomen
3 Knowledge of types and positions of perforation

Post-operative management:
3 Post-operative complications

Clinical skills

Diagnosis and pre-operative management:
4 Assessment of acute abdomen
4 History and examination
4 Recognise from history and examination likely differential diagnosis
4 Identify appropriate investigations
4 Resuscitation

Operative management:
3 Recognise position of perforation

Post-operative management:
4 Post-operative pain management
3 Recognition of complications

Technical skills

Diagnosis and pre-operative management:
4 Central venous line insertion

Operative management:
3 Gastro/duodenum-perforated PU closure
Hepatopancreatobiliary
Acute gallstone disease

**Knowledge**

2 Anatomy
2 Pathophysiology
2 Microbiology
2 Complications
2 Post-operative problems

**Clinical skills**

4 History & examination
4 Investigation
4 Resuscitation
2 Decision making re conservative v. surgical treatment and early v. delayed operation
2 Non-operative treatment including ERCP, cholecystostomy
2 Operative options
3 Post-operative management

**Technical skills**

1 Cholecystectomy
1 Biliary-CBD-exploration
1 Cholecystostomy
Vascular
Venous disease

Knowledge

4 Aetiology
4 Anatomy of the venous system
4 Indications for surgery for varicose veins
4 Complications of varicose veins

Clinical skills

4 Examination of the venous system of the lower limbs
3 Select patients who require pre-operative investigations such as Duplex scanning
4 Select patients who require surgery
4 Non-operative management

Technical skills

2 Varicose veins - primary varicose veins
2 Vvs-long saphenous-SFJ lign+/strip+/- avulsions
2 Vvs-SPJ ligation+/strip+/-avulsions
4 Vvs-multiple stab avulsions
Plastic Surgery
**Burns**

**Knowledge**

3 Pathophysiology of burn injury  
3 Complications of burn injury

**Clinical Skills**

3 Assessment and resuscitation of burn victims  
3 Identification of burn victims with potential airway problems and emergency management in conjunction with anaesthetists  
3 Appropriate referral and transfer to regional burns centre  
3 Management of minor burns conservatively or by split skin graft.

**Technical Skills**

3 Skin graft
**ENT Emergencies**

*Knowledge*

2 Anatomy of the nose, external auditory canal and pharynx
2 Presentation and complications of foreign bodies in nose, auditory canal and pharynx

*Clinical Skills*

3 Examination of the ear, nose and throat
3 Removal of foreign bodies from external auditory canal and nose
3 Removal of fish bones etc. from the pharynx
3 Packing of noses - anterior and posterior
3 Treatment of epistaxis
Ophthalmology
Ophtalmic emergencies

**Knowledge**

2 Anatomy of the eye  
2 Causes and presentation of foreign bodies in the eye  
2 Cause and presentation of dendritic ulcer  
2 Causes of flash burns to the eye  
2 Common eye infection, their presentation and complications  
2 Other causes of red eye, including glaucoma

**Clinical Skills**

3 Examination of the eye  
3 Removal of foreign bodies from cornea  
3 Diagnosis and management of dendritic ulcer  
3 Diagnosis and management of flash burns  
3 Diagnosis and management of common eye infections  
3 Slit lamp examination  
3 Tonometry
Neurosurgery
Head Injury

Knowledge
2 Anatomy of skull, brain and meninges
2 Pathophysiology of head injury
3 Appropriate emergency investigation of head injuries
3 Indications for surgical intervention in extreme circumstances after discussion with regional neurosurgical centre

Clinical Skills
3 Assessment and resuscitation of head injuries

Technical Skills
2 Burr hole(s)/craniotomy
Paediatric Surgery
Abdominal Pain

Knowledge

- Pattern of symptoms and relation to likely pathology and age of child
- Differential diagnosis
- Place and value of investigations
- Place of operative intervention, and associated outcomes

Clinical Skills

- Ability to assess ill child
- Ability to form a viable investigation and treatment plan

Technical Skills

- Appendicectomy
- Laparotomy/laparoscopy
Child with groin condition

Knowledge

Undescended testis
1 Developmental anatomy
1 Natural history of undescended testis and retractile testis
1 Place of conservative management
1 Indications for and outcomes of surgery

Penile inflammatory conditions
1 Developmental anatomy
1 Natural history
1 Place of conservative management
1 Indications for and outcomes of surgery

Inguinal Hernia
1 Developmental anatomy
1 Natural history
1 Indications for and outcomes of surgery

Hydrocele
1 Developmental anatomy
1 Natural History
1 Place of conservative management
1 Indications for and outcomes of surgery

Acute scrotum
1 Natural history
1 Place of conservative management
1 Indications for and outcomes of surgery

Clinical Skills

Undescended testis
1 Ability to assess child and reach appropriate diagnosis
1 Ability to form a treatment plan
1 Ability to differentiate true undescended testis from retractile variant

Penile inflammatory conditions
1 Ability to assess child and reach appropriate diagnosis
1 Ability to form a treatment plan

Inguinal Hernia
1 Ability to assess child and reach appropriate diagnosis
1 Ability to form a treatment plan

Hydrocele
1 Ability to assess child and reach appropriate diagnosis
1 Ability to form a treatment plan

Acute scrotum
1 Ability to access child and reach appropriate diagnosis
1 Ability to form a treatment plan


**Technical Skills**

**Undescended testis**
1 Orchidopexy

**Penile inflammatory conditions**
1 Circumcision

**Inguinal hernia**
1 Inguinal hernia (not neonatal) operation

**Hydrocele**
1 Hydrocele operation

**Acute scrotum**
1 Inguinal hernia (not neonatal) operation
1 Hydrocele operation
1 Operation for testicular torsion
Intussusception

Knowledge

1 Pattern of symptoms and relation to likely pathology and age of child
1 Role of radiology both for diagnosis and interventional management
1 Differential diagnosis

Clinical Skills

1 Ability to assess child and recognise severity of illness
1 Ability to take appropriate resuscitative measures and form a viable investigation and treatment plan
1 Ability to communicate with all relevant groups
1 Reduction of intussusception
Urological Conditions

Knowledge

Haematuria
1 Pattern of symptoms and relation to likely pathology and age of child
1 Place and value of investigations
1 Differential diagnosis

Urinary Tract Infection
1 Pattern of symptoms and relation to likely pathology and age of child
1 Place and value of investigations
1 Differential diagnosis

Circumcision
1 Developmental anatomy of the foreskin
1 Natural history of the foreskin

Clinical Skills

Haematuria:
1 Ability to assess child
1 Ability to form a viable investigation and treatment plan
1 Ability to communicate with all relevant groups

Urinary Tract Infection:
1 Ability to assess child
1 Ability to form a viable investigation and treatment plan
1 Ability to communicate with all relevant groups

Circumcision
1 Ability to assess indications for circumcision

Technical Skills

Haematuria
1 Suprapubic catheter insertion

Circumcision
1 Circumcision
Abdominal Wall Conditions

Knowledge

Epigastric hernia:
1 Developmental anatomy
1 Natural history
1 Indications for and outcomes of surgery

Supra-umbilical hernia:
1 Developmental anatomy
1 Natural history to include contrast with umbilical hernia
1 Indications for and outcomes of surgery

Umbilical hernia:
1 Developmental anatomy
1 Natural history
1 Indications for and outcomes of surgery
1 Place of conservative management

Clinical Skills

Epigastric hernia:
1 Ability to assess child and reach appropriate diagnosis
1 Ability to form a treatment plan

Supra-umbilical hernia:
1 Ability to assess child and reach appropriate diagnosis
1 Ability to form a treatment plan

Umbilical hernia:
1 Ability to assess child and reach appropriate diagnosis
1 Ability to form a treatment plan

Technical Skills

Epigastric hernia:
1 Abdominal wall hernia operation

Supra-umbilical hernia:
1 Abdominal wall hernia operation

Umbilical hernia:
1 Abdominal wall hernia operation
Child with Vomiting

Knowledge
1 Patterns of symptoms and relation to likely pathology
1 Significance of bile stained vomiting
1 Place and value of investigations
1 Differential diagnosis
1 Methods of medical management
1 Place of operative intervention, and associated outcomes

Clinical Skills
1 Ability to assess ill child including an assessment of severity of dehydration
1 Ability to form a viable investigation and treatment plan

Technical Skills
1 Pyloromyotomy
**Constipation**

**Knowledge**
1. Pattern of symptoms and relation to likely pathology and age of child
2. Place and value of investigations
3. Differential diagnosis to include medical anomalies and socio-psychological aspects of symptom

**Clinical Skills**
1. Ability to assess child
2. Ability to form a viable investigation and treatment plan
3. To include community aspects of further management

**Technical Skills**
1. Manual evacuation
Head and Neck Swellings

Knowledge

1 Pattern of symptoms and relation to likely pathology and age of child
1 Place and value of investigations
1 Differential diagnosis
1 Relevance of embryonic development of head and neck structures

Clinical Skills

1 Ability to assess child
1 Ability to form a viable investigation and treatment plan

Technical Skills

1 Lymph node biopsy
Trauma

Knowledge

1 Algorithms for assessment of trauma victims - primary survey
1 Algorithms for assessment of trauma victims - secondary survey
1 Likely effects of different types of trauma and relation to age of child
1 Investigation protocols and local variations thereof
1 Awareness of NAI and local procedures for dealing with this category of trauma

Clinical Skills

1 Ability to appropriately assess trauma cases and carry out resuscitative measures
1 Ability to prioritise interventions
1 Ability to act as part of a team or lead team as appropriate
1 PALS course

Technical Skills

1 Chest drain insertion
1 Central venous line insertion
1 Suprapubic catheter insertion
Miscellaneous Paediatric Conditions

Knowledge

Superficial Abscess
1 Causes of superficial abscess in children
1 Anatomy of underlying structures
1 Predisposing conditions

Ingrowing Toenail
1 Causes of ingrowing toenail
1 Anatomy of nail and nail bed
1 Treatment options available

Clinical Skills

Superficial Abscess
1 History and examination
1 Recognition of the need for other investigation
1 Recognition of need for drainage or antibiotics

Ingrowing Toenail
1 History and examination
1 Recognition of need for operative treatment

Technical Skills

Superficial Abscess
1 Abscess drainage

Ingrowing Toenail
1 Ingrowing toenail operation
Professional Behaviour and Leadership
Good clinical care

Patient assessment
- Obtains, records and presents accurate clinical history and physical examination relevant to the clinical presentation, including an indication of patient's views
- Uses and interprets findings adjuncts to basic examination appropriately e.g. internal examination, blood pressure measurement, pulse oximetry, peak flow
- Responds honestly and promptly to patient questions
- Knows when to refer for senior help
- Is respectful to patients by
  - Introducing self clearly to patients and indicates own place in team
  - Checks that patients comfortable and willing to be seen
  - Informs patients about elements of examination and any procedures that the patient will undergo

Clinical reasoning
- In a straightforward clinical case develops a provisional diagnosis and a differential diagnosis on the basis of the clinical evidence, institutes an appropriate investigative and therapeutic plan, seeks appropriate support from others and takes account of the patients wishes

Record keeping
- Is able to format notes in a logical way and writes legibly
- Able to write timely, comprehensive, informative letters to patients and to GPs

Time management
- Works systematically through tasks and attempts to prioritise
- Discusses the relative importance of tasks with more senior colleagues.
- Understands importance of communicating progress with other team members

Patient safety
- Participates in clinical governance processes
- Respects and follows local protocols and guidelines
- Takes direction from the team members on patient safety
- Discusses risks of treatments with patients and is able to help patients make decisions about their treatment
- Ensures the safe use of equipment
- Acts promptly when patient condition deteriorates
- Always escalates concerns promptly

Infection control
- Performs simple clinical procedures whilst maintaining full aseptic precautions
- Follows local infection control protocols
- Explains infection control protocols to students and to patients and their relatives
- Aware of the risks of nosocomial infections.
**Being a good communicator**

- Conducts a simple consultation with due empathy and sensitivity and writes accurate records thereof
- Recognises when bad news must be imparted.
- Able to break bad news in planned settings following preparatory discussion with seniors
- Accepts his/her role in the healthcare team and communicates appropriately with all relevant members thereof
Teaching and Training

• Prepares appropriate materials to support teaching episodes
• Seeks and interprets simple feedback following teaching
• Supervises a medical student, nurse or colleague through a simple procedure
• Plans, develops and delivers small group teaching to medical students, nurses or colleagues
Keeping up to date and understanding how to analyse information

- Defines ethical research
- Differentiates audit and research and understands the different types of research approach e.g. qualitative and quantitative
- Knows how to use literature databases
- Demonstrates good presentation and writing skills
- Participates in departmental or other local journal club
- Critically reviews an article to identify the level of evidence
- Attends departmental audit meetings
- Contributes data to a local or national audit
- Identifies a problem and develops standards for a local audit
- Describes the audit cycle and take an audit through the first steps
- Seeks feedback on performance from clinical supervisor/mentor/patients/carers/service users
Manager

Self awareness and self management
- Obtains 360° feedback as part of an assessment
- Participates in peer learning and explores leadership styles and preferences
- Timely completion of written clinical notes
- Through feedback discusses and reflects on how a personally emotional situation affected communication with another person
- Learns from a session on time management

Team working
- Works well within the multidisciplinary team and recognises when assistance is required from the relevant team member
- Invites and encourages feedback from patients
- Demonstrates awareness of own contribution to patient safety within a team and is able to outline the roles of other team members.
- Keeps records up-to-date and legible and relevant to the safe progress of the patient
- Hands over care in a precise, timely and effective manner
- Supervises the process of finalising and submitting operating lists to the theatre suite

Leadership
- Complies with clinical governance requirements of organisation
- Presents information to clinical and service managers (eg audit)
- Contributes to discussions relating to relevant issues e.g. workload, cover arrangements using clear and concise evidence and information

Quality and safety improvement
- Understands that clinical governance is the overarching framework that unites a range of quality improvement activities
- Participates in local governance processes
- Maintains personal portfolio
- Engages in clinical audit
- Questions current systems and processes

Management and NHS Structures
- Participates in audit to improve a clinical service
- Works within corporate governance structures
- Demonstrates ability to manage others by teaching and mentoring juniors, medical students and others, delegating work effectively,
- Highlights areas of potential waste
Promoting good health

- Understands that “quality of life” is an important goal of care and that this may have different meanings for each patient
- Promotes patient self care and independence
- Helps the patient to develop an active understanding of their condition and how they can be involved in self management
- Discusses with patients those factors which could influence their health
Probity and Ethics

• Reports and rectifies an error if it occurs
• Participates in significant event audits
• Participates in ethics discussions and forums
• Apologises to patient for any failure as soon as an error is recognised
• Understands and describes the local complaints procedure
• Recognises need for honesty in management of complaints
• Learns from errors
• Respect patients’ confidentiality and their autonomy
• Understand the Data Protection Act and Freedom of Information Act
• Consult appropriately, including the patient, before sharing patient information
• Participate in decisions about resuscitation status, withholding or withdrawing treatment
• Obtains consent for interventions that he/she is competent to undertake
• Knows the limits of their own professional capabilities
HST 1 AND 2

Overview of initial HST training

The skills obtained in these 2 years can overlap with those of the BST years. They are meant for the trainee to obtain as much exposure in as many different specialities as possible to increase the repertoire of surgical techniques and knowledge. The emphasis is on Elective and Emergency General Surgery with exposure to the breadth of the special interest areas in General Surgery. Some of the skills mentioned in this section might be obtained in the BST years depending on the rotation.
General – Elective
Lesions of the skin and subcutaneous tissues

Knowledge

Basal cell carcinoma:
4 Anatomy
4 Histopathology
4 Natural history

Malignant melanoma:
4 Anatomy
4 Histopathology
4 Natural history
3 Staging

Squamous cell carcinoma:
4 Anatomy
4 Histopathology
3 Natural history of malignant transformation in chronic ulcers

Clinical skills

Basal cell carcinoma:
3 Assess skin lesion
4 Biopsy of large skin lesions to plan treatment
2 Closure of large defects after excision by split skin grafts, full thickness grafts, flap closure

Malignant melanoma:
2 Assess skin lesion
2 Indications for wider excision, lymph node biopsy, axillary or groin block dissection based on staging

Squamous cell carcinoma:
3 Assess skin lesion including incisional biopsy

Technical Skills

Basal cell carcinoma:
4 Malignant skin lesion-excision biopsy SCC/BCC

Malignant melanoma:
3 Malignant skin lesion-treatment of melanoma

Squamous cell carcinoma:
4 Malignant skin lesion-excision biopsy SCC/BCC
**Abdominal wall**

*Knowledge*

**Diagnosis:**
4 Knowledge of the anatomy of the abdominal wall  
4 Pathology of the acute and chronic conditions; Haematoma, Sarcoma, Desmoid Tumours

**Treatment:**
4 Principles of management of desmoid tumours and sarcomas

*Clinical skills*

**Diagnosis:**
3 Ability to determine that a swelling is in the abdominal wall  
3 Initiate appropriate investigation

**Treatment:**
3 Conservative management of haematoma
Conditions affecting the reticulo-endothelial + haemopoetic systems

Knowledge

Lymphatic conditions:
3 Non Hodgkin's Lymphoma
3 Lymphadenopathy
3 Hodgkin's disease
2 Staging classifications

Conditions involving the spleen:
3 Indications for elective splenectomy haemolytic anaemia, ITP, Thrombocytopenia, myeloproliferative disorders
4 Indications for emergency splenectomy
3 Sequelae of splenectomy
2 Splenic conditions
3 Thrombophilia

Clinical skills

Lymphatic conditions:
3 Planning appropriate diagnostic tests

Conditions involving the spleen:
2 Planning appropriate treatment schedule in consultation with haematologist

Technical skills

Lymphatic conditions:
4 Biopsy-FNA
2 Liver biopsy
3 Lymph node biopsy-groin, axilla

Conditions involving the spleen:
2 Splenectomy
Venous thrombosis + embolism

Knowledge

Coagulation:
4 Clotting mechanism (Virchow Triad)
4 Effect of surgery and trauma on coagulation
4 Tests for thrombophilia and other disorders of coagulation

Diagnosis:
3 Methods of investigation for suspected thromboembolic disease

Treatment:
4 Anticoagulation, heparin and warfarin
3 Role of V/Q scanning, CT angiography and thrombolysis
3 Place of pulmonary embolectomy

Prophylaxis:
4 Detailed knowledge of methods of prevention, mechanical and pharmacological

Clinical skills

Coagulation:
3 Recognition of patients at risk

Diagnosis:
3 Awareness of symptoms and signs associated with pulmonary embolism and DVT
3 Role of duplex scanning, venography and d-dimer measurement

Treatment:
3 Initiate and monitor treatment

Prophylaxis:
3 Awareness at all times of the importance of prophylaxis
Genetic aspects of surgical disease

Knowledge

Endocrine:
2 Principal genetically influenced endocrine diseases and syndromes, MEN I, MEN II, Thyroid, Parathyroid, Pancreas and adrenal

Colorectal:
2 Outline knowledge of genetic changes which predispose to colorectal cancer including familial adenomatous polyposis, HNPCC and other polyposis syndromes

Breast:
2 Outline knowledge of genetic changes which predispose to breast cancer; BRCA1, BRCA2, P53

Upper GI/HPB:
2 Principal genetically influenced upper gastrointestinal diseases and syndromes, including Duodenal polyposis, familial gastric cancer, Peutz-Jeger syndrome and polycystic disease of the liver

Clinical and molecular genetics:
2 Modes of inheritance
2 Genetic Testing
2 Screening
2 Prophylactic intervention
2 Therapeutic intervention
2 Ethics
Oncology

Knowledge

Cancer epidemiology and presentations
2 Aetiology and epidemiology of malignant disease
2 Environmental and genetic factors in carcinogenesis
2 Evaluate risk factors for malignant disease
2 Terminology in epidemiology

Staging, prognosis and treatment planning
2 Prognosis and natural history of malignant disease
2 Mechanisms and patterns in local, regional and distant spread
2 Differences in course between hereditary and sporadic cancers
2 Diseases predisposing to cancer, e.g. inflammatory bowel disease
2 Prognostic/predictive factors
2 Genetics of hereditary malignant diseases

Cancer biology
2 Cancer biology: cell kinetics, proliferation, apoptosis, balance between normal cell death/proliferation; angiogenesis and lymphangiogenesis; genome maintenance mechanisms to prevent cancer; intercellular and intermolecular adhesion mechanisms and signalling pathways; potential effects of surgery and surgery-related events on cancer biology (e.g. angiogenesis)

Tumour immunology
2 Tumour immunology: cellular and humoral components of the immune system; regulatory mechanisms of immune system; tumour antigenicity; immune mediated antitumour cytotoxicity; effects of cytokines on tumours; effects of tumours on anti-tumour immune mechanisms; potential adverse effects of surgery, surgery-related events (e.g. blood transfusion) on immunologic responses

Basic principles of cancer treatments and their evaluation
2 Basic principles of cancer treatment: surgery; radiotherapy; chemotherapy; endocrine therapy; immunotherapy
3 Surgical pathology
2 Evaluation of response to treatment(s)
2 Adverse effects of treatment(s)
2 Interactions of other therapies with surgery
2 Ability to evaluate published clinical studies
2 Relevance of statistical methods; inclusion/exclusion criteria of study objectives; power of the study; intention to treat; number needed to treat; relative and absolute benefit; statistical versus clinical significance

Clinical skills

Cancer epidemiology and presentations
3 Recognise symptoms and signs of cancer
3 Initiate appropriate diagnostic and staging investigations for common solid tumours

Staging, prognosis and treatment planning
3 Perform prognostic assessment for patients with common solid tumours
2 Define the role of surgery for given common solid tumours
2 Participation in multi-disciplinary team discussion
3 Undertake adequate pre-operative work-up
3 Manage post-operative care
2 Decide on and perform adequate follow-up
2 Diagnose, score and treat side effects and complications of surgical treatment
2 Recognise common side effects of other treatment modalities
Basic principles of cancer treatments and their evaluation
2 The conduct of clinical studies
2 Design and implement a prospective database (part of audit skills)
2 Elementary principles in biostatistics and commonly used statistical methods (parametric versus non-parametric etc.)
2 Ethical and legal aspects of research
2 Present local audits; publication, Presentation of case reports

Technical skills

Staging, prognosis and treatment planning
3 Malignant skin lesion-excision biopsy
3 Malignant skin lesion-treatment of melanoma
3 Lymph node biopsy-groin, axilla
4 Central venous line insertion
2 Laparotomy/laparoscopy
ELECTIVE HERNIA

KNOWLEDGE

4 Anatomy of inguinal region including inguinal canal, femoral canal, abdominal wall and related structures e.g. adjacent retroperitoneum and soft tissues.
4 Relationship of structure to function of anatomical structures.
4 Natural history of abdominal wall hernia including presentation, course and possible complications.
4 Treatment options
4 Current methods of operative repair including open mesh, laparoscopic mesh and posterior wall plication, to include the underlying principles, operative steps, risks, benefits, complications and process of each

CLINICAL SKILLS

3 Diagnose and assess a patient presenting with abdominal wall hernia, including inguinal, femoral, epigastric, umbilical, paraumbilical, rare hernias such as obturator and Spigelian hernias and incisional hernias
3 Supervise the postoperative course in hospital and on follow-up

TECHNICAL SKILLS

3 Hernia repair-femoral
2 Hernia repair-incisional
2 Hernia repair-incisional recurrent
3 Hernia repair-inguinal
2 Hernia repair-inguinal recurrent
3 Hernia repair-umbilical/paraumbilical
3 Hernia repair-epigastric
NUTRITION

KNOWLEDGE

3 Effects of malnutrition, both excess and depletion
2 Methods of screening and assessment

CLINICAL SKILLS

2 Arrange access to suitable artificial nutritional support, preferably via a nutrition team
2 Dietary supplements
2 Enteral nutrition
2 Parenteral nutrition
OUTPATIENT SKILLS

KNOWLEDGE
4 Individual patient assessment: Relevant anatomy, physiology and clinical knowledge for the system involved
1 Organisation of outpatient service: Understanding of the administrative system of the hospital
2 Relevant guidelines for disease management

CLINICAL SKILLS
4 Individual patient assessment: Focused history taking and examination.
4 Organise appropriate investigations.
2 Management of an outpatient clinic: Ability to allocate patients to appropriate staff members
2 Ability to prioritise urgent patient investigations and operation
2 Organisation of outpatient service: Prioritisation of patient appointments

TECHNICAL SKILLS
3 Haemorrhoids-OP treatment(injection/banding or infrared coagulation)
LAPAROSCOPIC SURGERY

Knowledge

3 Physiology of pneumoperitoneum
3 Technology of video imaging, cameras and insufflator
3 Laparoscopic instruments, clips, staplers and port types
3 Use and dangers of diathermy
2 Management of equipment failure
2 Anaesthetic problems in laparoscopic surgery
3 Informed consent for laparoscopic procedures
2 Recognition and management of laparoscopic complications

Clinical Skills

2 Pre and postoperative management of laparoscopic cases
2 Port complications

Technical Skills

2 Closed and open techniques for port insertion
2 Diagnostic laparoscopy
2 Laparoscopic suturing and knotting
2 Control of laparoscopic bleeding
The basics of endoscopy

Knowledge

Equipment
3 Structure and function of an endoscope, processor and accessories, including diathermy

Consent
3 Medical and legal issues concerning consent and provision of information

Sedation and monitoring
4 Sedative and analgesic drugs and side-effects
4 Appropriate patient monitoring
4 Treatment of adverse effects

Proctoscopy
4 Indications for Proctoscopy
4 Complications of Proctoscopy

Rigid sigmoidoscopy
4 Indications for rigid sigmoidoscopy
4 Patient preparation and documentation

Gastroscopy
4 Indications for gastroscopy
4 Complications of gastroscopy
4 Patient preparation and documentation
4 Basic skills in Endoscopy course

Flexible sigmoidoscopy
4 Indications for flexible sigmoidoscopy
4 Complications of flexible sigmoidoscopy
4 Patient preparation and documentation
4 Basic Skills in Endoscopy course

Clinical skills

Equipment
3 Clean and disinfect equipment in accordance with BSG guidelines

Consent
4 Ability to consent a patient for endoscopy

Sedation and monitoring
4 Ability to safely and effectively sedate a patient for endoscopy
4 Monitor appropriately before, during and after procedure

Technical skills

Equipment
3 Use equipment in accordance with manufacturer's instructions

Proctoscopy
4 Proctoscopy
4 Haemorrhoids - OP treatment (injection, banding or infrared coagulation)

Rigid sigmoidoscopy
4 Sigmoidoscopy-rigid

Gastroscopy
2 Gastroscopy – diagnostic

Flexible sigmoidoscopy
2 Sigmoidoscopy - flexible
Emergency Surgery
Superficial sepsis, including necrotising infections

Knowledge

Infected sebaceous cyst/carbuncle:
4 Natural history
4 Bacteriology
4 Medical conditions associated

Superficial abscess:
4 Aetiology
4 Natural history
4 Bacteriology

Cellulitis:
4 Aetiology
4 Medical conditions associated
4 Immuno-compromised patients
4 Bacteriology
4 Antibiotic therapy

Infected ingrown toenail/paronychia:
4 Aetiology
4 Bacteriology
4 Atherosclerosis
4 Diabetes

Gas Gangrene/ necrotising fasciitis
4 Natural history of condition
4 Vulnerable individuals
4 Physiology of associated conditions; diabetes, atherosclerosis, steroid therapy, immunocompromised etc
3 Knowledge of bacteriology and toxins involved
4 Mechanisms of septic shock
4 Massive blood transfusion complications
4 Knowledge of appropriate antibiotic therapy
4 Knowledge of necrotising fasciitis

Clinical skills

Infected sebaceous cyst/carbuncle:
4 History and examination
4 Medical management of Diabetes peri-operatively

Superficial abscess:
4 History and examination

Cellulitis:
4 History + examination and IV Therapy

Infected ingrown toenail/paronychia:
4 History + examination

Gas Gangrene/ necrotising fasciitis
4 History and examination
4 Recognition of the early warning signs
2 Radical excisional surgery
**Technical skills**

**Infected sebaceous cyst/carbuncle:**
4 Abscess- drainage (not breast/anal/abdominal)
4 Benign skin or subcutaneous lesion-excision biopsy

**Superficial abscess:**
4 Abscess-drainage (not breast/anal/abdominal)

**Infected ingrown toenail/paronychia:**
4 In growing toenail-avulsion/wedge Resection/phenolisation

**Gas Gangrene/ necrotising fasciitis**
2 Fournier’s gangrene/necrotising fasciitis debridement
Assessment of the acute abdomen, Acute appendicitis, Peritonitis

Knowledge

3 Pathophysiology of shock
4 Pathophysiology and management of peritonitis, intraperitoneal sepsis, generalised sepsis and septic shock
4 Anatomy of abdomen and pelvis
4 Aetiology and Differential diagnosis of the acute abdomen
4 Natural history of appendicitis
4 Pathophysiology of appendicitis
4 Conditions which do not require surgery

Clinical skills

4 History taking, examination and investigation pertinent to acute abdomen
4 Recognition of severity of illness
4 Resuscitation including antibiotics, invasive monitoring
3 Recognition of indication for surgery
3 Ability to perform emergency laparotomy/laparoscopy
4 Post-operative management
4 Treat symptoms
4 Timing of intervention
3 Recognition of success/failure of nonoperative treatment
3 Recognition and management of complications

Technical skills

4 Central venous line insertion
3 Laparotomy/laparoscopy
4 Appendicectomy
3 Gastro/duodenum-perforated PU closure
2 Hartmann’s procedure
2 Sigmoid colectomy
Acute intestinal obstruction

**Knowledge**

- 4 Abdominal anatomy
- 3 Aetiology of intestinal obstruction
- 4 Pathophysiology of shock, sepsis
- 4 Differential diagnosis
- 3 Treatment options

**Clinical skills**

- 4 History and examination
- 4 Resuscitation
- 3 Investigation
- 3 Nutritional support
- 3 Ability to perform emergency laparotomy

**Technical skills**

- 4 Central venous line insertion
- 3 Laparotomy
- 3 Division of adhesions
- 2 incarcerated/ strangulated hernia
- 2 right hemicolectomy
- 2 left hemicolectomy
- 2 stoma
- 2 small bowel resection
Strangulated hernia

Knowledge

Strangulated inguinal/ femoral hernia:
3 Anatomy of inguinal region including inguinal canal, femoral canal, abdominal wall and related structures e.g. adjacent retroperitoneum and soft tissues
4 Pathophysiology of strangulated hernia
3 Post-operative complications of repair of strangulated hernia

Strangulated incisional/ internal hernia:
3 Anatomy of abdominal wall and related structures e.g. adjacent retroperitoneum and soft tissues
4 Pathophysiology of strangulated hernia
2 Post-operative complications of strangulated hernia

Clinical skills

Strangulated inguinal/ femoral/ incisional/ internal hernia:
4 History and examination to identify strangulated hernia
4 Resuscitation
3 Investigation of possible strangulated hernia
2 Operative strategy for strangulated hernia
2 Post-operative management

Technical skills

Strangulated inguinal/ femoral/ incisional internal hernia:
2 Small bowel resection
2 Hernia repair-inguinal/ femoral/ incisional/ internal hernia
Acute presentation of gynaecological disease

Knowledge

Pelvic inflammatory disease/endometriosis/salpingitis:
4 Anatomy and physiology of Pelvic organs
3 Infective intra abdominal conditions
3 Appropriate management of likely conditions / Antibiotic treatment / referral pathway

Obstruction secondary to ovarian carcinoma:
4 Anatomy and physiology of pelvic organs
3 Understand investigation of the obstructed colon
2 Understand modern management of ovarian carcinoma

Intra abdominal haemorrhage due to ruptured ovarian cyst or ectopic pregnancy:
4 Anatomy and physiology of pelvic organs
2 Management of abnormality discovered

Iatrogenic injury:
4 Anatomy and physiology of abdominal organs

Clinical skills

Pelvic inflammatory disease/endometriosis/salpingitis:
4 Assessment of acute abdomen - history and examination
3 Organise pelvic ultrasound / pregnancy test / CT/tumour markers
2 Ability to perform diagnostic laparoscopy and/or laparotomy

Obstruction secondary to ovarian carcinoma:
4 Assessment of Acute abdomen - History and examination
2 Non-operative management
2 Perform emergency laparotomy

Intra abdominal haemorrhage due to ruptured ovarian cyst or ectopic pregnancy:
4 Assessment of Acute abdomen - History and examination
3 Organise pelvic ultrasound / Pregnancy test
2 Ability to perform diagnostic laparoscopy and/or laparotomy

Iatrogenic injury:
3 Recognition of nature and extent of injury
2 Ability to perform emergency laparotomy

TECHNICAL SKILLS

3 Laparotomy / laparoscopy
2 Hartmann's procedure
2 Sigmoid colectomy
Gastrointestinal bleeding

Knowledge

Blood loss and hypotension:
4 Physiology of hypovolaemia
3 Coagulopathy

Recognition of cause of gastrointestinal bleeding:
4 All causes of GI bleeding

Treatment:
2 Treatment options
2 Indications for operation
2 Role of endoscopic procedures and interventional radiology

Post-operative care:
3 Fluid balance

Complications:
2 All complications likely after emergency treatment

Clinical skills

Blood loss and hypotension:
4 Resuscitation of hypotensive patient
2 HDU care

Recognition of cause of gastrointestinal bleeding:
4 Clinical assessment
2 Ability to organise appropriate endoscopy or other investigation

Treatment:
2 Appropriate surgery

Post-operative care:
4 Analgesia
2 Nutrition
2 Recognition of complications

Complications:
3 Early recognition of rebleeding and post-operative problems
1 Treatment of complications

Technical skills

2 Endoscopic/open control of bleeding
Emergency - Trauma
**Intra-abdominal injuries especially splenic, hepatic and pancreatic injuries**

**Knowledge**

4 Anatomy of abdomen
4 Pathogenesis/ Pathophysiology and Clinical features of shock
4 Principles of management of severely injured patients
4 Importance of mechanism of injury and possible consequences, e.g. FFH, stabbing, seat belt injuries
4 Indications for use of uncross matched blood
4 Coagulopathy
4 Pathophysiology of peritonitis and sepsis

**Clinical skills**

4 Resuscitation
4 History and examination
4 Investigation
3 Appropriate use of ultrasound and CT for assessment of abdominal injury
3 Indications for intervention in abdominal injury
3 Recognition of injuries requiring management by other specialities
3 Management of hollow organ injury

**Technical skills**

4 Diagnostic peritoneal lavage
3 Laparotomy/Laparoscopy for trauma
4 Central venous line insertion
2 Liver trauma-debridement/packing
2 Pancreatectomy-distal
3 Splenectomy
2 Splenic repair
2 Hollow organ injury surgery
1 Thoracotomy and control of haemorrhage
Blunt and penetrating injuries

Knowledge

Closed and Penetrating thoracic injury:
4 Anatomy
2 Concept of low energy, high energy transfer injury
3 Pathogenesis of shock

Closed and penetrating abdominal injury:
4 Anatomy
2 Concept of low energy, high energy transfer injury
3 Pathogenesis of shock

Blunt and penetrating soft tissue and skeletal injury:
4 Anatomy
2 Concept of low energy, high energy transfer injury
3 Pathogenesis of shock

Clinical skills

Closed and Penetrating thoracic injury:
3 Assessment and initial management of multiply injured patient
2 Recognise need for operative intervention and organise
3 Recognise and treat sucking chest wound
1 Understanding indications for emergency room thoracotomy
3 Post-operative management and recognition of complications

Closed and penetrating abdominal injury:
3 Assessment and initial management of multiply injured patient
2 Recognise need for laparotomy and organise
1 Arrest haemorrhage by suture/ligation/packing
1 Indication for pelvic fixator
1 Drains for biliary / pancreatic injury
1 Management of retroperitoneal haematoma
2 Postoperative management and recognition of complications

Blunt and penetrating soft tissue and skeletal injury:
3 Assessment and initial management of multiply injured patient
3 Arrest of haemorrhage by pressure and tourniquet
3 Appropriate immobilisation during assessment
2 Recognition of major vascular trauma
2 Assessment of ischaemic limb
2 Recognition and treatment of acute compartment syndrome
2 Femoral artery exposure
3 Postoperative management and recognition of complications

Technical skills

Closed and Penetrating thoracic injury:
4 Chest drain insertion
1 Lateral thoracotomy
Closed and penetrating abdominal injury:
4 Diagnostic peritoneal lavage
2 Laparotomy - trauma
2 Splenectomy
2 Small bowel resection
2 Ileostomy - construction
2 Colostomy – construction
Upper GI
GASTRO-OESOPHAGEAL REFLUX DISEASE

KNOWLEDGE

Anatomy
4 Lower third of oesophagus; oesophageal sphincter

Pathophysiology
3 Acid or bile reflux; pH abnormalities; motility disorder
3 Pathology Classification of oesophagitis
3 Complications Barrett's metaplasia; stricture

CLINICAL SKILLS

4 History and Examination
3 Investigation Endoscopy, pH studies, Manometry
2 Decision making Indications for surgery

Non operative options
3 Medical management; postural changes

Operative options
2 Indications for surgery; antireflux surgery - open or laparoscopic
2 Postoperative management

TECHNICAL SKILLS

2 Endoscopy
2 Antireflux surgery
1 Revisional antireflux surgery
HIATUS HERNIA

KNOWLEDGE

4 Applied Anatomy Sliding; para-oesophageal
3 Pathophysiology
3 Pathology
2 Complications Incarceration

CLINICAL SKILLS

4 History and Examination
4 Investigation Contrast radiology; manometry
2 Decision making Indications for operation
3 Non operative options Medical management: weight loss, posture
2 Postoperative management

TECHNICAL SKILLS

2 Endoscopy
1 Open repair
1 Laparoscopic repair
1 Revisional antireflux surgery
PEPTIC STRicture

**Knowledge**

4 Anatomy
3 Pathophysiology Physiology of reflux - pH; motility
3 Pathology Differential diagnosis
3 Complications Perforation

**Clinical Skills**

4 History and Examination
3 Investigation Endoscopy; contrast radiology; pH studies; manometry
3 Decision making Indications for dilatation
3 Postoperative management- Diagnosis and management of perforation

**Technical Skills**

2 Endoscopy
1 Oesophageal dilatation
ACHALASIA

KNOWLEDGE

4 Anatomy
4 Pathophysiology
4 Pathology
3 Complications

CLINICAL SKILLS

4 History and Examination
3 Investigation
2 Decision making
2 Non operative options
3 Postoperative management

TECHNICAL SKILLS

2 Endoscopy
1 Endoscopic dilation
1 Endoscopic botox injection
1 Laparoscopic cardiomyotomy
MOTILITY DISORDERS

KNOWLEDGE

4 Anatomy
4 Pathophysiology
4 Pathology
3 Complications

CLINICAL SKILLS

2 History and Examination
2 Investigation
2 Decision making
2 Non operative options
3 Postoperative management

TECHNICAL SKILLS

2 Endoscopy
IATROGENIC OESOPHAGEAL PERFORATION

KNOWLEDGE

4 Anatomy Oesophagus and mediastinal relationships
4 Clinical presentation Post-instrumentation
3 Investigation Contrast radiology
3 Pathophysiology Mediastinitis
3 Complications Empyema

CLINICAL SKILLS

3 History and Examination
3 Investigation
2 Decision making
2 Non-operative treatment Pleural drainage; antibiotics; nutritional support
2 Interventional options
2 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
2 Endoscopic interventions incl stent
1 Thoracotomy + lavage
1 Oesophagectomy
BOERHAAVE'S PERFORATION

KNOWLEDGE

4 Anatomy
3 Pathophysiology Aetiology
3 Clinical presentation
3 Investigations Contrast radiology
3 Complications Empyema

CLINICAL SKILLS

2 History and Examination
2 Investigation
2 Decision making
2 Non-operative treatment
2 Interventional options: Primary repair; nutritional support
2 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
1 Thoracotomy + non-resectional management
1 Oesophagectomy
OESOPHAGEAL CANCER

KNOWLEDGE
2 Applied Anatomy Oesophageal and Oesophago-gastric junctional cancer; lymph node
3 Pathology Epidemiology; aetiology : SCC or ACA
3 Staging - TNM
4 Clinical Presentation Dysphagia
2 Investigations CT; Endoscopic ultrasound; PET-CT; laparoscopy
3 Complications

CLINICAL SKILLS
4 History and Examination
4 Investigation: Endoscopy; CT; EUS; PET-CT; Laparoscopy
2 Decision making - Assessment of medical comorbidity for radical therapy
2 Nutritional support
2 Chemotherapy Neoadjuvant
2 Radiotherapy Combination with chemotherapy
2 Difference in treatment for SCC or ACA
2 Other non-operative treatment incl palliation Palliative treatment; pain control
2 Indications for surgery
3 Postoperative management - Anastomotic leak; chylothorax; recurrent laryngeal nerve injury
2 Follow-up Detection of recurrence

TECHNICAL SKILLS
1 Endoscopy
1 Endoscopic palliation incl stenting
1 EMR N/A
1 Open Oesophagogastrectomy 2 field lymph node dissection
1 Transthoracic
1 Transhiatal
1 MIO
OESOPHAGEAL VARICES

KNOWLEDGE

3 Anatomy
3 Pathophysiology Aetiology of portal hypertension
3 Clinical presentation
3 Diagnosis
3 Treatment options - Endoscopic - injection, banding; Sengstaken tube
3 Indications for surgery
3 Complications
3 Child's classification of liver disease

CLINICAL SKILLS

2 History and Examination
2 Investigation Endoscopic assessment
2 Resuscitation
2 Decision making
2 Non-operative treatment Sclerotherapy
2 Operative options - Porto-caval shunt; Oesophageal transection
2 Postoperative management

TECHNICAL SKILLS

2 Endoscopy
1 Variceal injection
2 Balloon tamponade
GASTRIC ULCER

KNOWLEDGE

4 Anatomy
3 Pathophysiology
3 Clinical presentation Differential diagnosis of cancer
3 Complications - Perforation; bleeding; pyloric stenosis

CLINICAL SKILLS

4 History and Examination
4 Investigation Endoscopy and biopsy
3 Decision making Indications for surgery
3 Operative options
3 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
2 Endoscopic therapy
3 Laparoscopy
3 Local treatment, ulcer excision
3 Gastroenterostomy
2 Partial gastrectomy
2 Total gastrectomy
DUODENAL ULCER

KNOWLEDGE

3 Clinical presentation
3 Pathophysiology
3 Complications - Perforation; bleeding; pyloric stenosis

CLINICAL SKILLS

4 History and Examination
4 Investigation OGD
4 Resuscitation
3 Decision making Indications for operation
3 Operative options
3 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
2 Endoscopic therapy
3 Laparoscopy
3 Local treatment, ulcer underrun/oversew
3 Gastroenterostomy
2 Partial gastrectomy
2 Vagotomy and pyloroplasty
GASTRIC AND DUODENAL POLYPS

KNOWLEDGE

4 Anatomy
3 Clinical presentation Incidental; bleeding
3 Pathology Adenoma; hamartoma; GIST; FAP
3 Complications Malignant change

CLINICAL SKILLS

4 History and Examination
4 Investigation OGD & polypectomy
2 Decision making
3 Operative options
3 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
2 Endoscopic excision
1 EMR
3 Laparoscopy
2 Open excision
2 Partial gastrectomy
ACUTE GASTRIC PERFORATION

**KNOWLEDGE**

4 Anatomy
3 Pathophysiology
3 Differential diagnosis - Perforated gastric ulcer; duodenal ulcer; perforated cancer
3 Complications - Subphrenic abscess

**CLINICAL SKILLS**

4 History and Examination Assessment of peritonitis
4 Investigation
4 Resuscitation
3 Decision making Medical comorbidity
3 Operative options Local excision; resection
3 Postoperative management

**TECHNICAL SKILLS**

3 Laparoscopy
3 Local treatment, ulcer excision
2 Partial gastrectomy
2 Total gastrectomy
ACUTE UPPER GI HAEMORRHAGE

KNOWLEDGE

4 Anatomy
3 Pathophysiology Aetiology
3 Differential diagnosis - Benign ulcer; cancer; vascular malformation; GIST
3 Complications Hypovolaemic shock

CLINICAL SKILLS

4 History and Examination
3 Investigation Endoscopy
4 Resuscitation - Management of hypovolaemic shock
3 Decision making Indications for intervention
3 Non-operative treatment Injection sclerotherapy
3 Operative options
3 Postoperative management Re-bleeding

TECHNICAL SKILLS

2 Endoscopy
2 Endoscopic therapy
2 Gastrotomy + non-resectional treatment Need for histology of ulcer edge
2 Partial gastrectomy
2 Total gastrectomy
ACUTE GASTRIC DILATION

KNOWLEDGE

4 Applied Anatomy
3 Pathophysiology Spontaneous; postsplenectomy
3 Clinical presentation
3 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation Contrast radiology; CT
4 Resuscitation
2 Decision making
3 Non-operative treatment Naso-gastric aspiration
3 Operative options
3 Postoperative management

TECHNICAL SKILLS

2 Endoscopy
2 Gastrectomy
ACUTE GASTRIC VOLVULUS

KNOWLEDGE

4 Applied Anatomy Para-oesophageal hernia
3 Pathophysiology
3 Clinical presentation
3 Investigation Contrast radiology; CT
3 Complications Gastric necrosis

CLINICAL SKILLS

4 History and Examination
4 Investigation
4 Resuscitation Fluid resuscitation
2 Decision making Indications for surgery
3 Operative options- Endoscopic reduction; urgent or delayed surgery
3 Postoperative management

TECHNICAL SKILLS

2 Endoscopy
2 Gastropexy
2 Hiatus hernia repair
2 Total Gastrectomy
GASTRIC CARCINOMA

KNOWLEDGE

3 Applied Anatomy - Arterial blood supply; Lymph node tiers
3 Pathology, Epidemiology; Aetiology - Helicobacter
3 Stage - TNM; pattern of spread
3 Clinical presentation - Early gastric cancer; advanced gastric cancer
4 Investigation Endoscopy, CT, EUS, Laparoscopy
4 Complications

CLINICAL SKILLS

4 History and Examination
3 Investigation Endoscopy; CT; EUS; laparoscopy
2 Decision making - Comorbidity assessment; nutritional support
2 Chemotherapy Neoadjuvant; adjuvant
2 Chemoradiotherapy Adjuvant
2 Other non-operative treatment incl palliation, Chemotherapy; pain control
2 Interventional options - Endoscopic; resectional; extended lymphadenectomy
3 Postoperative management - Anastomotic leak; Duodenal stump disruption

TECHNICAL SKILLS

3 Endoscopy
1 Endoscopic palliation incl stenting
1 EMR
2 Gastrojejunostomy
2 Palliative gastrectomy
2 D2 Subtotal gastrectomy
2 D2 Total gastrectomy
GIST

KNOWLEDGE

4 Applied Anatomy
3 Clinical presentation Incidental; upper GI bleed
3 Pathology "Benign" vs malignant
3 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation - OGD +/- biopsy; CT
2 Decision making
2 Chemotherapy Imatinib
3 Operative options Resection; excision
3 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
3 Laparoscopy
2 Open excision
3 Small bowel resection
2 Partial gastrectomy
2 Total gastrectomy
GASTRIC LYMPHOMA

KNOWLEDGE

4 Applied Anatomy
3 Clinical presentation
3 Investigation Endoscopy, CT, PET-CT
3 Pathology Extranodal lymphoma.; MALToma
3 Complications Perforation on treatment

CLINICAL SKILLS

4 History and Examination
4 Investigation Endoscopy; CT; PET-CT
2 Decision making
2 Medical management - Chemotherapy; Helicobacter eradication
2 Interventional options
3 Postoperative management

TECHNICAL SKILLS

2 Endoscopy
2 Gastrojejunostomy
2 Total gastrectomy
MORBID OBESITY

KNOWLEDGE

3 Indications for surgery in morbid obesity
3 Therapeutic options for morbid obesity. Types of operations performed
4 General principles of the management of the obese patient perioperatively
3 Long term management of the bariatric patient post surgery

CLINICAL SKILLS

4 History and Examination of the Obese patient
3 Assessment of the post operative bariatric patient
3 Interpretation of Investigations in the obese patient
3 Management decisions for early and late complications of morbid obesity

TECHNICAL SKILLS

1 Laparoscopic access in the morbidly obese
1 Aspiration of lap band port
1 Emergency release of lap band for slippage
1 Insertion of lap band
2 Repair of internal hernia after gastric bypass
1 Roux en Y gastric bypass
1 Revisional gastric surgery for obesity
1 General Surgery for the super morbidly obese patient
**Upper GI haemorrhage**

*Knowledge*

**Diagnosis:**
- 4 Anatomy
- 4 Pathophysiology

**Management:**
- 3 Treatment options available
- 2 Indications for surgery

**Post-operative care:**
- 2 Complications
- 2 Investigations
- 2 Management options

*Clinical skills*

**Diagnosis:**
- 4 History and examination
- 4 Resuscitation

**Management:**
- 2 Selection of patients for appropriate intervention

**Post-operative care:**
- 2 Management of leak
- 2 Need for re-operation
- 1 Re-operation for complication
- 2 Nutrition

*Technical skills*

**Diagnosis:**
- 1 Gastroscopy-diagnostic

**Management:**
- 1 Gastroscopy+bleeding therapy
- 1 Gastroscopy+variceal therapy
- 1 Gastro/duodenum-under-running of bleeding PU
- 1 Gastrectomy-distal
SURGICAL NUTRITION

KNOWLEDGE

4 Physiology of the GI tract
2 Assessment of nutritional status
2 Understanding the role of the Nutrition team
2 Causation of nutritional deficiency
3 Metabolic requirements in health and disease
3 Physiology of nutritional support
2 Refeeding syndrome
3 Options for nutritional support - Enteral vs parenteral
2 Indications for nutritional intervention
2 Management of fistulae - Principles of management

CLINICAL SKILLS

3 Assessment of GI tract function
2 Assessment of nutritional status
2 Insertion of enteral feeding tubes
2 Care of the patient on enteral and parenteral support
2 Decision making

TECHNICAL SKILLS

2 Formation of feeding enterostomy (open / lap)
2 Vascular access for Parenteral feeding
2 PEG tube insertion / replacement
Hepatopancreatobiliary
Gallstone disease

Knowledge

4 Anatomy
4 Pathophysiology
4 Microbiology
3 Complications- Acute cholecystitis, Empyema, Mucocoele, Acute pancreatitis, Chronic cholecystitis, Common bile duct stone, Gall stone ileus, Gall bladder cancer
3 Post-operative problems – Bile duct injury
2 Methods of bile duct repair – primary repair over a T-tube; hepaticojejunostomy with Roux-en-Y reconstruction

Clinical Skills

4 History & examination- acute/ emergency, elective
3 Investigation – US, ERCP, MRCP, CT
3 Resuscitation
3 Decision making re conservative v. surgical treatment and early v. delayed operation
3 Non-operative treatment including ERCP, percutaneous cholecystostomy
3 Operative options
3 Laparotomy for biliary peritonitis with placement of drains
3 Post-operative management

Technical Skills

2 Cholecystectomy-Laparoscopic
2 Cholecystectomy-open
2 Biliary-CBD-exploration
1 Biliary-bile duct injury repair
1 Hepaticodocho- jejunostomy
Acute pancreatitis

Knowledge
4 Abdominal anatomy
4 Differential diagnosis
4 Aetiology
4 Clinical features
4 Scoring system – recognition of severity
4 Pathophysiology
3 Complications
4 ERCP, MRCP

Clinical Skills
4 History and Examination
4 Investigation- CRP, US, CT
4 Resuscitation
4 Treatment of options
4 Role of systemic antibiotics
3 Surgical approaches
4 Management of pancreatic necrosis and haemorrhage
3 Insertion of nasojejunal tube

Technical Skills
3 Central venous line insertion
3 Laparotomy
1 ERCP
3 Cholecystectomy-laparoscopic
2 Cholecystectomy-open
2 Exploration CBD
1 Pancreatectomy-distal
1 Pancreatic debridement/ necresectomy
1 Pancreatic pseudocyst drainage
CHRONIC PANCREATITIS

KNOWLEDGE

4 Applied Anatomy
4 Pathophysiology
3 Clinical presentation
3 Investigation
3 Complications
3 Postoperative problems

CLINICAL SKILLS

4 History and Examination
4 Investigation
4 Resuscitation
3 Decision making
2 Non-operative treatment incl ERCP
3 Operative options
3 Postoperative management

TECHNICAL SKILLS

1 ERCP
1 Pancreaticojejunostomy
1 Pancreaticoduodenectomy
1 Distal pancreatectomy
1 Hepaticocho-jejunostomy
1 Pseudocyst drainage
PANCREATIC CANCER / PERIAMPULLARY CANCER

KNOWLEDGE

4 Applied Anatomy
4 Pathophysiology Epidemiology; aetiology
4 Stage - TNM
4 Pathology ACA pancreas; ampullary
4 Clinical presentation Painless Jaundice; Pain
3 Investigation CT; MRCP; MRI; EUS
4 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation CT; MRCP; MRI; EUS
3 Decision making Comorbidity; Nutritional assessment
3 Non-operative treatment incl palliation, nutrition
3 Interventional options e.g. ERCP, PTC
3 Postoperative management

TECHNICAL SKILLS

1 Pancreaticoduodenectomy
1 Distal pancreatectomy
1 ERCP
1 Biliary bypass
1 Gastroenterostomy
CYSTIC TUMOURS

KNOWLEDGE

4 Applied Anatomy
4 Pathophysiology, Epidemiology; aetiology
4 Pathology- Benign; Malignant
3 Clinical presentation
3 Investigation- CT; MRCP; EUS
3 Complications

CLINICAL SKILLS

4 History and Examination
3 Investigation CT; MRCP; EUS
2 Decision making
2 Non-operative treatment incl palliation, nutrition
2 Interventional options e.g. ERCP, PTC
3 Postoperative management

TECHNICAL SKILLS

1 Pancreatoduodenectomy
1 Distal pancreatectomy
1 ERCP
1 Biliary bypass
1 Gastroenterostomy
NEUROENDOCRINE TUMOURS

KNOWLEDGE

4 Applied Anatomy
4 Pathophysiology
3 Pathology- Functioning; Nonfunctioning
3 Clinical presentation- Symptoms of functioning tumour
3 Investigation CT; EUS; MRCP
3 Complications

CLINICAL SKILLS

4 History and Examination
3 Investigation CT; EUS; MRCP
3 Decision making
2 Non-operative treatment incl palliation, nutrition
2 Interventional options e.g. ERCP, PTC
3 Postoperative management

TECHNICAL SKILLS

1 Pancreatecoduodenectomy
1 Distal pancreatectomy
1 Enucleation
1 ERCP
1 Biliary bypass
1 Gastroenterostomy
INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS

KNOWLEDGE

4 Applied Anatomy
2 Pathophysiology IPMN
2 Pathology
3 Complications

CLINICAL SKILLS

4 History and Examination
3 Investigation
2 Decision making
2 Non-operative treatment incl palliation, nutrition
2 Interventional options e.g. ERCP, PTC
3 Postoperative management

TECHNICAL SKILLS

1 Pancreaticoduodenectomy
1 Distal pancreatectomy
1 Total pancreatectomy
1 ERCP
1 Biliary bypass
1 Gastroenterostomy
PANCREATIC TRAUMA

KNOWLEDGE

4 Applied Anatomy
4 Pathophysiology
3 Clinical presentation Blunt and abdominal injury
3 Investigation CT; MRI
3 Complications Pancreatic fistula

CLINICAL SKILLS

4 History and Examination
3 Investigation CT; MRI; Laparoscopy
4 Resuscitation
2 Decision making
2 Non-operative treatment
2 Interventional options e.g. ERCP, radiological drainage
3 Postoperative management Pancreatic fistula; Nutritional support

TECHNICAL SKILLS

2 Cholecystectomy
1 Debridement & drainage
1 Pancreateicojejunostomy
1 Pancreateicoduodenectomy
1 Distal pancreatectomy
1 Pseudocyst drainage
LIVER METASTASES

Knowledge

3 Anatomy of liver and segments
3 Physiology of liver and liver function
3 Understanding of metastatic process
3 Pathology of primary colorectal cancer and liver metastases
3 Prognostic factors
2 Diagnostic techniques including modern imaging
2 Role of tumour markers in early diagnosis
3 Screening and surveillance following surgery for colorectal cancer
2 Modern chemotherapy, both intrahepatic and systemic for liver metastases
1 Different forms of in-situ ablative techniques, including radiofrequency ablation
1 Full knowledge of factors influencing surgical outcome following resection

Clinical skills

3 Techniques of liver biopsy
3 Post-operative management of major liver resection
3 Management of liver failure

Technical skills

3 Laparoscopy
PRIMARY LIVER CANCER

KNOWLEDGE

4 Applied Anatomy
3 Pathophysiology Hepatitis C
3 Pathology Differential diagnosis; HCC
3 Clinical Presentation
3 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation
3 Decision making
3 Assessment and management of liver insufficiency Child's classification
3 Non-operative treatment incl chemoembolisation and biological therapy
3 Interventional options e.g. ablation
3 Postoperative management

TECHNICAL SKILLS

1 Major hepatectomy
1 Peripheral wedge or segmental resection
HILAR TUMOURS AND GALLBLADDER CANCER

KNOWLEDGE

4 Applied Anatomy
3 Pathophysiology Incidental finding at Cholecystectomy
3 Pathology Classification of hilar tumours
3 Clinical presentation
3 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation ERCP; MRCP; CT; MRI
3 Decision making
3 Non-operative treatment incl PDT, brachytherapy
3 Interventional options e.g. stenting
3 Postoperative management

TECHNICAL SKILLS

1 Extended hepatectomy
1 Central liver resection
1 Hepatic artery lymphadenectomy
1 Hepaticodochojenostomy
BENIGN AND CYSTIC TUMOURS

KNOWLEDGE

4 Applied Anatomy
3 Pathophysiology Simple cysts; complex cysts; hydatid disease
3 Pathology
3 Clinical Presentation
3 Complications

CLINICAL SKILLS

3 History and Examination
3 Investigation CT; MRI
3 Decision making
3 Non operative options e.g. medical treatment of hydatid disease
3 Interventional options e.g. embolisation
3 Postoperative management

TECHNICAL SKILLS

1 Fenestration
1 Liver resection
LIVER TRAUMA

Knowledge

4 Anatomy
4 Pathophysiology
4 Complications

Clinical Skills

4 History & examination
3 Investigation
4 Resuscitation
3 Management options

Technical Skills

4 Liver-trauma-debridement/packing
Colorectal
Benign anorectal disease

Knowledge

Haemorrhoids:
4 Aetiology of internal and external haemorrhoids
4 Anatomical distinctions between internal and external haemorrhoids
4 Classifications for internal haemorrhoids
3 Indications, contraindications and complications of non-operative treatment of haemorrhoids – topical applications, stool modifiers/softeners
3 Indications, contraindications and complications of office treatment of haemorrhoids
2 Indications, contraindications and complications of operative treatment of haemorrhoids
4 Modifications of therapy with: Inflammatory bowel disease (IBD), Pregnancy, HIV, Coagulopathies, Portal hypertension/rectal varices

Anal Fissure:
3 Aetiology of anal fissure
4 Anatomical location of a classic anal fissure

Abscess and fistula:
4 The origin of cryptoglandular abscess and fistula
4 Classification of anorectal cryptoglandular abscess-based on anatomical spaces
4 Parks classification of anal fistula
4 The natural history of surgically treated anal abscess, including the risk of fistula formation
4 Operative strategy for anal fistula based on sphincter involvement/location
4 Complications resulting from abscess/fistula surgery: recurrence, incontinence

Hidradenitis Suppurativa:
4 Pathophysiology of hidradenitis suppurativa

Pilonidal Disease:
4 Pathophysiology of pilonidal disease

Anal Stenosis:
4 Aetiology

Pruritus Ani:
4 Aetiology and clinical presentation of pruritus ani

Sexually Transmitted Diseases:
4 Aetiology of condylomata acuminata
1 Aetiology of HIV, syphilis, gonorrhoea, Chlamydia, herpes
2 Influence of human papilloma virus serotypes on the subsequent development of cancer

Clinical Skills

Haemorrhoids:
4 Assessment of the signs and symptoms of the following: thrombosed external haemorrhoids, internal haemorrhoids by stage, skin tags
3 Management of haemorrhoids including the indications and contraindications for: rubberband ligation, injection sclerotherapy, infrared coagulation, laser, operative and stapled haemorrhoidectomy
4 Perform two of the OPD techniques and operative haemorrhoidectomy
3 Manage the complications resulting from OPD management: bleeding, pain, sepsis
3 Manage the complications resulting from haemorrhoidectomy: urinary retention, haemorrhage, faecal impaction, infection
**Anal Fissure:**

4 Assessment of the signs and symptoms of anal fissure
3 Arrange the nonoperative management of anal fissure, including stool modifications/softeners, topical anaesthetics, topical pharmacology
3 Indications, contraindications, and complications of the following: lateral internal sphincterotomy, anal advancement flap
3 Pre and post-operative care of lateral sphincterotomy, anal advancement flap for fissure
1 Treat complications resulting from operations; persistent fissure, incontinence, stenosis, “keyhole” deformity

**Abscess and fistula:**

4 Differentiate cryptoglandular abscess and fistula from other causes
3 Assessment of abscess/fistula by techniques designed to elucidate pathological anatomy: Goodsall’s rule and digital examination, fistulogram, injections, MRI, endoanal ultrasound
4 Management of anorectal abscess including pre-operative and post-operative care and the appropriate procedure based on anatomical spaces
2 Treatment options for fistula-in-ano including fibrin glue / fistula plug
4 Modify therapy for: necrotising fasciitis, Fournier’s gangrene, leukaemia, other immunocompromised patients, inflammatory bowel disease
3 Assess rectovaginal fistula in terms of aetiology and location
3 Modify therapy for: necrotising fasciitis/Fournier’s gangrene, Leukaemia, other immunocompromised patients, inflammatory bowel disease
2 Manage rectovaginal fistula with regard to classification, preoperative evaluation, and treatment of rectovaginal fistula, based on location and aetiology
1 Arrange pre and postop care for rectovaginal fistula due to obstetric injury
1 Manage rectourethral fistula depending on location and aetiology

**Hidradenitis Suppurativa:**

4 Assess the symptoms and signs of hidradenitis suppurativa
1 Manage hidradenitis suppurativa by both medical and surgical means

**Pilonidal Disease:**

4 Assess the symptoms and signs of pilonidal disease: abscess, sinus
4 Perform surgical management of pilonidal disease

**Anal Stenosis:**

4 Arrange nonoperative management
1 Operative management of anal stenosis including division of stricture and flap procedures

**Pruritus Ani:**

4 Arrange medical management and surgical management of pruritus ani with attention to: hygiene, diet, anatomical (obesity, deep anal cleft), coexisting anal pathology, systemic disease, gynaecologic-associated, infections, postantibiotic syndrome, contact dermatitis, dermatology, radiation, neoplasm, idiopathic pruritis ani

**Sexually Transmitted Diseases:**

4 Diagnosis of condylomata acuminata
4 Medical (topical chemicals) and surgical treatment options for condylomata acuminata
1 Diagnosis and treatment of HIV, syphilis, gonorrhoea, Chlamydia, herpes

**Technical Skills**

**Haemorrhoids:**

3 Haemorrhoids-endoscopic treatment (injection, banding or infrared coagulation)
2 Haemorrhoidectomy-operative
1 Haemorrhoidectomy- Stapled

**Anal Fissure:**

4 Lateral sphincterotomy
1 Anal advancement flap for fissure/stenosis

**Abscess and fistula:**
4 Abscess-drainage through perineal region
3 Fistula-in-ano-low-lay open
2 Fistula-in-ano-high-drainage seton
2 Fistula-in-ano-high-cutting seton
1 Fistula-in-ano-high-advancement flap
1 Fistula-in-ano - placement of fistula plug
1 Fistula-operation for rectovaginal fistula

**Pilonidal disease:**
4 Pilonidal sinus-lay open
3 Pilonidal sinus-excision+suture
1 Pilonidal sinus-graft or flap

**Anal Stenosis**
1 Anal advancement flap for fissure/stenosis

**Sexually Transmitted Diseases:**
4 Anal skin tags/warts-excision
BENIGN COLON

Knowledge:

Diverticular Disease
4 Aetiology of colonic diverticular disease
4 Incidence and epidemiology of colonic diverticular disease
4 Complications and classification of diverticular disease including: bleeding, perforation, abscess, fistula, stricture
4 Hinchey classification of complicated diverticular disease

Volvulus:
4 Aetiology of volvulus of the colon
4 Incidence and epidemiology of volvulus of the colon
4 Complications of colonic volvulus including obstruction, ischaemia, perforation

Rectal bleeding:
4 Aetiology of lower GI bleeding

Massive lower GI bleeding:
4 Aetiology of massive lower GI bleeding
3 Utility, specificity and sensitivity of colonoscopy, angiography and radio-iscope scintigraphy in evaluation of lower GI bleeding
2 Angiographic treatment of lower GI bleeding
2 Evaluation of recurrent lower GI bleeding, including use of enteroscopy, exploratory laparotomy and intraoperative endoscopy

Vascular Malformations:
3 Aetiology of angiodysplasia
2 Classification of haemangiomas, their clinical presentations and predominant GI sites

Endometriosis:
3 Pathophysiology of endometriosis
2 Indications for intervention and the operative and non-operative management of endometriosis

Colon Trauma:
Uses and limitations of the following imaging and diagnostic tests in the evaluation of blunt abdominal trauma
3 Plain abdominal films
3 Computed tomography scan
3 Ultrasound
3 Peritoneal lavage

Rectal Trauma:
4 Identify clinical situations requiring evaluation for rectal trauma

Clinical Skills

Diverticular disease:
3 Recognise the clinical patterns (including right sided diverticular disease) presenting symptoms, physical findings and natural history of colonic diverticular disease
3 Arrange appropriate diagnostic studies in suitable sequence in the evaluation of both acute and chronic colonic diverticular disease
4 Medical and dietary management of colonic diverticular disease
3 Medical management for acute diverticulitis
3 Pre-operative assessment including the indications for surgery, surgical procedures, and complications for acute diverticulitis
2 Choose appropriate surgical procedures including CT guided drainage for the management of acute diverticulitis
2 Perform appropriate resection for diverticular disease including consideration of the extent of resection, use of ureteral stents, and indications for diversion
2 Appropriate surgical procedures for dealing with complications (fistula, stricture, recurrent episodes) of acute diverticulitis
2 Patient selection and techniques for reversal of Hartmann’s procedure including use of ureteric stents and indications for diversion

**Volvulus:**
4 Recognise the clinical patterns, presenting symptoms, physical findings, and natural history of colonic volvulus based upon its site
4 Arrange diagnostic studies in appropriate sequence
4 Appropriate operative procedures for volvulus depending on site

**Rectal bleeding:**
4 Arrange appropriate evaluation of the patient based on age and other medical conditions

**Massive lower GI bleeding:**
4 Assess haemodynamic stability and outline a resuscitation plan
2 Practice an algorithm for the evaluation of lower GI bleeding including exclusion of coagulopathy, gastroscopy, colonoscopy, selective mesenteric angiography, radioisotope scintigraphy, on table colonoscopy with antegrade lavage
1 Perform endoscopic treatment of lower GI bleeding including coagulation, injection therapy and laser ablation
2 Manage the patient with regard to the indications for surgery, appropriate surgical procedures and their possible complications based upon cause, location, patient age and medical condition
1 Perform intraoperative evaluation and management of persistent massive lower GI bleeding without an identified site
2 Manage post-operative lower GI bleeding

**Vascular Malformations:**
3 Assess clinical presentation and endoscopic findings of angiodysplasia
2 Manage the patient with regard to indications for intervention and the operative and nonoperative management of angiodysplasia
2 Arrange radiological and endoscopic management, nonoperative and operative management, based on location

**Endometriosis**
2 Recognition of the clinical presentation and the endoscopic and laparoscopic findings of endometriosis

**Colon Trauma:**
3 Manage the patient with penetrating abdominal trauma with understanding of the criteria for exploratory laparotomy, wound exploration, peritoneal lavage
3 Perform appropriate surgical management of colon trauma in the context of the severity of associated injuries and stability of medical condition, including the following:
3 Manage a patient, either operatively or nonoperatively with colonic trauma due to colonoscopic perforation or laparoscopic perforation

**Rectal Trauma:**
4 Diagnosis of rectal trauma and associated injuries
3 Perform surgical management of rectal trauma including drainage, faecal diversion, rectal washout, primary repair

**Anal Trauma:**
4 Manage traumatic anal injuries by faecal diversion, and/or repair
Foreign Bodies:
4 Evaluate patients with rectal foreign bodies
3 Perform various methods of extraction of foreign bodies and assess the indications for surgery
3 Manage postextraction evaluation with regard to indications for inpatient observation and indications for surgery

Technical Skills

Diverticular disease-treatment:
2 Colectomy-left
2 Colectomy-sigmoid
3 Colostomy-construction
2 Hartmann’s procedure
2 Hartmann’s reversal

Volvulus:
3 Sigmoidoscopy-rigid
2 Sigmoidoscopy-flexible
2 Colonoscopy-diagnostic
2 Colonoscopy-therapeutic

Massive lower GI bleeding:
3 Colonoscopy-diagnostic
2 Colectomy – total + ileostomy
2 Colectomy-right
2 Colectomy-left
2 Colectomy-sigmoid
3 Colostomy-construction
2 Hartmann’s procedure
3 Ileostomy-construction

Vascular malformations
2 Colonoscopy-diagnostic
2 Colonoscopy-other

Colon Trauma:
2 Colon-primary repair
2 Colectomy-right
2 Colectomy-left
2 Colectomy-sigmoid
2 Colectomy-transverse
2 Colectomy-total+ileostomy
2 Hartmann’s procedure
3 Colostomy-construction
3 Ileostomy-construction

Rectal Trauma:
2 Colostomy-construction
3 Hartmann’s procedure
2 Ileostomy-construction
1 Rectum-operation for trauma

Anal Trauma
3 Colostomy- construction
1 Anal sphincter repair including postanal repair, anterior sphincter repair + rectocele repair
COLORECTAL NEOPLASIA

Knowledge

Epidemiology of colorectal cancer and polyps
4 Epidemiology of colorectal cancer and polyps including incidence and prevalence, influence of socio-economic, racial and geographic factors

Aetiology
4 Diet: fat, fibre, calcium, selenium, vitamins (antioxidants), dietary inhibitors, alcohol and smoking, prostaglandin inhibitors
4 Adenoma-carcinoma sequence: evidence, categorise adenomas into low risk, intermediate and high risk and discuss screening procedures, significance of metaplastic polyps
2 De novo carcinomas
4 Susceptibility to colorectal cancer (CRC): family history, Personal Past History (CRC, Polyps, Other cancers), groups at risk
3 Hereditary nonpolyposis colorectal cancer (HNPCC): clinical features
4 Familial adenomatous polyposis: clinical definition, extracolonic lesions, cancer risk
2 Hamartomas: definition, juvenile polyposis, Peutz-Jeghers syndrome

Colorectal cancer screening
4 The general population
4 Persons at moderate risk
4 Persons at high risk

Clinical presentation
4 Distribution of CRC within the colon

Staging and prognostic factors
4 Current staging systems (Dukes, TNM)
4 Clinical prognostic factors: age, mode of presentation, clinical stage, blood transfusion
4 Histologic/biochemical features: histological grade, mucin secretion, signet-cell histology, venous invasion
2 The significance of extent of disease including patterns of spread: direct continuity, intramural, transmural, distal margins, circumferential margins, transperitoneal, lymphatic, haematogenous, implantation
3 The assessment of disease extent: detection and management of synchronous lesions, distant metastatic disease, preop detection of local invasion, regional metastatic disease

Management of colon cancer
3 The indications and contraindications for surgical treatment
4 pre- and post-operative care
3 operative technique
3 outcomes and complications of colon cancer
4 The rationale and inactions for the use of adjuvant chemotherapy

Management of rectal cancer
2 Indications and contraindications, operative technique, pre and postop care, complications and outcomes for:
Local therapy: transanal, Kraske transsacral, York- Mason transspincteric, transanal endoscopic microsurgery (TEM), fulguration, laser, endocavitary radiation.
Sphincter-sparing resections: high and low anterior resection, tumour specific mesorectal excision, total mesorectal excision, coloanal anastomosis with or without colonic J pouch
2 Sphincter-sparing resections
2 rationale and indications for the use of adjuvant chemoradiotherapy
2 Current staging and role of pre and post op radiotherapy
The detection and treatment of recurrent and metachronous colon
4 Patterns of recurrence
3 Detection of recurrence using CEA, colonoscopy and imaging
4 Natural history of recurrent colorectal cancer
4 Risks and detection of metachronous lesions
3 pain management

Anal neoplasia
4 The significance of the anatomical distinction between the anal margin and the anal canal tumours
4 The differential lymphatic drainage of the anal canal and margin
4 The histological transition of the anal canal
4 Association with sexual practices
4 High-risk groups
3 Staging classification of anal neoplasia
2 Epidermoid carcinoma: histologic types, routes of metastasis/recurrence
1 Role of salvage therapies: abdominoperineal resection, chemotherapy, radiotherapy
1 Other anal canal malignancies: adenocarcinoma, small cell cancer, melanoma

Clinical skills

Clinical presentation
4 Recognise the clinical signs and symptoms of patients presenting with colorectal cancer

Management of colon cancer
2 Manage malignant change within an adenomatous polyp
2 Familiarity with the indications and contraindications to surgery, operative technique, pre and post-operative care, outcomes and the complications of colon cancer
2 Special considerations in the operative management of Colon cancer: colonic stents, intraluminal cytotoxic irrigation, on-table lavage, perforation, synchronous lesions
2 En-bloc resections of adjacent organs
2 Extended resections to include total abdominal colectomy

Management of rectal cancer
3 Diagnosis of rectal cancer

The detection and treatment of recurrent and metachronous colon
2 Treatment of recurrent colorectal cancer: natural history, chemotherapy, resection, local ablation
2 Treatment of pelvic recurrences with radiation, chemotherapy, resection
2 Manage Carcinomatosis: with bowel obstruction, with ureteral obstruction
4 Palliative care

Miscellaneous malignant lesions of the colon and rectum
3 Recognise the clinical presentation, assess prognostic factors, and manage carcinoid – Ileal, appendiceal, carcinoid syndrome
2 Recognise the clinical presentation, assess prognostic factors, and manage Lymphoma
1 Recognise the clinical presentation, assess prognostic factors, and manage GIST

Anal Canal Neoplasia
1 Treatment of epidermoid carcinomas based on stage: local excision, chemoradiotherapy, abdominoperineal resection, inguinal node management
2 Diagnosis and management of lesions of the anal canal including HPV genotypes associated with cancer, HIV infection, anal intraepithelial neoplasia (AIN), immunosuppression
2 Squamous cell carcinoma: clinical features, differential diagnosis, surgical management by local excision, chemoradiotherapy and abdominoperineal resection
2 Basal cell carcinoma: clinical features, differential diagnosis, management
2 Bowen's disease: histology, differential diagnosis, natural history, related cancers, management including anal mapping, wide local excision, reconstruction and observation in patients with HIV
2 Paget's disease: theories of histiogenesis, clinical features, management
2 Buschke-Lowenstein tumour: clinical presentation and course, treatment options

**Technical skills**

**Management of colon cancer**
2 Colonoscopy-diagnostic
2 Colonoscopy-therapeutic
2 Hartmann's Procedure
2 Colectomy-left
2 Colectomy-right
2 colectomy - transverse
2 Colectomy-sigmoid
2 Colectomy - total
2 Colostomy-construction
2 Ileostomy-construction

**Management of rectal cancer**
1 Transanal microsurgery
1 Peranal excision of rectal lesion
1 Rectum-posterior approach
1 Rectum-anterior resection
1 Rectum-anterior resection + coloanal anastomosis
1 Rectum-AP excision
2 Posterior pelvic clearance
2 Pelvic exenteration

**The detection and treatment of recurrent and metachronous colon**
1 Reoperation-pelvic malignancy

**Anal Canal Neoplasia**
2 Anal tumour-excision
2 Rectum-AP excision
FUNCTIONAL DISORDERS

Knowledge

Faecal Incontinence:
4 Classification of the various types of incontinence, their incidence and their Pathophysiology
1 Anatomical, neurological, dermatological, and endoscopic findings that differentiate various types of incontinence
2 Normal and abnormal findings in imaging studies used in incontinence including MRI
2 Knowledge of a scoring system for faecal incontinence
2 Indications, uses and results of biofeedback in incontinence
2 Indications for and techniques used in surgery for incontinence, including complications and functional results: postanal repair, anal sphincter repair, muscle transpositions, artificial bowel sphincter, sacral nerve stimulation
2 Understand the concept of antegrade continent enema conduits

Rectal prolapse:
4 The incidence, pathophysiology and epidemiology of rectal prolapse
1 Understanding of internal intussusception, with its radiological findings and treatment options
2 Understand the perineal and abdominal surgical options for prolapse with the indications for each approach, complications, recurrence rate and functional results

Solitary rectal ulcer
2 Understanding the associated pelvic floor disorder

Constipation:
4 Normal colonic physiology (including gut hormones and peptides) and the process of defaecation
4 Definition of constipation and its epidemiology
3 Classification of types and causes of constipation, differential diagnosis in a patient with constipation
4 Different types of laxatives and describe the indications, contraindications, modes of action, and complications of each: stimulant, osmotic, bulk-forming, lubricant
2 Diagnostic criteria for anismus
2 Indications, techniques, complications and results of rectocele repair
2 Role of colectomy in colonic inertia including indications, complications and expected results
3 Common causative factors for colonic pseudo-obstruction

Chronic rectal pain syndrome
1 Differential diagnosis for rectal pain including levator ani syndrome, proctalgia fugax, chronic idiopathic pelvic pain, coccygodynia

Clinical skills

Faecal incontinence:
3 Take a directed history to differentiate types of incontinence
3 Perform a physical examination to differentiate types of incontinence
2 Identify and interpret anorectal physiology tests
3 Outline a non-operative bowel management plan incorporating : dietary measures, medications, enemas, perineal skin care, anal plug
2 Make a treatment plan for a patient with incontinence, including knowledge of side effects
1 Select patients for operation according to the physical and laboratory findings
1 Select type of operative repair
2 Select patients for temporary and permanent faecal diversion

Rectal prolapse:
3 Clinical presentation and findings in rectal prolapse
2 Differentiate between mucosal prolapse, prolapsing internal haemorrhoids and rectal prolapse
2 Appropriate management of incarcerated and strangulated rectal prolapse
1 Manage constipation and incontinence in the context of rectal prolapse
1 Perform operation for rectal prolapse - perineal or abdominal; open or laparoscopic
1 Manage a patient with recurrent rectal prolapse

**Solitary Rectal Ulcer:**
1 Recognise the clinical presentation, endoscopic and histological findings in a patient with solitary rectal ulcer

**Constipation:**
4 Take a directed history for a patient with constipation and perform a directed physical examination
1 Arrange a treatment plan based on endoscopic, radiological and physiology tests: defaecating proctogram, transit studies, anorectal manometry, EMG, balloon expulsion, contrast enema, endoscopy
2 Identify melanosis coli on endoscopy and discuss its significance
2 Plan a treatment programme for a patient with constipation that may include the following: dietary measures, fibre, laxatives, prokinetic medications, enemas, suppositories, psychological support
3 Evaluate and manage with medical or surgical means a patient with suspected colonic pseudo-obstruction
3 Recognise the clinical presentation of symptomatic rectocele
1 Management of anismus: medical management, biofeedback, botulinum toxin, surgery
1 Manage short segment/adult Hirschsprung's disease
1 Diagnosis and both non-operative and operative management of enterocele and sigmoidocele
1 Evaluation and management of recurrent constipation after colectomy

**Irritable bowel syndrome:**
4 Diagnose irritable bowel syndrome and outline a medical treatment programme that may include the following: diet, fibre, laxatives, prokinetic medications, enemas, suppositories, psychological support

**Chronic rectal pain syndrome**
1 Manage pelvic pain by means of: bowel management programmes, analgesics, antidepressants, levator massage, electrogalvanic stimulation, nerve blocks, steroid injections, botulinum toxin injections, biofeedback, psychiatric or psychological treatment, surgery

**Technical skills**

**Faecal incontinence:**
1 Anal sphincter repair including postanal repair, anterior sphincter repair
1 Anal sphincter - artificial sphincter/sacral nerve stimulation

**Rectal prolapse:**
1 Prolapse-abdominal rectopexy
1 Prolapse-rectopexy + sigmoid resection
1 Prolapse-perineal repair

**Constipation**
2 Rectocele repair
INFLAMMATORY BOWEL DISEASE

Knowledge

Inflammatory bowel disease - general:
3 The contribution of genetics and immune function to the development of inflammatory bowel disease (IBD)
3 The possible influence of infectious agents, psychological issues and environmental factors
3 The epidemiologic features of Crohn's disease and ulcerative colitis
1 The criteria for severity of disease as defined by Crohn's disease activity index and True love classification
3 The endoscopic, radiographic, and laboratory findings of ulcerative colitis and Crohn's disease
3 The distinguishing histologic characteristics of ulcerative colitis and disease
3 The differential diagnosis of Inflammatory Bowel Disease

Reproduction and Inflammatory Bowel Disease
2 The interaction of IBD and pregnancy
1 The impact of IBD on fertility
1 Drug therapy, investigations and surgery during pregnancy

Ulcerative colitis
3 The mechanism of action, indication, appropriate dosage, side effects, and toxicity of the drugs used for the treatment of ulcerative colitis: aminosalicylates, corticosteroids, antibiotics
2 Understand the role of nutritional support in the management of ulcerative colitis
2 The risk of cancer, with the factors increasing risk
3 Be able to identify the indications for surgery for ulcerative colitis including: intractability, severe acute colitis, toxic megacolon, haemorrhage, prophylaxis for carcinoma/dysplasia, carcinoma, complications of extraintestinal manifestations, complications of medications
2 Understand the operative management of indeterminate colitis

Crohn's disease:
3 The mechanism of action, indication, appropriate dosage, side effects, and toxicity of the drugs used for the treatment of Crohn's disease: aminosalicylates, corticosteroids, antibiotics
2 Understand the role of nutritional support in Crohn's disease
3 Risk of large and small bowel carcinoma and risk factors
4 Awareness of the indications for surgery for Crohn's disease including: intractability, intestinal obstruction, fistula/abscess, complications

Other inflammatory conditions - ischaemic colitis:
4 Vascular anatomy of the colon
4 The aetiology of acute colonic ischaemia

Other inflammatory conditions - radiation bowel disease:
2 Risk factors for and susceptibility to injury from radiotherapy
1 Mechanisms of acute and chronic radiation injury
1 Microscopic findings of radiation injury Microscopic findings of radiation injury
2 Understand surgical options for radiotherapy injuries

Other inflammatory conditions - infectious colitis:
3 Epidemiology, aetiology, pathogenesis, laboratory and endoscopic evaluation, medical management and indications for surgery for clostridium difficile colitis
3 In suspected infectious colitis understand relevance of travel history, role of stool culture, testing for ova, cysts and parasites and hot stool sample for amoebiasis, role of lower GI endoscopy with biopsy for histological evaluation and culture, role of rectal and perineal swabs, role of serology in the detection of amoebiasis and strongyloidiasis, infectious colitis as a precipitating factor for inflammatory bowel disease
3 Management of diarrhoea in the immunocompromised patient including HIV
**Clinical skills**

**Inflammatory bowel disease - general:**
4 Recognise and compare the clinical pattern, presenting symptoms, physical findings and natural history of ulcerative colitis and Crohn's disease
3 The extraintestinal manifestations of IBD
4 diagnostic assessment for inflammatory bowel disease to exclude other colitides

**Ulcerative colitis:**
3 Recognise the presentation and manage proctitis, left-sided colitis, extensive colitis, severe acute colitis, toxic megacolon
3 Joint management of a patient unresponsive to initial treatment
2 Organise surveillance and interpret biopsy results of dysplasia
2 indications and contraindications, operative technique, post-operative care, functional results, and complications of the operations for ulcerative colitis
1 recognise and describe the management of the following conditions associated with the ileoanal pouch anal anastomosis: intestinal obstruction, pelvic sepsis, pouchitis, anastomotic/pouch vaginal and perineal fistula, stenosis, sexual dysfunction, retained mucosa
1 Follow-up for retained rectum after colectomy

**Crohn's disease:**
3 Initial treatment specific to the site of involvement in a patient with Crohn's disease
3 medical management of a patient unresponsive to initial treatment
2 Organise surveillance and interpret biopsy results of dysplasia
3 Management of the following complications of Crohn's disease: Obstruction/ stenosis, fistula, abscess, perforation, haemorrhage, toxic megacolon, severe acute colitis
2 Indications and contraindications, operative technique, post-operative care, functional results, risk of recurrence, and complications of operations for Crohn's disease
2 Management of the following manifestations of anorectal Crohn's disease: abscess, anal fistula, fissure

**Other inflammatory conditions - ischaemic colitis/ radiation colitis:**
4 Clinical presentation of ischaemic colitis
3 Natural history, diagnosis, and be able to manage ischaemic colitis
3 Recognise and manage ischaemic colitis after abdominal aortic aneurysm repair
2 Manage the complications of radiotherapy: fistula, obstruction, malabsorption, necrosis, haemorrhage
2 Arrange local therapy for radiation proctitis

**Miscellaneous colitidis**
1 Manage the following: diversion colitis, neutropenic enterocolitis, collagen-vascular colitis, microscopic colitis

**Technical skills**

**Ulcerative colitis- surgical management**
2 Colectomy-total+ileostomy
2 Colectomy-total+ileorectal anastomosis
2 Rectum-panproctocolectomy+ileostomy
1 Ileoanal anastomosis+creation of pouch

**Crohn's disease - surgical management:**
1 Rectum-panproctocolectomy+ileostomy
2 Colectomy-right
2 Colectomy-transverse
1 Colectomy-left
1 Colectomy-sigmoid
1 Colectomy-total+ileostomy
1 Colectomy-total+ileorectal anastomosis
2 Crohn's-ileocaecectomy
1 Strictureplasty-Crohn's
1 Gastroenterostomy
1 Intestinal fistula operation
1 Fistula-in-ano-high-advancement flap
1 Fistula-in-ano-high-cutting seton
1 Fistula in ano-high-drainage seton
1 Fistula-in-ano-high-other
1 Fistula-in-ano-low-lay open
1 Fistula-operation for rectovaginal fistula
ENDOSCOPY for LOWER GI SURGEONS

Knowledge

Equipment:
3 Structure and function of an endoscope, processor and accessories, including diathermy

Sedation and monitoring:
4 Sedative and analgesic drugs and side-effects
4 Appropriate patient monitoring
4 Treatment of adverse effects

Proctoscopy:
4 Indications for proctoscopy
4 Complications of proctoscopy

Rigid sigmoidoscopy:
4 Indications for rigid sigmoidoscopy
4 Complications of rigid sigmoidoscopy
4 Patient preparation and documentation

Flexible sigmoidoscopy:
4 Indications for flexible sigmoidoscopy
4 Complications of flexible sigmoidoscopy
4 Patient preparation and documentation
4 Basic Skills in Endoscopy course

Clinical Skills

Equipment:
3 Clean and disinfect equipment in accordance with BSG guidelines
3 Use equipment in accordance with manufacturer's instructions

Sedation and monitoring:
4 Ability to safely and effectively sedate a patient for endoscopy
4 Monitor appropriately before, during and after procedure

Flexible sigmoidoscopy:
4 Deal appropriately with findings, including biopsy
4 At least 100 procedures performed within a year, 50 supervised and 50 with immediate advice available

Technical Skills

Proctoscopy:
4 Proctoscopy
4 Haemorrhoids-OP treatment(injection, banding or infrared coagulation)

Rigid sigmoidoscopy:
4 Sigmoidoscopy-rigid

Flexible sigmoidoscopy:
4 Sigmoidoscopy-flexible
STOMAS

Knowledge

Indications for stomas:
4 Indications for colostomy
4 Indications for ileostomy
3 Types of stomas (loop, end, end loop, double barrel) in relation to indications

Complications:
3 High-output ileostomy

Stoma management:
3 Stoma appliances, and appropriate selection
2 Indications, contraindications and complications for stoma irrigation

Stoma physiology:
4 The physiologic changes associated with ileostomy, colostomy, urostomy
4 Normal ileostomy function including anticipated daily outputs and changes that occur in output with post-operative adaptation
3 Causes of high output stomas
3 Differential diagnosis of high output

Patient education and counselling:
3 The possible effects that a stoma may have on medication dosage and absorption

Clinical skills

Pre-operative evaluation for stomas:
3 Discuss ostomy expectations with patients regarding function and anticipated output along with precautions for fluid and electrolyte balance, depending upon the type of stoma involved
2 Demonstrate proper siting and marking techniques for all stoma placement, including such considerations as scars, the umbilicus, skin creases, belt and clothing and positioning (standing, sitting and supine positions)

Stoma creation and closure:
2 Perform stoma construction and closure
2 Organise preparation for stoma closure in the case of temporary faecal diversion including: timing of closure, necessary pre-operative evaluation, care of the post-operative stoma site wound

Post-operative care:
4 Appreciate the normal post-operative course for colostomy and ileostomy function
4 Recognise the signs, symptoms and management for the following complications that occur in the immediate post-operative period: ischaemia, mucocutaneous separation

Complications:
3 Recognise and manage high-output ileostomy
1 Recognise parastomal skin irritation of significance, list a differential diagnosis, and make recommendations for appropriate management
2 Manage ileostomy and colostomy prolapse
1 Management of parastomal hernia
2 Recognise and manage skin conditions associated with stomas
4 Recognise and manage ileostomy food obstruction

Stoma management:
4 Early post-operative management of conventional stoma
3 Advise on various skin barriers and accessory products available for the management of stomas
2 Management of a retracted stoma
3 Advise on dietary considerations for patients with an ileostomy or a colostomy, including impact of diet on stoma output, flatus, odour, bolus obstruction

**Stoma physiology:**
4 Appropriately manage fluid and electrolyte abnormalities

**Patient education and counselling**
2 Demonstrate stoma bag emptying, stoma bag changing, management of leakage

**Technical skills**

**Stoma creation and closure:**
2 Ileostomy-construction
2 Colostomy-construction
1 Ileostomy-closure
1 Colostomy-closure
2 Hartmann's procedure
1 Hartmann's reversal
1 Colostomy-revision
1 Ileostomy-revision
2 Hernia repair- parastomal
Breast - Oncoplastic
BREAST ASSESSMENT

KNOWLEDGE

Normal anatomy
3 Breast and nipple
3 Axilla and related drainage
3 Chest wall
3 Abdominal wall
2 Breast aesthetics Measurements

Embryology / developmental abnormalities
Accessory nipples, hypo/hypertrophy, asymmetry

Breast and endocrine physiology
Endogenous hormones
3 Puberty / menarche
3 Pregnancy
3 Lactation
3 Menopause
Exogenous hormones
3 OCP, HRT, SERMS etc

Breast assessment
4 Triple assessment Understand indications, use, interpretation
4 Diagnostic grid/concordance
4 Imaging: Ultrasound, mammography: standard views
4 Pathology Cytology FNAC
4 Histology core biopsy Punch biopsy

Extended assessment
3 Additional mammography views
3 MRI
2 vacuum biopsy
3 surgical biopsy

Management
4 Record findings - diagnostic grid
2 Interpret findings
2 develop plan
2 communicate findings and plan

CLINICAL SKILLS

4 History
4 Examination Breast, nodal basin, relevant systems Inspection and palpation
3 Investigation Triple assessment Ultrasound interpretation
3 Imaging techniques Mammography interpretation

TECHNICAL SKILLS

3 Fine needle aspiration Cytology; cyst/abscess drainage
2 Image guided
3 Core biopsy Clinical
2 Image guided
4 Punch biopsy
BENIGN BREAST CONDITIONS

KNOWLEDGE
3 Applied Anatomy
3 Embryology
3 Pathophysiology Benign disorders BBC
3 Cysts
3 Fibroadenoma
3 Duct disease / ectasia / papilloma
3 Breast pain
4 Skin conditions e.g. eczema
3 Gynaecomastia
3 Breast sepsis – Lactational microbiology
3 Breast sepsis - non lactational Periductal - microbiology
2 Other - microbiology

CLINICAL SKILLS
3 History and Examination Breast, nodal basin, relevant systems
4 Investigation
4 Triple assessment
2 Imaging techniques: Ultrasound interpretation, Mammography interpretation, MRI - indications and interpretation
2 Management plan

TECHNICAL SKILLS
4 Drainage of breast abscess Open
2 Image guided
3 Breast lump excision
2 Excision image guided lesion
3 Microdochectomy
3 Major duct excision
3 Fistulectomy
2 Nipple eversion
2 Reduction Mammaplasty
2 Mastopexy
2 Augmentation
BREAST CANCER

KNOWLEDGE

3 Genetics of breast cancer - Family History
2 NICE Guidelines
2 Risk lesions LCIS, ADH

Pathology of in-situ breast cancer
2 Clinicopathology
2 Epidemiology

Invasive breast cancer
3 Taxonomy
3 Staging
3 Epidemiology
3 Cancer biology

Prognostic factors
2 Chief prognostic factors
2 Relevance to treatment
3 Risk assessment / genetic testing / counselling Advice, diet, lifestyle, screening, risk reduction surgery

Screening
2 National Health Breast Screening Programme / Family history Evidence, organisation
2 Screening assessment Delivery, imaging modality, results
Cancer staging
3 Bone scan, MRI, CT, PET, tumour markers etc Understand indications and use of imaging

Management/ treatment
3 Risks and benefits of treatment/no treatment Understand indications
2 Treatment Indications for breast conservation / mastectomy
2 Neoadjuvant therapies including primary medical therapy
2 Indications for radiotherapy
2 Adjuvant chemotherapy - principles and indications
2 Endocrine therapies
2 Herceptin

Breast Service Delivery and QA
3 Multidisciplinary Teams
2 Guidelines and protocols - network, national, etc NICE
2 Ass of Breast Surgeons
2 National Health Breast Screening Programme
1 ASCO, ST Gallen

CLINICAL SKILLS

3 History and Examination Breast, nodal basin, relevant systems
3 Investigation Triple assessment

Imaging techniques
3 Ultrasound interpretation
3 Mammography interpretation
2 MRI - indications and interpretation

Management plan
3 Develop and record plan
2 Communication / informed consent

TECHNICAL SKILLS

Wide local excision
3 Palpable lesion
3 Image wire localised/ skin marked - impalpable

Mastectomy
3 Simple
2 Skin sparing, nipple sparing/ sacrificing
3 Modified radical
2 Skin reducing

Axillary surgery
3 removal axillary breast tissue/nipple
4 Lymph node biopsy
3 Axillary clearance –Primary . Level 1-3
3 Axillary clearance - completion ( delayed)
3 Axillary surgery – repeat (recurrence)
3 SLNB ( dual technique)
3 SLNB ( blue dye only)

Reconstructive surgery
2 Indications
2 Immediate and delayed Implant only
2 Latissimus dorsi flap with or without implant
1 Breast Aesthetics TRAM flap
1 Breast dimensions DIEP flap
2 Reduction mammoplasty
2 Augmentation
1 Lipomodelling
1 Liposuction
1 Skin grafting
2 Salvage surgery Chest wall resurfacing
2 Complex wound management VAC dressings

Oncoplastic techniques
2 Mastopexy
2 Therapeutic mammoplasty
2 Round block
2 Grisotti
2 Symmetrisation surgery

Nipple areolar complex
2 Nipple free graft
2 Nipple reconstruction local flap
2 Skin graft
2 Nipple tattoo
2 Nipple sharing

Developmental corrections
2 Gynecomastia
2 Tubular breast
2 Hypoplasia

Vacuum excision
1 Mammothome/encore system
Endocrine
NECK SWELLINGS

Knowledge

3 Anatomy of triangles of the neck including: submental / submandibular / anterior / posterior
3 Causes of enlargement of salivary glands / thyroid gland incl. thyroglossal cyst / lymph nodes / other
(vascular, skin & soft tissue incl. branchial cyst)

Clinical skills

4 History and examination of neck swellings
3 Investigation of neck swellings including diagnostic imaging, ENT assessment, pathology and biochemistry

Technical skills

3 Biopsy-FNA
2 Lymph node biopsy-cervical
Thyroid

Knowledge

2 Anatomy of the neck, in particular thyroid and parathyroid glands
2 Pathophysiology of thyroid swellings - generalised/ solitary; functioning/non-functioning
2 Benign disorders of thyroid growth
2 Diffuse enlargement, nodular disease
2 Disorders of thyroid function Causes, Treatment options
2 Thyroid malignancy Differentiated, medullary, anaplastic, lymphoma
2 Genetic implications of thyroid malignancy
2 Thyroid replacement therapy in benign disease
2 Follow up and non surgical management / treatment of thyroid malignancy
1 Medical treatment of thyrotoxicosis
2 Principles of operation for thyroid swellings and thyrotoxicosis
3 Complications of thyroid surgery

Clinical Skills

3 History + examination
2 Investigations-Thyroid function + autoantibodies; FNA; Ultrasound;Isotope scan
2 Indications for surgery- thyrotoxicosis, benign nodular disease, malignancy
2 Decision for operative or non-operative management and choice of operation
3 Management of post-operative bleeding, airway problems or hypocalcaemia
2 Diagnosis and management of recurrent thyroid disease- bbenign, malignant, MDT

Technical Skills

Operative management:
2 Thyroid-lobectomy
2 Thyroidectomy- subtotal
1 Thyroidectomy - total
1 Thyroidectomy-toxic goitre
1 Thyroidectomy-total+cervical node dissection
1 Thyroid surgery-reoperative
1 Cervical approach to retrosternal goitre
1 Sternotomy for retrosternal goitre
1 Thymectomy - transcervical approach
**Parathyroid**

**Knowledge**

2 Anatomy / embryology / pathophysiology
2 Genetic implication of parathyroid disease
2 Hypercalcaemia; causes, investigation, medical management
2 Hypocalcaemia, causes, investigation, medical management
2 Causes of hyperparathyroidism: Primary, renal, MEN, persistent or recurrent carcinoma
2 Diagnosis and assessment
2 Indications for and types of imaging
2 Indications for surgery in renal parathyroid disease
2 Surgical strategies for hyperparathyroidism
2 Intra-operative management, Frozen section, PTH assay
3 Complications of parathyroid surgery
2 Options for and organisation of follow-up

**Clinical Skills**

3 History + examination + investigation (biochemical / radiological)
2 Selection for surgery
2 Options: 4 gland exploration, single gland exploration, Subtotal resection, Transcervical thymectomy
2 Focussed approach to parathyroid surgery
1 Indications for mediastinal exploration
3 Management of bleeding, airway problems or hypocalcaemia

**Technical Skills**

1 Parathyroidectomy
1 Parathyroid surgery - reoperation
1 Thymectomy - transcervical
ADRENAL

KNOWLEDGE

2 Anatomy and physiology of adrenal
1 Genetic implications of adrenal disease
2 Causes of adrenal mass
1 Disorders of adrenal function Hyperadrenalism
1 Hypoadrenalism
1 Indications for surgery
1 Effect of hormone producing tumours in perioperative period
1 Open or laparoscopic surgery
1 Different approaches to adrenal - Anterior, posterior, laparoscopic
1 Complications of adrenalectomy

CLINICAL SKILLS

2 History and examination
1 Investigations - Biochemical, radiological
1 Selection for surgery
1 Preoperative preparation for hormone secreting tumours - Endocrinologist, Anaesthetist consultation
2 Postop management of acute adrenal insufficiency
1 Postoperative management of patients with hormone secreting tumours
2 Management of postop bleeding and infection
2 Appropriate follow-up

TECHNICAL SKILLS

1 Adrenalectomy
PANCREATIC ENDOCRINE

KNOWLEDGE
2 Presentation of neuroendocrine tumours - Insulinoma, gastrinoma, MEN1, glucagonoma, VIPoma, non-functioning tumour
3 Investigation
2 Treatment options
2 Complications Bleeding, fistulae, diabetes

CLINICAL SKILLS
2 History and examination
2 Investigations Biochemical, radiological, preop and intraop ERCP, EUS
1 Treatment options and preop preparation Laparoscopic or open Pancreatic resection, enucleation, Biliary bypass, hepatic resection, ablation of tumour
1 Metastatic disease management
2 Postop complications Indication for re-operation, Pancreatic leak / fistula, nutrition

TECHNICAL SKILLS
1 Reoperation
1 Pancreas enucleation
1 Distal pancreatectomy
1 Pancreaticoduodenectomy
2 Biliary bypass
1 Left hepatectomy
1 Right hepatectomy
1 Ablation of hepatic tumour
MEN SYNDROMES

KNOWLEDGE

2 MEN syndromes - MEN1, MEN2, Familial medullary thyroid cancer
2 Genetics and screening
2 Pathophysiology
2 Clinical presentation
2 Subclinical disease
2 Natural history
2 Diagnosis and management Medullary thyroid cancer, hyperparathyroidism
1 Phaeochromocytoma, pancreatic neuroendocrine disease
2 Indications and timing for surgery Recurrent MTC, parathyroid disease
2 Complications of organ related operation
2 Recurrent disease

CLINICAL SKILLS

2 History and examination
2 Investigations Biochemistry, radiology, cytology/histology, genetic
2 Management of at risk patients / families Counselling, endocrinologist and genetics consultation 2 2
2 Choice of appropriate operation
1 Postoperative management Relevant to specific operation
1 MDT Liaison
Vascular
Superficial Venous disease

Knowledge

Varicose veins - primary varicose veins:
4 Anatomy of the venous system
4 Aetiology and physiology - Venous dynamics, Pathology, Superficial venous incompetence
3 Complications of varicose veins - Venous hypertension, Oedema, lipodermatosclerosis, ulceration
3 Indications for surgery for varicose veins

Recurrent varicose veins:
2 Failure of primary intervention
2 Neovascularisation
2 Recanalisation
2 Pelvic venous reflux
2 Indications for investigation and treatment

Clinical Skills

Varicose veins:
4 History - Presenting symptoms and complications
4 Examination of the venous system of the lower limbs - varicosities, venous incompetence, complications
3 Select patients who require pre-operative investigations such as Duplex scanning
3 Select patients who require surgery and type of surgery
3 Non-operative management
2 Complications of varicose vein surgery

Technical Skills

Varicose veins - primary varicose veins
3 Injection sclerotherapy
3 Vvs-long saphenous-SFJ lign+/-strip+/- avulsions
2 Vvs-SPJ ligation+/-strip+/-avulsions
3 Vvs-multiple stab avulsions
3 Endovascular ablation

Varicose veins - recurrent varicose veins
2 Vvs-recurrent-re-do SFJ lign+/-avulsions
2 Vvs-recurrent-multiple stab avulsions
2 Vvs-recurrent-re-do SPJ lign+/-avulsions
Deep Vein Thrombosis

**KNOWLEDGE**

3 Anatomy of deep veins lower limb / pelvis  
2 Pathophysiology of DVT  
3 Management of uncomplicated DVT  
2 Early / late complications of DVT  
4 Prophylaxis  
2 Indications for intervention Caval filter, Protected thrombolysis, Surgical Thrombectomy

**CLINICAL SKILLS**

4 History and examination  
2 Investigations Duplex, Venography (MR or standard)

**TECHNICAL SKILLS**

2 Endovenous therapy(thrombolysis)  
1 Venous thrombectomy
Chronic deep venous insufficiency

**KNOWLEDGE**

2 Pathology of deep venous incompetence DVT
1 Valvular dysfunction
1 Valvular agenesis

**Management options**

2 Compression
2 Valvuloplasty
1 Valve transplant
1 Bypass
1 Amputation

**CLINICAL SKILLS**

2 History
2 Examination Diagnose complications
2 Investigation Duplex, Venography
**Haematology**

**Knowledge**

**Heparin:**
3 Role of antithrombin III and the dual action of heparin on thrombin (factor II) and factor Xa (IX a and XI a also)
4 Half-life, routes of administration and uses of heparin.
4 Complications of heparin therapy
4 Intraoperative use of heparin including monitoring techniques (TEG) and reversal
3 Mechanism of action and complications of protamine sulfate

**Low Molecular Weight Heparin (LMWH):**
3 Rationale for the development of LMWH and its advantages over unfractionated heparin
4 Mechanism of action
3 Understanding of why it can be used without monitoring and why it is less haemorrhagic than unfractionated heparin
3 Clinical applications in HITS and prophylaxis
4 Cost benefits of out patient treatment of venous thrombosis

**Heparin-induced Thrombocytopenia (HIT):**
4 Understanding of the incidence of Heparininduced Thrombocytopenia (HIT), of thrombotic complications and the mortality rate
4 Risk factors
3 Differences between Type I and Type II HIT
4 Diagnostic criteria
3 Pathophysiology of antibody formation
3 Limitations of the various diagnostic tests
3 Indications for further anticoagulation and agents available

**Warfarin:**
3 Mechanism of action including the roles of proteins C and S
3 Understanding of why heparin should be given for the first 3-4 days of warfarin treatment
4 Medical conditions, foods and common drugs that affect warfarin’s anticoagulant activity
4 Complications of warfarin therapy and how to reduce them
4 Recommended INR levels
3 Indications, methods and complications of reversing warfarin

**Antiplatelet therapy:**
3 Structure and function of the platelet
3 Role of platelets in primary and secondary haemostasis and in pathologic thrombosis
3 Sequence of platelet activation
4 Platelet agonists and antagonists
3 Antiplatelet agents currently available and their mechanisms of action

**Clinical Skills**

**Heparin:**
4 Recognition of patients who require heparin and their subsequent management

**Low Molecular Weight Heparin (LMWH):**
4 recognition of patients who require low molecular weight heparin and their subsequent management

**Heparin-induced Thrombocytopenia (HIT):**
3 Management of a patient with HIT

**Warfarin:**
4 Management of a vascular patient on warfarin
3 Management of over anticoagulation
**Antiplatelet therapy:**

4 Appropriate prescribing of antiplatelet drugs in the vascular patient
Acute limb ischaemia

Knowledge

Acute limb ischaemia
3 Anatomy of the arterial system
3 Pathophysiology of acute limb ischaemia- embolism, thrombosis, trauma, iatrogenic interventions
2 Risk factors for acute limb ischaemia
4 Knowledge of causes of acute limb ischaemia
2 Conservative management
2 Management - embolectomy, thrombolysis, primary amputation
2 Subsequent management and investigation of patient with acute limb ischaemia
1 Pathophysiology of compartment syndrome
3 Ischaemia reperfusion injury and systemic effects
2 Ways of attenuating effects of reperfusion

Clinical skills

Acute limb ischemia
4 History and examination to detect acute limb ischaemia
2 Arrange appropriate urgent investigations: duplex, angiogram, ECHO
3 Can recognise when intervention is not appropriate

Complications of acute limb ischaemia
2 Manage patient when embolectomy fails
2 Manage patient with rhabdomyolosis
1 Peroperative thrombolysis
1 Emergency bypass

Thrombolysis
3 Manage patient undergoing Thrombolysis
2 Management of complications of Thrombolysis

Technical skills

Acute limb ischaemia
3 Surgical approaches to the arterial tree
3 Surgical control of upper and lower limb blood vessels
3 Thrombo-embolectomy-arterial-femoral
2 Thrombo-embolectomy-arterial-brachial
2 Thrombo-embolectomy-arterial-popliteal
2 Peroperative angiogram and thrombolysis
1 emergency vascular reconstruction
3 Percutaneous angiogram

Complications of acute limb ischaemia
3 Fasciotomy
**Chronic lower limb ischaemia**

*Knowledge*

**Chronic lower limb ischaemia - assessment:**
1. Anatomy of arteries supplying the lower limb.
2. Role of ultrasound and angiography and other imaging (e.g. MRA)
3. Role of angioplasty

**Pathology**

1. Atherosclerosis (atherothrombosis) and complications.
2. Cystic adventitial disease, popliteal entrapment, fibromuscular dysplasia
3. Co-existing disorders - Diabetes, Buerger's disease, autoimmune vasculitis
4. Congenital disorders - Persistent sciatic artery
5. Recognition of cardiovascular risk and management
6. Understanding of diabetes and impact on arterial disease
7. Epidemiology of tobacco smoking
8. Natural history of lower limb arterial disease
9. Critical limb ischaemia

**Chronic lower limb ischaemia - Management:**

1. Basic principles of management of hypertension and hyperlipidaemia and diabetes
2. Role of antiplatelet drugs
3. Role of exercise
4. Indications for intervention
5. Surgical approaches to infra-inguinal vessels
6. Types of anaesthesia
7. Potential complications of vascular surgery
8. Technical components of vascular anastomosis and commonly occurring problems

**Amputation:**

1. Types of amputation and advantages of each
2. Potential complications of amputation

*Clinical skills*

**Chronic lower limb ischaemia - assessment:**
1. Ability to take a relevant history and examine vascular system
2. Ability to run risk factor clinic
3. Use of ankle pressure measurements
4. Role of Duplex ultrasound, CT angio, MRA
5. Interpretation of angiograms

**Chronic lower limb ischaemia - management:**

1. Selection for surgery, angioplasty, amputation
2. Management of post-operative wounds, seroma
3. Management of graft complications, graft surveillance programme

*Technical skills*

1. Percutaneous angiography
2. Exposure of aorta, iliac, femoral, popliteal and tibial vessels
3. Exposure of axillary artery
4. Vascular anastomosis (end-to-end, end-to-side)
5. Aorto-iliac & aorto-femoral bypass
6. Ilio-femoral bypass
7. Axillo-femoral bypass
8. Fem endarterectomy / patch
1 Ilio-femoro and femoro-femoral cross-over
1 Above-knee femoro-popliteal bypass
1 Below-knee femoro-popliteal bypass
1 Distal bypass (AT, PT & peroneal)
1 Pedal bypass
1 Vein preparation insitu/ reversed/arm vein/SSV
1 Vein cuff / patch
1 Intra-operative assessment doppler & angiography

Amputation:
1 Level Selection
2 Amputation-digit(s)
1 Transmetatarsal amputation
1 Amputation-BK- Posterior flap, skew flap
1 Knee disarticulation
1 Amputation-AK
Upper limb ischaemia/Thoracic Outlet Syndrome

Knowledge

Chronic Upper limb ischaemia - diagnosis and assessment:
3 Anatomy of the vessels of the upper limb and thorax
3 Pathophysiology of ischaemia of the upper limb; atheroma, external pressure, radiation, inflammation, radiation, embolism
3 Pathophysiology of subclavian steal
1 Thoracic outlet syndrome, knowledge of anatomy, presentation, differential diagnosis, pathology and investigation

Chronic Upper Limb ischaemia - treatment:
1 Indications for conservative management, radiological intervention and surgery
1 Indications for treatment of subclavian steal
1 Wires, sheaths and stents for upper limb use
1 Techniques and conduits for upper limb bypass
1 Drug treatment eg prostacyclin

Chronic Upper limb ischaemia - ongoing care:
1 Means of secondary prevention of upper limb ischaemia
1 Complications of surgery for upper limb ischaemia
1 Causes of pain in the upper limb following intervention including complex regional pain syndrome
1 Therapeutic options for management of CRPS including dorsal sympathectomy

Clinical Skills

Chronic Upper limb ischaemia - diagnosis and assessment:
3 History and examination of the vascular system of the upper limb
1 History and examination of the upper limb to diagnose thoracic outlet syndrome
1 Appropriate investigation; Duplex ultrasound, MR angiography, angiography CTA, IADSA

Chronic Upper Limb ischaemia - treatment:
1 Selection of patients for different forms of intervention

Chronic Upper limb ischaemia - ongoing care
1 Manage complications of surgery or interventional radiology including surveillance
1 Thoracoscopic cervical sympathectomy

Technical Skills

Chronic Upper Limb ischaemia - treatment:
1 Amputation-digit(s) / upper limb
1 Thoracic outlet syndrome- surgical decompression
1 Carotid-subclavian bypass
Aortic aneurysm

Knowledge

Aortic aneurysm - diagnosis and assessment:
4 Anatomy of the aorta and main branches
3 Pathology and risk factors for aneurysm formation
3 Indications for intervention
4 Natural history
3 Investigation - Ultrasound/CT scan/MR scan
2 Screening programmes

Aortic aneurysm - treatment:
2 Knowledge of open repair
1 indications, limitations and methods of assessment for endovascular repair suitability

Aortic aneurysm - ongoing care:
2 Complications of open aortic surgery
2 Means of secondary prevention of vascular disease
2 indications for renal support

Aortic Aneurysm - Management of complex aneurysms:
1 strategy to deal with : horseshoe kidney, inflammatory, mycotic aneurysm, aorto-caval fistula, co-existent renal transplant

Endovascular AAA repair - ongoing management:
1 Types of endoleak
1 Follow-up regimen and management of complications
1 Indications for supra-renal fixation

Clinical Skills

Aortic aneurysm - diagnosis and assessment:
3 History and examination
3 Assessment of co-morbidity - Able to objectively assess cardiac, respiratory and renal system

Aortic aneurysm - treatment:
3 Selection of patients for conservative management, open operation or Endovascular stent graft

Aortic aneurysm - ongoing care:
2 Ability to recognise and manage complications: bleeding (including DIC), thrombosis, embolism, , organ failure and leg ischaemia
1 Aorto-caval fistula, gut ischaemia
1 infected graft

Aortic Aneurysm - Management of complex aneurysms:
1 Able to repair AAA in conjunction with aorto-caval fistula, when inflammatory aneurysm, transplanted and horseshoe kidney
1 Able to deal with mycotic AAA

Technical Skills

Elective Aortic aneurysm – open surgery:
1 AAA-tube graft-part-control/dissection
1 AAA-tube graft-proximal anastomosis
1 AAA-tube graft-part -distal aortic anastomosis
1 AAA-tube graft - complete operation
1 AAA-bifurcated graft-part-control/dissection
1 AAA-bifurcated graft-part-proximal anastomosis
1 AAA-bifurcated graft-part-femoral anastomosis
1 AAA-bifurcated graft-complete operation

**Endovascular AAA repair:**
1 Endovascular repair part operation-can place guidewire in aorta and deploy proximal end of graft
1 Endovascular repair part operation- can deploy distal ends of graft in iliac arteries
1 Remove graft that has migrated and replace with open graft
1 Deal with occluded limb
1 Supra-renal fixation of graft
1 Recognise endoleak on angiogram and treat it endovascularly
Ruptured abdominal aortic aneurysm

**Knowledge**

**Diagnosis and management**
4 Patients at risk
4 Clinical features
3 Role and timing of investigation
3 Hypovolaemia relevant to the condition
4 Understands importance of immediate intervention
2 role of emergency endovascular management

**Operation**
3 Anatomy of the abdomen and major vessels- supra-coeliac and infrarenal approach
2 Basic physiology of aortic clamping
2 Intra-abdominal compartment syndrome and intra-operative management
3 Coagulopathy

**Post-operative care**
2 Nutrition
3 Fluid Balance
3 Respiratory and renal physiology
3 Cardiac function

**Complications**
3 Early and late complications – open and endovascular
2 Indications for investigation such as CT scan

**Clinical skills**

**Diagnosis and management**
4 History and examination
2 Patient Selection and assessment of co-morbidity

**Operation**
3 Recognises signs of coagulopathy and initiate basic treatment

**Post-operative care**
2 Understands need for nutritional support
3 Fluid requirements
2 Able to work in an ITU environment

**Complications**
2 Clinical recognition of complications: bleeding, thrombosis, embolism, organ failure
2 Recognise need for early and late reintervention

**Technical skills**

Ruptured Aortic aneurysm – open surgery:
1 AAA-tube graft-part-control/dissection
1 AAA-tube graft-proximal anastomosis
1 AAA-tube graft-part -distal aortic anastomosis
1 AAA-tube graft - complete operation
1 AAA-bifurcated graft-part-control/dissection
1 AAA-bifurcated graft-part-proximal anastomosis
1 AAA-bifurcated graft-part-femoral anastomosis
1 AAA-bifurcated graft-complete operation
1 Suprarenal aortic aneurysm repair
1 Femoral thrombectomy and or additional lower limb revascularisation.
1 Endovascular AAA repair
**Femoral aneurysym**

**Knowledge**

Femoral artery aneurysm - diagnosis and assessment:
1. Anatomy of the femoral artery and branches
2. Aetiology
3. Indications for intervention
4. Natural history of femoral artery aneurysms
5. Investigation: ultrasound, CT scan, role of angiography

Femoral Artery Aneurysm - treatment:
1. Indications for interventional treatment
2. Knowledge of surgical approaches

Ruptured Femoral Artery Aneurysm - treatment
1. Recognise and investigate

**Clinical Skills**

Femoral artery aneurysm - diagnosis and assessment:
1. History and examination
2. Assessment of co-morbidity
3. Perform ultrasound examination of femoral artery

Femoral Artery Aneurysm - treatment:
1. Selection of patients for conservative management
2. Methods of repair of femoral artery aneurysm

**Technical Skills**

Ruptured Femoral Artery Aneurysm
1. Extra-peritoneal control of iliac vessels
Popliteal aneurysm

Knowledge

Popliteal artery aneurysm - diagnosis and assessment:
4 Anatomy of the popliteal artery and branches
2 Aetiology
2 Indications for intervention
2 Natural history, risk of limb loss
2 Investigation: Ultrasound, CT scan, MR scan, role of angiography

Popliteal Artery Aneurysm - treatment
2 Indications for interventional treatment
1 Knowledge of surgical approaches
1 Indications for open versus endovascular repair

Thrombosed popliteal artery aneurysm:
3 Recognise and describe clinical symptoms and signs
1 Investigation: Duplex, angiography
1 Treatment options; thrombolysis, surgery, conservative
1 Complications of thrombolysis, bleeding, distal embolisation
2 Indications for fasciotomy

Clinical Skills

Popliteal artery aneurysm - diagnosis and assessment:
3 History and examination
2 Assessment of co-morbidity
1 Perform ultrasound examination of popliteal artery

Popliteal Artery Aneurysm - treatment:
1 Selection of patients for conservative management, open operation or endovascular stent graft

Thrombosed popliteal artery aneurysm:
2 Initiate thrombolysis
3 Manage patient undergoing thrombolysis

Technical Skills

Popliteal Artery Aneurysm - treatment:
1 Percutaneous angiography
1 Peroperative angiography
1 Peroperative thrombolysis
1 Aneurysm-popliteal-repair-exclusion bypass of popliteal artery aneurysm
1 Aneurysm-Popliteal-repair-direct inlay graft repair
2 Fasciotomy
**False aneurysm**

**Knowledge**

False aneurysms of peripheral arteries – diagnosis and assessment:
2 Pathology of false aneurysms
2 Aetiology: Trauma, post surgical, infective, connective tissue disorders
1 Complications of false aneurysms

Treatment of false aneurysm:
2 Recognise sites of common occurring false aneurysms: Femoral, brachial, radial aortic, anastomotic
2 Indications for direct repair, ligation or endovascular repair
1 Indications for use of thrombin

**Clinical Skills**

False aneurysms of peripheral arteries – diagnosis and assessment:
2 History and examination
2 Assessment of co-morbidity
1 Perform ultrasound examination of femoral artery

Treatment of false aneurysm:
1 Selection of appropriate treatment
1 Ultrasound thrombin injection of false aneurysm

**Technical Skills**

Treatment of false aneurysm:
1 False aneurysm repair-IV drug abuser
1 False aneurysm repair-post anastomosis
1 False aneurysm repair-post catheterisation
1 False aneurysm-ligation
1 Extra peritoneal control of iliac vessels
Carotid body tumors + aneurysms

Knowledge

Diagnosis and assessment of carotid body tumour:
1 Epidemiology and pathology
1 Associated medical conditions
1 Investigation: Angiogram, CT scan, MR angiogram, CT angiogram, MIBI Scan

Treatment of carotid body tumours:
1 Indications for treatment

Management of complications of treatment for carotid body tumours:
1 Understanding of possible complications: Bleeding, cranial nerve injury, airway obstruction, malignancy

Carotid aneurysms:
2 Aetiology, pathology and natural history
2 Diagnosis
2 Investigation: Duplex, CT scan, MR angiogram
1 indications for surgery

Clinical Skills

Diagnosis and assessment of carotid body tumour:
2 Clinical examination and recognise clinical features

Management of complications of treatment for carotid body tumours:
1 Identify and manage complications

Carotid aneurysms:
3 Clinical examination
1 Methods of reconstruction including: Direct repair, Vein jump graft

Technical Skills

Treatment of carotid body tumours:
1 Carotid body tumour excision
Carotid aneurysms:
1 Carotid aneurysm excision
**VASCULAR ACCESS**

**Knowledge**
3 anatomy of upper and lower limb arteries and veins
3 List indications for VA
3 Knowledge of methods of renal support; advantages and disadvantages
3 Physiology of arterio-venous fistulae
3 Knowledge of conduit material
3 List complications of VA
2 Knowledge of preoperative investigations including ultrasound

**Clinical Skills**
1 Pre-operative assessment and choice of VA
1 Arrange appropriate investigations
1 Create brachiocephalic fistula
1 Create basilic vein transposition AV fistula
1 Create forearm loop graft
1 create thigh loop graft
1 Undertake revision procedures
1 Arrange surveillance
Renal artery disease

Knowledge

Pathology of renal artery disease:
3 Normal renal artery anatomy
3 Physiology of renal control of blood pressure
2 Pathophysiology of renovascular disease and acute and chronic renal failure
2 Renal Pathology; atherosclerosis, emboli, fibromuscular dysplasia, aneurysmal disease, arteritis, trauma and drug treatments

Diagnosis and Investigation:
2 Clinical manifestations
2 Investigations; duplex, MRA, CT angiography, Isotope scans and IADS

Treatment:
2 Drug treatments and risk factor modification
2 Renal protection; drugs, contrast agents and iv fluids
2 Range of balloons, wires, sheaths, guiding catheters used in renal artery interventions
2 Role of angioplasty and stenting in renal artery disease
2 Surgical approach and options for renal artery disease
2 Complications of Treatment

Clinical Skills

Diagnosis and Investigation:
2 History and examination- renal failure, renal artery disease
2 Investigations: Urine and Blood Tests, Ultrasound scan, Interpretation

Treatment:
2 Prescribing appropriate medical therapies and avoidance of nephrotoxic agents
2

Complications of Treatment:
3 Manage patient in acute renal failure

Technical Skills

Treatment:
2 Selection for medical, radiological and or surgery treatment
1 Renal artery angioplasty /stenting /embolisation
1 Reconstruction-arterial-renal
Carotid artery disease

Knowledge

3 Anatomy and pathophysiology of various types of stroke
2 Classification schemes for acute stroke
2 Scales for describing the severity of acute stroke
2 Definition of a transient ischaemic attack (TIA) and provide a differential diagnosis for a suspected TIA
2 The relationship between thrombophilia/coagulopathies and TIA
2 Genetic causes of stroke
2 Epidemiology of risk factors for cerebral infarction
1 BHS, NICE, RCP and SIGN guidelines for the treatment of hypertension and hyperlipidaemia
2 The use of CT, MRI/A, Carotid Duplex, Transcranial Doppler, IA DSA and Echocardiography
2 The place of acute intervention including thrombolysis and neurosurgery
2 Complications of acute stroke and their multidisciplinary management
1 Cost effectiveness of stroke prevention measures
1 Principles of management of atrial fibrillation
1 Principles of use of antiplatelet agents
1 Principles of selection for carotid endarterectomy and stenting
1 Techniques of carotid surgery
1 use and interpretation of intraoperative measurements

Clinical Skills

1 Assess stroke risk in primary and secondary prevention setting
3 Appropriate clinical assessment including investigation and management plan
3 Provision of intensive monitoring to acute patients
2 Interpretation of CT and MRI/A Brain Scans
2 Interpretation of Carotid duplex and Carotid Angiography
1 Treat and lower blood pressure and lipids after stroke
2 To be able to initiate and control heparin and oral anticoagulants
2 To provide appropriate clinical advice on the use of antiplatelet agents

TECHNICAL SKILLS

1 Carotid endarterectomy - complete - GA
1 Carotid endarterectomy - complete - LA
1 Carotid Endarterectomy - part - dissection
1 Carotid endarterectomy - part - endarterectomy
1 Carotid endarterectomy - part - patch closure
1 Re-do carotid endarterectomy
1 Endovascular stent
Carotid trauma/ dissection

Knowledge

Diagnosis and management of carotid artery trauma:
1 Mechanisms of sharp and blunt carotid artery injury
1 Aetiology of carotid artery dissection
1 Investigation: Angiography, Duplex, MR angiography, CT Scan
1 Medical management of carotid dissection

Airway management:
2 Indications for tracheostomy

Clinical Skills

Diagnosis and management of carotid artery trauma:
1 Perform Duplex Scan
2 Control of bleeding in injured artery
2 Arterial trauma management
1 Repair including: intimal flap, direct repair, vein jump graft, use of shunt
Mesenteric vascular disease

Knowledge

3 Anatomy of aorta and mesenteric vessels
3 Pathophysiology of acute mesenteric ischaemia including embolism, thrombosis, venous occlusion, trauma, gut ischaemia following aortic reconstruction
3 Pathophysiology of chronic mesenteric ischaemia including atherosclerosis, aneurysm, extrinsic compression syndromes
3 Presentation of mesenteric vascular disease
2 Investigation - angiography, CT/ CTA
1 Means of treatment of acute/ chronic mesenteric ischaemia both via operation and interventional radiology
2 Complications of treatment

Clinical Skills

Mesenteric ischaemia - diagnosis and assessment:
3 Resuscitation
2 History and examination- acute
1 History and examination- chronic
2 Arrange appropriate investigation to exclude other pathology
2 Arrange appropriate investigation to identify mesenteric ischaemia, including mesenteric angiography, intra-arterial DSA, CT, MRA imaging, pre and post prandial mesenteric Duplex ultrasound
2 Interpretation of the clinical picture with the radiological abnormalities
2 Selection of patients for appropriate intervention whether emergency or elective

Technical Skills

1 Percutaneous angiography
1 Peroperative angioplasty
1 Reconstruction-arterial-mesenteric
2 Small bowel resection
2 Hartmann's procedure
VASCULAR TRAUMA

KNOWLEDGE

3 Surgical anatomy - Relationship to fractures, nerves, associated structures
3 Mechanisms of vascular injury – Traumatic / Iatrogenic
2 Pathophysiology of trauma and muscle ischaemia
2 Pathophysiology of A-V fistula
2 Investigations Invasive/ Non-invasive
2 Operative approach to specific injuries - Vascular, Combined arterial and Venous, Orthopaedic / neurological
2 Technical options for repair
2 Fasciotomy

CLINICAL SKILLS

3 Symptoms and signs of acute arterial / venous injury
2 Investigation - Ankle / brachial pressure index, Duplex, DSA
3 Manage multiply injured patient
2 Manage systemic effects of arterial trauma – rhabdomyolysis

TECHNICAL SKILLS

Surgical options
2 Ligation
2 Lateral suture repair
2 End to end anastomosis
2 Interposition vein / prosthetic graft
2 Panel / spiral grafts
2 Fasciotomy

Radiological
2 use of shunts
2 Imaging techniques
1 options for control of bleeding
HYPERHYDROSIS

KNOWLEDGE

3 Anatomy of sympathetic nervous system
3 Physiology of sympathetic nervous system
2 Pathophysiology
2 Presentation

Treatment options
2 Conservative + Medical
2 Surgical - cervical and lumbar sympathectomy

CLINICAL SKILLS

3 History and examination
1 Management strategy

TECHNICAL SKILLS

2 Axillary Botox therapy
1 Surgery- Thoracoscopic sympathectomy
Disorders of the Lymphatic Channels

Knowledge

Anatomy and pathophysiology of disorders of the Lymphatic channels:
2 Anatomy of the adult lymphatic system from the level of the terminal lymphatics to the cisterna chyli
2 Microscopic anatomy of the lymphatic capillaries and conducting lymph vessels and specifically how they differ from veins and arteries
2 Physiological determinants of lymph flow, including intrinsic contractility of lymph vessels, increased interstitial pressure, muscular activity, arterial pressure, respiratory pressure, and gravity
2 Major differences between the physiology of the lymphatic system from the venous system
2 Major functions of the lymphatic system, including transport of interstitial fluid and macromolecular proteins lost from capillaries, bacterial and fungal infections, foreign material
1 Classification of causes of lymphoedema
1 Primary lymphoedema Congenital - Nonfamilial; Familial (Milroy's Disease)
1 Primary Lymphoedema Praecox - Non-familial; Familial (Meige Disease)
1 Primary Lymphoedema Tarda
1 Secondary lymphoedema, including filariasis, lymph node excision and radiation, tumour invasion, infection, and trauma
1 Functional classification of lymphoedema based on the underlying lymphatic anatomy as determined by lymphangiography
1 Compensatory mechanisms that develop in response to increased interstitial pressure, and the tissue effects of chronic lymphatic obstruction including impaired immune cell trafficking, lymphatic obstruction, and chronic intestinal inflammation
1 Secondary consequences of long-standing lymphedema: infection, fibrosis, and neoplasia
2 Functional and anatomical abnormalities that cause chylous disorders
2 Consequences of the loss of chyle into body cavities or through a chylous fistula

Diagnosis and Assessment of lymphoedema:
1 Accuracy and limitations of the imaging modalities used to evaluate lymphatic disease: lymphoscintigraphy, computed tomography, and magnetic resonance imaging
1 Technique of lymphoscintigraphy; the features of a normal lymphoscintogram and the typical scintographic findings in primary and secondary lymphoedema
1 Indications, techniques, interpretation and complications of lymphangiograms

Management of lymphoedema:
1 Mechanisms of action and effectiveness/ineffectiveness of pharmacologic agents such as diuretics, benzopyrones, and steroids in the treatment of lymphoedema
1 Mechanical techniques to reduce a limb swelling including elevation, compression (elastic and non-elastic support, intermittent pneumatic compression, including pressure, ratio of compression/decompression, duration of therapy). and manual lymphatic drainage
1 Role of antibiotics in the treatment and prophylaxis of recurrent cellulitis in patients with chronic lymphoedema
1 Indications for surgical management of chronic lymphoedema

Diagnosis and management of chyle leak:
1 Biochemical and radiological methods of assessing a patient with a possible chyle leak

Clinical Skills

Diagnosis and Assessment of lymphoedema:
2 History and examination
2 Distinguish lymphoedema from other causes of extremity oedema
2 Differentiate between the various clinical presentation of and complications of chronic lymphoedema including infection (fungal and bacterial) and malignancy

Management of lymphoedema:
1 Non-operative management of primary and secondary lymphoedema
1 To be familiar with the operative technique, complication rate, and effectiveness of excisional procedures including the Charles procedure, Thompson's buried dermal flap, suction curetage, and Sistrunk procedures
1 Indications, technique, complication rate, and outcome of direct lymphatic reconstruction such as lymphovenous anastomosis including lymphnodal-venous and lymphvenous procedures
1 Indications, technique, complication rate, and outcome of lymphatic grafting
1 To describe the indication, technique, complications rate of indirect lymphatic reconstructions such as the mesenteric bridge operation, omental flap, and autotransplantation of free lymphatic flap
1 Indications, technique, complications, and outcome of procedures for primary chylous disorders

**Diagnosis and management of chyle leak:**
1 Management of wounds and drains leaking chyle
1 Nutritional management of chyle leak including the indications for low fat diet, medium chain triglyceride diet and parenteral nutrition
Interventional Radiology

Knowledge

Principles
2 Physics and hazards of ionising radiation to patients and staff
1 The sensitivity of different organs to ionizing radiation and the maximum yearly whole body dose
2 Current statutory requirements concerning the medical use of ionising radiation
3 Patients at high risk for blood borne pathogens
2 Procedures at high risk for radiation skin injuries and how to avoid such injuries
3 Incidence of hepatitis C in the IR patient population
2 Factors that affect radiation exposure to both patients and staff
1 Maintenance schedules for radiation protection devices

1 Arterial and venous access sites
1 Measures to improve angiographic image
1 Risks of radiation contrast
1 Risks of angiography and intervention
2 Indications for angioplasty / stenting
2 Expected results of angioplasty / stenting
2 Complimentary role of endovascular therapy Medical / surgical therapy
1 Role of different catheter types
1 Use of different guidewire types

Clinical Skills
2 Be able to operate radiation equipment safely and effectively
2 Appropriate use of lead protective clothing, lead glasses, shields and gloves
2 Uses methods of reducing the radiation dose to the patient and operator during IR procedures
2 Aware of how to limit / reduce work related musculoskeletal injuries in the IR environment
2 Able to reduce accidental exposure to blood and body fluids in the IR suite
**Technical skills**

1. Retrograde femoral artery puncture
2. Antegrade femoral artery puncture
3. Other arterial puncture
4. Ultrasound guided vascular puncture
5. Venous access
6. Secure vascular access with sheath, flush catheter and sheath
7. Position guidewire using fluoroscopy
8. Place non-selective catheter in aorta
9. Satisfactory diagnostic angiograms - Peripheral, renal, mesenteric, fistula
10. Recognises inadequate study
11. Use drugs appropriately - Vasodilators, anticoagulants, analgesics, sedatives, antiperistaltics
12. Angioplasty - Safely negotiates stenosis, appropriate balloon, check angiogram
13. Stenting Primary and secondary stenting
Transplant
Access for dialysis

Knowledge

3 Renal failure: Classification, Causes, Pathophysiology, Treatment options
2 Renal dialysis: Indications, Types of dialysis, Access sites, Complications, Timing of access
3 Vascular anatomy of the upper and lower limbs
3 Principles of pre-operative preparation and post-operative management including assessment of cardiac function and venous conduits

Clinical skills

Assess patients referred for vascular access:
2 Prepare patients for theatre including appropriate investigations
3 Identify appropriate access site

Needling techniques
1 buttonhole
1 rope-ladder
1 Use of PTFE grafts

Manage post-operative care:
2 investigations
2 Fluid Management
2 Drug therapy
2 Vascular complications - steal, venous hypertension, cardiac failure and aneurysm

Manage complications:
2 Thrombosis
2 Haemorrhage
2 Infection
2 CAPD peritonitis including sclerosing peritonitis

Technical skills

3 Insert central venous dialysis catheter including tunnelled catheters
3 Insert and remove peritoneal dialysis catheter
1 Access-arterio-venous fistula
1 Access-arterio-venous fistula-ligation
1 Construct A-V fistula: radio-cephalic, brachio-cephalic, brachio-basilic
1 Access-secondary vascular
**Organ retrieval for transplant**

**Knowledge**

3 Contraindications to organ donation: General/ Organ-specific
3 Criteria for brainstem death
3 Pathophysiology of brainstem death
2 Principles of donor management and organ preservation
3 Surgical anatomy of multi-organ retrieval

**Clinical Skills**

2 Assess and manage organ donors (including live and NHB donors)
2 Multiple abdominal organ retrieval from cadaveric donors

**Technical Skills**

2 Kidney transplant-donor operation-cadaver
2 Kidney transplant-donor operation-live donor
2 Liver transplant-donor operation-cadaver hepatectomy
2 Pancreatic transplant-donor pancreatectomy
Renal transplantation

Knowledge

3 Acute and chronic renal failure: Causes, Pathophysiology, Treatment options, Complications
2 Indications and contraindications for: Kidney transplantation, Cadaveric and live kidney donation
3 Anatomy: Kidney anatomy and anomalies, Implantation site
2 Immunology: HLA matching, Cytotoxic cross match, Rejection, Immunosuppression
2 Principles of pre-operative preparation and postoperative management

Clinical skills

2 Select appropriate patient from the waiting list

Manage post-operative care:
2 Fluid management
2 Drug therapy
2 Renal biopsy

Identify and treat post-operative complications:
2 Vascular complications
2 Ureteric complications
2 Rejection
2 Infection
2 Drug side effects

Technical skills

1 Kidney transplant-donor operation-cadaver
1 Kidney transplant-donor operation-live donor
1 Kidney transplant
1 Kidney transplant - complete operation - cadaver donor
1 Kidney transplant - complete operation - live donor
1 Kidney transplant - complete operation - regraft
2 Kidney transplant - part - dissection of iliac vessels
2 Kidney transplant - part - renal vein anastomosis
2 Kidney transplant - part - renal artery anastomosis
2 Kidney transplant - part - ureteric anastomosis to bladder
1 Kidney transplant - part - uretero-ureterostomy
Liver transplantation

Knowledge
3 Acute and chronic liver failure: Causes, Pathophysiology, Complications, Treatment options
1 Indications and contraindications for: Liver transplantation, Cadaveric and live liver donation
1 Liver anatomy: Anatomical variants, Surgical anatomy for splitting/reduction/live donation
1 Immunology: Rejection, Immunosuppression
1 Principles of pre-operative preparation and postoperative management
1 Principles of peri-operative management
1 Complications of liver transplantation and their management

Clinical Skills
1 Select appropriate patient from the waiting list
1 Manage post-operative care: Investigations, Fluid management, Drug therapy, Liver biopsy
1 Identify and treat post-operative complications: Vascular complications, Biliary complications, Rejection, Infection, Recurrent disease, Drug side effects

Technical Skills
1 Liver transplant-donor operation-cadaver hepatectomy
1 Liver transplant-recipient operation
1 Liver transplant-part-recipient hepatectomy
1 Liver transplant-part-porta hepatis dissection
1 Liver transplant-part-caval dissection+hepatic venous dissection
1 Liver transplant-part-implantation of donor liver
1 Liver transplant-part-caval anastomosis
1 Liver transplant-part-portal vein anastomosis+liver reperfusion
1 Liver transplant-part-portal venous conduit
1 Liver transplant-part-hepatic artery anastomosis
1 Liver transplant-part-hepatic arterial conduit
1 Liver transplant-part-duct-to-duct Biliary anastomosis
1 Liver transplant-part-Roux loop Biliary anastomosis
1 Liver transplant-part-workbench preparation
1 Liver transplant-part-donor liver reduction
1 Liver transplant-part-donor liver split
Pancreatic transplantation

Knowledge

Diabetes:
3 Causes
3 Pathophysiology
3 Treatment options
3 Complications

Indications and contraindications for transplants in the diabetic:
1 Kidney transplantation alone
1 Simultaneous kidney + pancreas transplant
1 Pancreas transplant alone
1 Pancreas transplant after kidney transplant
1 Indications and contraindications for pancreatic donation

Anatomy:
3 Pancreatic
1 Implantation site

Immunology:
1 HLA matching.
1 Cytotoxic cross match
1 Rejection
1 Immunosuppression

1 Principles of pre-operative preparation and postoperative management

Clinical Skills

1 Select appropriate patient from the waiting list

Manage post-operative care:
1 Investigations
1 Fluid management
1 Drug therapy
1 Pancreatic biopsy

Identify and treat post-operative complications:
1 Vascular complications
1 Duct leaks
1 Pancreatitis
1 Rejection
1 Infection
1 Drug side effects

Technical Skills

1 Pancreatic transplant-donor pancreatectomy
1 Pancreatic transplant-implant graft
1 Convert bladder drainage to enteric drainage
Paediatric Surgery
Abdominal Pain

Knowledge
2 Pattern of symptoms and relation to likely pathology and age of child
2 Differential diagnosis
2 Place and value of investigations
2 Place of operative intervention, and associated outcomes

Clinical Skills
2 Ability to assess ill child
2 Ability to form a viable investigation and treatment plan

Technical Skills
2 Appendicectomy
2 Laparotomy/laparoscopy
**Child with groin condition**

*Knowledge*

**Undescended testis**
2 Developmental anatomy
2 Natural history of undescended testis and retractile testis
2 Place of conservative management
2 Indications for and outcomes of surgery

**Penile inflammatory conditions**
2 Developmental anatomy
2 Natural history
2 Place of conservative management
2 Indications for and outcomes of surgery

**Inguinal Hernia**
2 Developmental anatomy
2 Natural history
2 Indications for and outcomes of surgery

**Hydrocele**
2 Developmental anatomy
2 Natural History
2 Place of conservative management
2 Indications for and outcomes of surgery

**Acute scrotum**
2 Natural history
2 Place of conservative management
2 Indications for and outcomes of surgery

*Clinical Skills*

**Undescended testis**
2 Ability to assess child and reach appropriate diagnosis
2 Ability to form a treatment plan
2 Ability to differentiate true undescended testis from retractile variant

**Penile inflammatory conditions**
2 Ability to assess child and reach appropriate diagnosis
2 Ability to form a treatment plan

**Inguinal Hernia**
2 Ability to assess child and reach appropriate diagnosis
2 Ability to form a treatment plan

**Hydrocele**
2 Ability to assess child and reach appropriate diagnosis
2 Ability to form a treatment plan

**Acute scrotum**
2 Ability to access child and reach appropriate diagnosis
2 Ability to form a treatment plan
**Technical Skills**

**Undescended testis**
2 Orchidopexy

**Penile inflammatory conditions**
2 Circumcision

**Inguinal hernia**
2 Inguinal hernia (not neonatal) operation

**Hydrocele**
2 Hydrocele operation

**Acute scrotum**
2 Inguinal hernia (not neonatal) operation
2 Hydrocele operation
2 Operation for testicular torsion
Intussusception

Knowledge

2 Pattern of symptoms and relation to likely pathology and age of child
2 Role of radiology both for diagnosis and interventional management
2 Differential diagnosis

Clinical Skills

2 Ability to assess child and recognise severity of illness
2 Ability to take appropriate resuscitative measures and form a viable investigation and treatment plan
2 Ability to communicate with all relevant groups
2 Reduction of intussusception
Urological Conditions

Knowledge

Haematuria
2 Pattern of symptoms and relation to likely pathology and age of child
2 Place and value of investigations
2 Differential diagnosis

Urinary Tract Infection
2 Pattern of symptoms and relation to likely pathology and age of child
2 Place and value of investigations
2 Differential diagnosis

Circumcision
2 Developmental anatomy of the foreskin
2 Natural history of the foreskin

Clinical Skills

Haematuria:
2 Ability to assess child
2 Ability to form a viable investigation and treatment plan
2 Ability to communicate with all relevant groups

Urinary Tract Infection:
2 Ability to assess child
2 Ability to form a viable investigation and treatment plan
2 Ability to communicate with all relevant groups

Circumcision
2 Ability to assess indications for circumcision

Technical Skills

Haematuria
2 Suprapubic catheter insertion

Circumcision
2 Circumcision
Abdominal Wall Conditions

Knowledge

Epigastric hernia:
2 Developmental anatomy
2 Natural history
2 Indications for and outcomes of surgery

Supra-umbilical hernia:
2 Developmental anatomy
2 Natural history to include contrast with umbilical hernia
2 Indications for and outcomes of surgery

Umbilical hernia:
2 Developmental anatomy
2 Natural history
2 Indications for and outcomes of surgery
2 Place of conservative management

Clinical Skills

Epigastric hernia:
2 Ability to assess child and reach appropriate diagnosis
2 Ability to form a treatment plan

Supra-umbilical hernia:
2 Ability to assess child and reach appropriate diagnosis
2 Ability to form a treatment plan

Umbilical hernia:
2 Ability to assess child and reach appropriate diagnosis
2 Ability to form a treatment plan

Technical Skills

Epigastric hernia:
2 Abdominal wall hernia operation

Supra-umbilical hernia:
2 Abdominal wall hernia operation

Umbilical hernia:
2 Abdominal wall hernia operation
Child with Vomiting

Knowledge
2 Patterns of symptoms and relation to likely pathology
2 Significance of bile stained vomiting
2 Place and value of investigations
2 Differential diagnosis
2 Methods of medical management
2 Place of operative intervention, and associated outcomes

Clinical Skills
2 Ability to assess ill child including an assessment of severity of dehydration
2 Ability to form a viable investigation and treatment plan

Technical Skills
2 Pyloromyotomy
Constipation

Knowledge

2 Pattern of symptoms and relation to likely pathology and age of child
2 Place and value of investigations
2 Differential diagnosis to include medical anomalies and socio-psychological aspects of symptom

Clinical Skills

2 Ability to assess child
2 Ability to form a viable investigation and treatment plan
2 To include community aspects of further management

Technical Skills

2 Manual evacuation
Head and Neck Swellings

Knowledge

2 Pattern of symptoms and relation to likely pathology and age of child
2 Place and value of investigations
2 Differential diagnosis
2 Relevance of embryonic development of head and neck structures

Clinical Skills

2 Ability to assess child
2 Ability to form a viable investigation and treatment plan

Technical Skills

2 Lymph node biopsy
Trauma

Knowledge
2 Algorithms for assessment of trauma victims - primary survey
2 Algorithms for assessment of trauma victims - secondary survey
2 Likely effects of different types of trauma and relation to age of child
2 Investigation protocols and local variations thereof
2 Awareness of NAI and local procedures for dealing with this category of trauma

Clinical Skills
2 Ability to appropriately assess trauma cases and carry out resuscitative measures
2 Ability to prioritise interventions
2 Ability to act as part of a team or lead team as appropriate
2 PALS course

Technical Skills
2 Chest drain insertion
2 Central venous line insertion
2 Suprapubic catheter insertion
Miscellaneous Paediatric Conditions

Knowledge

Superficial Abscess
2 Causes of superficial abscess in children
2 Anatomy of underlying structures
2 Predisposing conditions

Ingrowing Toenail
2 Causes of ingrowing toenail
2 Anatomy of nail and nail bed
2 Treatment options available

Clinical Skills

Superficial Abscess
2 History and examination
2 Recognition of the need for other investigation
2 Recognition of need for drainage or antibiotics

Ingrowing Toenail
2 History and examination
2 Recognition of need for operative treatment

Technical Skills

Superficial Abscess
2 Abscess drainage

Ingrowing Toenail
2 Ingrowing toenail operation
Academic and research curriculum
Academic activity

Knowledge

Research:
3 Research methodology

Teaching:
3 Teaching methods

Clinical Skills

Research:
3 Ability to analyse published evidence
2 Ability to pose a research question (clinical, basic or population health)
2 Develop a proposal to solve the research question
2 Identify, consult and collaborate with appropriate content experts to conduct the research
2 Propose the methodology approach to solve the question
2 Carry out the research outlined in the proposal
2 Disseminate and defend the results of the research
2 Identify areas for further research that flow from the results

Teaching:
4 Ability to teach small groups
3 Ability to give a lecture
2 Ability to design a curriculum/teaching programme
2 Ability to design and carry out an assessment

Technical skills

3 Ethics application
3 Formal audit application
3 Presentation to a national meeting
3 Publication in a peer-reviewed journal
HST 3 and 4

Overview of HST 3 and 4
These 2 years are intended to improve the surgical skill of trainees in most general Surgical specialties. By the end of HST year 4, a trainee should be emergency competent and can sit for the Intercollegiate exam as specialist in General Surgery. During this time a special interest may be indicated.
General – Elective
Lesions of the skin and subcutaneous tissues

Knowledge

Basal cell carcinoma:
4 Anatomy
4 Histopathology
4 Natural history

Malignant melanoma:
4 Anatomy
4 Histopathology
4 Natural history
3 Staging

Squamous cell carcinoma:
4 Anatomy
4 Histopathology
4 Natural history of malignant transformation in chronic ulcers

Clinical skills

Basal cell carcinoma:
4 Assess skin lesion
4 Biopsy of large skin lesions to plan treatment
3 Closure of large defects after excision by split skin grafts, full thickness grafts, flap closure

Malignant melanoma:
3 Assess skin lesion
3 Indications for wider excision, lymph node biopsy, axillary or groin block dissection based on staging

Squamous cell carcinoma:
4 Assess skin lesion including incisional biopsy

Technical Skills

Basal cell carcinoma:
4 Malignant skin lesion-excision biopsy SCC/BCC

Malignant melanoma:
4 Malignant skin lesion-treatment of melanoma

Squamous cell carcinoma:
4 Malignant skin lesion-excision biopsy SCC/BCC
Abdominal wall

Knowledge

Diagnosis:
4 Knowledge of the anatomy of the abdominal wall
4 Pathology of the acute and chronic conditions; Haematoma, Sarcoma, Desmoid Tumours

Treatment:
4 Principles of management of desmoid tumours and sarcomas

Clinical skills

Diagnosis:
4 Ability to determine that a swelling is in the abdominal wall
4 Initiate appropriate investigation

Treatment:
4 Conservative management of haematoma
Conditions affecting the reticulo-endothelial + haemopoetic systems

Knowledge

Lymphatic conditions:
3 Non Hodgkin's Lymphoma
3 Lymphadenopathy
3 Hodgkin's disease
3 Staging classifications

Conditions involving the spleen:
3 Indications for elective splenectomy haemolytic anaemia, ITP, Thrombocytopenia, myeloproliferative disorders
4 Indications for emergency splenectomy
4 Sequelae of splenectomy
3 Splenic conditions
3 Thrombophilia

Clinical skills

Lymphatic conditions:
3 Planning appropriate diagnostic tests

Conditions involving the spleen:
3 Planning appropriate treatment schedule in consultation with haematologist

Technical skills

Lymphatic conditions:
4 Biopsy-FNA
3 Liver biopsy
4 Lymph node biopsy-groin, axilla

Conditions involving the spleen:
3 Splenectomy
Venous thrombosis + embolism

Knowledge
Coagulation:
4 Clotting mechanism (Virchow Triad)
4 Effect of surgery and trauma on coagulation
4 Tests for thrombophilia and other disorders of coagulation

Diagnosis:
4 Methods of investigation for suspected thromboembolic disease

Treatment:
4 Anticoagulation, heparin and warfarin
4 Role of V/Q scanning, CT angiography and thrombolysis
4 Place of pulmonary embolectomy

Prophylaxis:
4 Detailed knowledge of methods of prevention, mechanical and pharmacological

Clinical skills
Coagulation:
4 Recognition of patients at risk

Diagnosis:
4 Awareness of symptoms and signs associated with pulmonary embolism and DVT
4 Role of duplex scanning, venography and d-dimer measurement

Treatment:
4 Initiate and monitor treatment

Prophylaxis:
4 Awareness at all times of the importance of prophylaxis
Genetic aspects of surgical disease

Knowledge

Endocrine:
3 Principal genetically influenced endocrine diseases and syndromes, MEN I, MEN II, Thyroid, Parathyroid, Pancreas and adrenal

Colorectal:
3 Outline knowledge of genetic changes which predispose to colorectal cancer including familial adenomatous polyposis, HNPCC and other polyposis syndromes

Breast:
3 Outline knowledge of genetic changes which predispose to breast cancer; BRCA1, BRCA2, P53

Upper GI/HPB:
3 Principal genetically influenced upper gastrointestinal diseases and syndromes, including Duodenal polyposis, familial gastric cancer, Peutz-Jeger syndrome and polycystic disease of the liver

Clinical and molecular genetics:
3 Modes of inheritance
3 Genetic Testing
3 Screening
3 Prophylactic intervention
3 Therapeutic intervention
3 Ethics
Oncology

Knowledge

Cancer epidemiology and presentations
3 Aetiology and epidemiology of malignant disease
3 Environmental and genetic factors in carcinogenesis
3 Evaluate risk factors for malignant disease
3 Terminology in epidemiology

Staging, prognosis and treatment planning
3 Prognosis and natural history of malignant disease
3 Mechanisms and patterns in local, regional and distant spread
3 Differences in course between hereditary and sporadic cancers
3 Diseases predisposing to cancer, e.g. inflammatory bowel disease
3 Prognostic/predictive factors
3 Genetics of hereditary malignant diseases

Cancer biology
3 Cancer biology: cell kinetics, proliferation, apoptosis, balance between normal cell death/proliferation; angiogenesis and lymphangiogenesis; genome maintenance mechanisms to prevent cancer; intercellular and intermolecular adhesion mechanisms and signalling pathways; potential effects of surgery and surgery-related events on cancer biology (e.g. angiogenesis)

Tumour immunology
3 Tumour immunology: cellular and humoral components of the immune system; regulatory mechanisms of immune system; tumour antigenity; immune mediated antitumour cytotoxicity; effects of cytokines on tumours; effects of tumours on anti-tumour immune mechanisms; potential adverse effects of surgery, surgery-related events (e.g. blood transfusion) on immunologic responses

Basic principles of cancer treatments and their evaluation
3 Basic principles of cancer treatment: surgery; radiotherapy; chemotherapy; endocrine therapy; immunotherapy
3 Surgical pathology
3 Evaluation of response to treatment(s)
3 Adverse effects of treatment(s)
3 Interactions of other therapies with surgery
3 Ability to evaluate published clinical studies
3 Relevance of statistical methods; inclusion/exclusion criteria of study objectives; power of the study; intention to treat; number needed to treat; relative and absolute benefit; statistical versus clinical significance

Clinical skills

Cancer epidemiology and presentations
4 Recognise symptoms and signs of cancer
4 Initiate appropriate diagnostic and staging investigations for common solid tumours

Staging, prognosis and treatment planning
4 Perform prognostic assessment for patients with common solid tumours
4 Define the role of surgery for given common solid tumours
4 Participation in multi-disciplinary team discussion
4 Undertake adequate pre-operative work-up
4 Manage post-operative care
4 Decide on and perform adequate follow-up
4 Diagnose, score and treat side effects and complications of surgical treatment
4 Recognise common side effects of other treatment modalities
Basic principles of cancer treatments and their evaluation
3 The conduct of clinical studies
3 Design and implement a prospective database (part of audit skills)
3 Elementary principles in biostatistics and commonly used statistical methods (parametric versus non-parametric etc.)
3 Ethical and legal aspects of research
3 Present local audits; publication, Presentation of case reports

Technical skills

Staging, prognosis and treatment planning
4 Malignant skin lesion-excision biopsy
4 Malignant skin lesion-treatment of melanoma
4 Lymph node biopsy-groin, axilla
4 Central venous line insertion
3 Laparotomy/laparoscopy
ELECTIVE HERNIA

KNOWLEDGE

4 Anatomy of inguinal region including inguinal canal, femoral canal, abdominal wall and related structures e.g. adjacent retroperitoneum and soft tissues.
4 Relationship of structure to function of anatomical structures.
4 Natural history of abdominal wall hernia including presentation, course and possible complications.
4 Treatment options
4 Current methods of operative repair including open mesh, laparoscopic mesh and posterior wall plication, to include the underlying principles, operative steps, risks, benefits, complications and process of each

CLINICAL SKILLS

4 Diagnose and assess a patient presenting with abdominal wall hernia, including inguinal, femoral, epigastric, umbilical, paraumbilical, rare hernias such as obturator and Spigelian hernias and incisional hernias
3 Supervise the postoperative course in hospital and on follow-up

TECHNICAL SKILLS

4 Hernia repair-femoral
3 Hernia repair-incisional
3 Hernia repair-incisional recurrent
4 Hernia repair-inguinal
3 Hernia repair-inguinal recurrent
4 Hernia repair-umbilical/paraumbilical
4 Hernia repair-epigastric
NUTRITION

KNOWLEDGE

3 Effects of malnutrition, both excess and depletion
3 Methods of screening and assessment

CLINICAL SKILLS

3 Arrange access to suitable artificial nutritional support, preferably via a nutrition team
3 Dietary supplements
3 Enteral nutrition
3 Parenteral nutrition
OUTPATIENT SKILLS

KNOWLEDGE

4 Individual patient assessment: Relevant anatomy, physiology and clinical knowledge for the system involved
2 Organisation of outpatient service: Understanding of the administrative system of the hospital
3 Relevant guidelines for disease management

CLINICAL SKILLS

4 Individual patient assessment: Focused history taking and examination.
4 Organise appropriate investigations.
3 Management of an outpatient clinic: Ability to allocate patients to appropriate staff members
3 Ability to prioritise urgent patient investigations and operation
3 Organisation of outpatient service: Prioritisation of patient appointments

TECHNICAL SKILLS

3 Haemorrhoids-OP treatment(injection/banding or infrared coagulation)
LAPAROSCOPIC SURGERY

Knowledge

4 Physiology of pneumoperitoneum
4 Technology of video imaging, cameras and insufflator
4 Laparoscopic instruments, clips, staplers and port types
4 Use and dangers of diathermy
3 Management of equipment failure
3 Anaesthetic problems in laparoscopic surgery
4 Informed consent for laparoscopic procedures
3 Recognition and management of laparoscopic complications

Clinical Skills

3 Pre and postoperative management of laparoscopic cases
3 Port complications

Technical Skills

3 Closed and open techniques for port insertion
3 Diagnostic laparoscopy
3 Laparoscopic suturing and knotting
3 Control of laparoscopic bleeding
The basics of endoscopy

Knowledge
Equipment
4 Structure and function of an endoscope, processor and accessories, including diathermy
Consent
4 Medical and legal issues concerning consent and provision of information
Sedation and monitoring
4 Sedative and analgesic drugs and side-effects
4 Appropriate patient monitoring
4 Treatment of adverse effects
Proctoscopy
4 Indications for Proctoscopy
4 Complications of Proctoscopy
Rigid sigmoidoscopy
4 Indications for rigid sigmoidoscopy
4 Patient preparation and documentation
Gastroscopy
4 Indications for gastroscopy
4 Complications of gastroscopy
4 Patient preparation and documentation
4 Basic skills in Endoscopy course
Flexible sigmoidoscopy
4 Indications for flexible sigmoidoscopy
4 Complications of flexible sigmoidoscopy
4 Patient preparation and documentation
4 Basic Skills in Endoscopy course

Clinical skills
Equipment
4 Clean and disinfect equipment in accordance with BSG guidelines
Consent
4 Ability to consent a patient for endoscopy
Sedation and monitoring
4 Ability to safely and effectively sedate a patient for endoscopy
4 Monitor appropriately before, during and after procedure

Technical skills
Equipment
4 Use equipment in accordance with manufacturer's instructions
Proctoscopy
4 Proctoscopy
4 Haemorrhoids - OP treatment (injection, banding or infrared coagulation)
Rigid sigmoidoscopy
4 Sigmoidoscopy-rigid

Gastroscopy
3 Gastroscopy – diagnostic

Flexible sigmoidoscopy
3 Sigmoidoscopy - flexible
Emergency Surgery
**Superficial sepsis, including necrotising infections**

**Knowledge**

**Infected sebaceous cyst/carbuncle:**
- Natural history
- Bacteriology
- Medical conditions associated

**Superficial abscess:**
- Aetiology
- Natural history
- Bacteriology

**Cellulitis:**
- Aetiology
- Medical conditions associated
- Immuno-compromised patients
- Bacteriology
- Antibiotic therapy

**Infected ingrown toenail/paronychia:**
- Aetiology
- Bacteriology
- Atherosclerosis
- Diabetes

**Gas Gangrene/ necrotising fasciitis**
- Natural history of condition
- Vulnerable individuals
- Physiology of associated conditions; diabetes, atherosclerosis, steroid therapy, immunocompromised etc
- Knowledge of bacteriology and toxins involved
- Mechanisms of septic shock
- Massive blood transfusion complications
- Knowledge of appropriate antibiotic therapy
- Knowledge of necrotising fasciitis

**Clinical skills**

**Infected sebaceous cyst/carbuncle:**
- History and examination
- Medical management of Diabetes peri-operatively

**Superficial abscess:**
- History and examination

**Cellulitis:**
- History + examination and IV Therapy

**Infected ingrown toenail/paronychia:**
- History + examination

**Gas Gangrene/ necrotising fasciitis**
- History and examination
- Recognition of the early warning signs
- Radical excisional surgery
**Technical skills**

**Infected sebaceous cyst/carbuncle:**
4 Abscess- drainage (not breast/anal/abdominal)
4 Benign skin or subcutaneous lesion-excision biopsy

**Superficial abscess:**
4 Abscess-drainage (not breast/anal/abdominal)

**Infected ingrown toenail/paronychia:**
4 In growing toenail-avulsion/wedge Resection/phenolisation

**Gas Gangrene/ necrotising fasciitis**
3 Fournier’s gangrene/necrotising fasciitis debridement
Assessment of the acute abdomen, Acute appendicitis, Peritonitis

Knowledge

4 Pathophysiology of shock
4 Pathophysiology and management of peritonitis, intraperitoneal sepsis, generalised sepsis and septicemic shock
4 Anatomy of abdomen and pelvis
4 Aetiology and Differential diagnosis of the acute abdomen
4 Natural history of appendicitis
4 Pathophysiology of appendicitis
4 Conditions which do not require surgery

Clinical skills

4 History taking, examination and investigation pertinent to acute abdomen
4 Recognition of severity of illness
4 Resuscitation including antibiotics, invasive monitoring
4 Recognition of indication for surgery
4 Ability to perform emergency laparotomy/laparoscopy
4 Post-operative management
4 Treat symptoms
4 Timing of intervention
4 Recognition of success/failure of nonoperative treatment
4 Recognition and management of complications

Technical skills

4 Central venous line insertion
4 Laparotomy/laparoscopy
4 Appendicectomy
4 Gastro/duodenum-perforated PU closure
3 Hartmann’s procedure
3 Sigmoid colectomy
Acute intestinal obstruction

Knowledge
4 Abdominal anatomy
4 Aetiology of intestinal obstruction
4 Pathophysiology of shock, sepsis
4 Differential diagnosis
4 Treatment options

Clinical skills
4 History and examination
4 Resuscitation
4 Investigation
4 Nutritional support
4 Ability to perform emergency laparotomy

Technical skills
4 Central venous line insertion
4 Laparotomy
4 Division of adhesions
3 incarcerated/ strangulated hernia
3 right hemicolecotomy
3 left hemicolecotomy
3 stoma
3 small bowel resection
**Strangulated hernia**

**Knowledge**

**Strangulated inguinal/ femoral hernia:**
4 Anatomy of inguinal region including inguinal canal, femoral canal, abdominal wall and related structures e.g. adjacent retroperitoneum and soft tissues
4 Pathophysiology of strangulated hernia
4 Post-operative complications of repair of strangulated hernia

**Strangulated incisional/ internal hernia:**
4 Anatomy of abdominal wall and related structures e.g. adjacent retroperitoneum and soft tissues
4 Pathophysiology of strangulated hernia
3 Post-operative complications of strangulated hernia

**Clinical skills**

**Strangulated inguinal/ femoral/ incisional/ internal hernia:**
4 History and examination to identify strangulated hernia
4 Resuscitation
4 Investigation of possible strangulated hernia
3 Operative strategy for strangulated hernia
3 Post-operative management

**Technical skills**

**Strangulated inguinal/ femoral/ incisional internal hernia:**
3 Small bowel resection
3 Hernia repair-inguinal/ femoral/ incisional/ internal hernia
Acute presentation of gynaecological disease

Knowledge

Pelvic inflammatory disease/endometriosis/salpingitis:
4 Anatomy and physiology of Pelvic organs
4 Infective intra abdominal conditions
4 Appropriate management of likely conditions / Antibiotic treatment / referral pathway

Obstruction secondary to ovarian carcinoma:
4 Anatomy and physiology of pelvic organs
4 Understand investigation of the obstructed colon
3 Understand modern management of ovarian carcinoma

Intra abdominal haemorrhage due to ruptured ovarian cyst or ectopic pregnancy:
4 Anatomy and physiology of pelvic organs
3 Management of abnormality discovered

Iatrogenic injury:
4 Anatomy and physiology of abdominal organs

Clinical skills

Pelvic inflammatory disease/endometriosis/salpingitis:
4 Assessment of acute abdomen - history and examination
4 Organise pelvic ultrasound /pregnancy test /CT/tumour markers
3 Ability to perform diagnostic laparoscopy and/or laparotomy

Obstruction secondary to ovarian carcinoma:
4 Assessment of Acute abdomen - History and examination
3 Non-operative management
3 Perform emergency laparotomy

Intra abdominal haemorrhage due to ruptured ovarian cyst or ectopic pregnancy:
4 Assessment of Acute abdomen - History and examination
4 Organise pelvic ultrasound /Pregnancy test
3 Ability to perform diagnostic laparoscopy and/or laparotomy

Iatrogenic injury:
4 Recognition of nature and extent of injury
3 Ability to perform emergency laparotomy

TECHNICAL SKILLS

4 Laparotomy / laparoscopy
3 Hartmann's procedure
3 Sigmoid colectomy
Gastrointestinal bleeding

Knowledge

Blood loss and hypotension:
4 Physiology of hypovolaemia
4 Coagulopathy

Recognition of cause of gastrointestinal bleeding:
4 All causes of GI bleeding

Treatment:
3 Treatment options
3 Indications for operation
3 Role of endoscopic procedures and interventional radiology

Post-operative care:
4 Fluid balance

Complications:
3 All complications likely after emergency treatment

Clinical skills

Blood loss and hypotension:
4 Resuscitation of hypotensive patient
3 HDU care

Recognition of cause of gastrointestinal bleeding:
4 Clinical assessment
3 Ability to organise appropriate endoscopy or other investigation

Treatment:
3 Appropriate surgery

Post-operative care:
4 Analgesia
3 Nutrition
3 Recognition of complications

Complications:
4 Early recognition of rebleeding and post-operative problems
2 Treatment of complications

Technical skills

3 Endoscopic/ open control of bleeding
Emergency - Trauma
Intra-abdominal injuries especially splenic, hepatic and pancreatic injuries

Knowledge

4 Anatomy of abdomen
4 Pathogenesis/ Pathophysiology and Clinical features of shock
4 Principles of management of severely injured patients
4 Importance of mechanism of injury and possible consequences, e.g. FFH, stabbing, seat belt injuries
4 Indications for use of uncross matched blood
4 Coagulopathy
4 Pathophysiology of peritonitis and sepsis

Clinical skills

4 Resuscitation
4 History and examination
4 Investigation
4 Appropriate use of ultrasound and CT for assessment of abdominal injury
4 Indications for intervention in abdominal injury
4 Recognition of injuries requiring management by other specialities
4 Management of hollow organ injury

Technical skills

4 Diagnostic peritoneal lavage
4 Laparotomy/Laparoscopy for trauma
4 Central venous line insertion
3 Liver trauma-debridement/packing
3 Pancreatectomy-distal
4 Splenectomy
3 Splenic repair
3 Hollow organ injury surgery
2 Thoracotomy and control of haemorrhage
**Blunt and penetrating injuries**

**Knowledge**

**Closed/ and Penetrating thoracic injury:**
- 4 Anatomy
- 3 Concept of low energy, high energy transfer injury
- 4 Pathogenesis of shock

**Closed and penetrating abdominal injury:**
- 4 Anatomy
- 3 Concept of low energy, high energy transfer injury
- 4 Pathogenesis of shock

**Blunt and penetrating soft tissue and skeletal injury:**
- 4 Anatomy
- 3 Concept of low energy, high energy transfer injury
- 4 Pathogenesis of shock

**Clinical skills**

**Closed and Penetrating thoracic injury:**
- 4 Assessment and initial management of multiply injured patient
- 3 Recognise need for operative intervention and organise
- 4 Recognise and treat sucking chest wound
- 2 Understanding indications for emergency room thoracotomy
- 4 Post-operative management and recognition of complications

**Closed and penetrating abdominal injury:**
- 4 Assessment and initial management of multiply injured patient
- 3 Recognise need for laparotomy and organise
- 2 Arrest haemorrhage by suture/ligation/packing
- 2 Indication for pelvic fixator
- 2 Drains for biliary / pancreatic injury
- 2 Management of retroperitoneal haematoma
- 3 Postoperative management and recognition of complications

**Blunt and penetrating soft tissue and skeletal injury:**
- 4 Assessment and initial management of multiply injured patient
- 4 Arrest of haemorrhage by pressure and tourniquet
- 4 Appropriate immobilisation during assessment
- 3 Recognition of major vascular trauma
- 3 Assessment of ischaemic limb
- 3 Recognition and treatment of acute compartment syndrome
- 3 Femoral artery exposure
- 4 Postoperative management and recognition of complications

**Technical skills**

**Closed and Penetrating thoracic injury:**
- 4 Chest drain insertion
- 2 Lateral thoracotomy
Closed and penetrating abdominal injury:
4 Diagnostic peritoneal lavage
3 Laparotomy - trauma
3 Splenectomy
3 Small bowel resection
4 Ileostomy - construction
4 Colostomy – construction
Upper GI
GASTRO-OESOPHAGEAL REFLUX DISEASE

**KNOWLEDGE**

**Anatomy**
4 Lower third of oesophagus; oesophageal sphincter

**Pathophysiology**
4 Acid or bile reflux; pH abnormalities; motility disorder
4 Pathology Classification of oesophagitis
4 Complications Barrett's metaplasia; stricture

**CLINICAL SKILLS**

4 History and Examination
4 Investigation Endoscopy, pH studies, Manometry
3 Decision making Indications for surgery

**Non operative options**
4 Medical management; postural changes

**Operative options**
3 Indications for surgery; antireflux surgery - open or laparoscopic
3 Postoperative management

**TECHNICAL SKILLS**

3 Endoscopy
3 Antireflux surgery
2 Revisional antireflux surgery
HIATUS HERNIA

KNOWLEDGE

4 Applied Anatomy Sliding; para-oesophageal
4 Pathophysiology
4 Pathology
3 Complications Incarceration

CLINICAL SKILLS

4 History and Examination
4 Investigation Contrast radiology; manometry
3 Decision making Indications for operation
4 Non operative options Medical management: weight loss, posture
3 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
2 Open repair
2 Laparoscopic repair
2 Revisional antireflux surgery
PEPTIC STRICTURE

**KNOWLEDGE**

4 Anatomy
4 Pathophysiology Physiology of reflux - pH; motility
4 Pathology Differential diagnosis
4 Complications Perforation

**CLINICAL SKILLS**

4 History and Examination
4 Investigation Endoscopy; contrast radiology; pH studies; manometry
4 Decision making Indications for dilatation
4 Postoperative management- Diagnosis and management of perforation

**TECHNICAL SKILLS**

3 Endoscopy
2 Oesophageal dilatation
ACHALASIA

KNOWLEDGE

4 Anatomy
4 Pathophysiology
4 Pathology
4 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation
3 Decision making
3 Non operative options
4 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
2 Endoscopic dilation
2 Endoscopic botox injection
2 Laparoscopic cardiomyotomy
MOTILITY DISORDERS

KNOWLEDGE

4 Anatomy
4 Pathophysiology
4 Pathology
4 Complications

CLINICAL SKILLS

3 History and Examination
3 Investigation
3 Decision making
3 Non operative options
4 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
IATROGENIC OESOPHAGEAL PERFORATION

KNOWLEDGE

4 Anatomy Oesophagus and mediastinal relationships
4 Clinical presentation Post-instrumentation
4 Investigation Contrast radiology
4 Pathophysiology Mediastinitis
4 Complications Empyema

CLINICAL SKILLS

4 History and Examination
4 Investigation
3 Decision making
3 Non-operative treatment Pleural drainage; antibiotics; nutritional support
3 Interventional options
3 Postoperative management

TECHNICAL SKILLS

4 Endoscopy
3 Endoscopic interventions incl stent
2 Thoracotomy + lavage
2 Oesophagectomy
BOERHAAVE'S PERFORATION

KNOWLEDGE

4 Anatomy 
4 Pathophysiology Aetiology 
4 Clinical presentation 
4 Investigations Contrast radiology 
4 Complications Empyema

CLINICAL SKILLS

3 History and Examination 
3 Investigation 
3 Decision making 
3 Non-operative treatment 
3 Interventional options: Primary repair; nutritional support 
3 Postoperative management

TECHNICAL SKILLS

4 Endoscopy 
2 Thoracotomy + non-resectional management 
2 Oesophagectomy
OESOPHAGEAL CANCER

KNOWLEDGE

3 Applied Anatomy Oesophageal and Oesophago-gastric junctional cancer; lymph node
4 Pathology Epidemiology; aetiology : SCC or ACA
4 Staging - TNM
4 Clinical Presentation Dysphagia
3 Investigations CT; Endoscopic ultrasound; PET-CT; laparoscopy
4 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation: Endoscopy; CT; EUS; PET-CT; Laparoscopy
3 Decision making - Assessment of medical comorbidity for radical therapy
3 Nutritional support
3 Chemotherapy Neoadjuvant
3 Radiotherapy Combination with chemotherapy
3 Difference in treatment for SCC or ACA
3 Other non-operative treatment incl palliation Palliative treatment; pain control
3 Indications for surgery
4 Postoperative management - Anastomotic leak; chyllothorax; recurrent laryngeal nerve injury
3 Follow-up Detection of recurrence

TECHNICAL SKILLS

2 Endoscopy
2 Endoscopic palliation incl stenting
2 EMR N/A
2 Open Oesophagogastrectomy 3 field lymph node dissection
2 Transthoracic
2 Transhiatal
2 MIO
OESOPHAGEAL VARICES

KNOWLEDGE

4 Anatomy
4 Pathophysiology Aetiology of portal hypertension
4 Clinical presentation
4 Diagnosis
4 Treatment options- Endoscopic - injection, banding; Sengstaken tube
4 Indications for surgery
4 Complications
4 Child's classification of liver disease

CLINICAL SKILLS

3 History and Examination
3 Investigation Endoscopic assessment
3 Resuscitation
3 Decision making
3 Non-operative treatment Sclerotherapy
3 Operative options - Porto-caval shunt; Oesophageal transection
3 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
2 Variceal injection
3 Balloon tamponade
GASTRIC ULCER

KNOWLEDGE

4 Anatomy
4 Pathophysiology
4 Clinical presentation Differential diagnosis of cancer
4 Complications - Perforation; bleeding; pyloric stenosis

CLINICAL SKILLS

4 History and Examination
4 Investigation Endoscopy and biopsy
4 Decision making Indications for surgery
4 Operative options
4 Postoperative management

TECHNICAL SKILLS

4 Endoscopy
3 Endoscopic therapy
4 Laparoscopy
4 Local treatment, ulcer excision
4 Gastroenterostomy
3 Partial gastrectomy
3 Total gastrectomy
DUODENAL ULCER

KNOWLEDGE

4 Clinical presentation
4 Pathophysiology
4 Complications - Perforation; bleeding; pyloric stenosis

CLINICAL SKILLS

4 History and Examination
4 Investigation OGD
4 Resuscitation
4 Decision making Indications for operation
4 Operative options
4 Postoperative management

TECHNICAL SKILLS

4 Endoscopy
3 Endoscopic therapy
4 Laparoscopy
4 Local treatment, ulcer underrun/oversew
4 Gastroenterostomy
3 Partial gastrectomy
3 Vagotomy and pyloroplasty
GASTRIC AND DUODENAL POLYPS

KNOWLEDGE

4 Anatomy
4 Clinical presentation Incidental; bleeding
4 Pathology Adenoma; hamartoma; GIST; FAP
4 Complications Malignant change

CLINICAL SKILLS

4 History and Examination
4 Investigation OGD & polypectomy
3 Decision making
4 Operative options
4 Postoperative management

TECHNICAL SKILLS

4 Endoscopy
3 Endoscopic excision
2 EMR
4 Laparoscopy
3 Open excision
3 Partial gastrectomy
**ACUTE GASTRIC PERFORATION**

**KNOWLEDGE**

4 Anatomy  
4 Pathophysiology  
4 Differential diagnosis - Perforated gastric ulcer; duodenal ulcer; perforated cancer  
4 Complications - Subphrenic abscess

**CLINICAL SKILLS**

4 History and Examination Assessment of peritonitis  
4 Investigation  
4 Resuscitation  
4 Decision making Medical comorbidity  
4 Operative options Local excision; resection  
4 Postoperative management

**TECHNICAL SKILLS**

4 Laparoscopy  
4 Local treatment, ulcer excision  
3 Partial gastrectomy  
3 Total gastrectomy
ACUTE UPPER GI HAEMORRHAGE

KNOWLEDGE

4 Anatomy
4 Pathophysiology Aetiology
4 Differential diagnosis - Benign ulcer; cancer; vascular malformation; GIST
4 Complications Hypovolaemic shock

CLINICAL SKILLS

4 History and Examination
4 Investigation Endoscopy
4 Resuscitation - Management of hypovolaemic shock
4 Decision making Indications for intervention
4 Non-operative treatment Injection sclerotherapy
4 Operative options
4 Postoperative management Re-bleeding

TECHNICAL SKILLS

3 Endoscopy
3 Endoscopic therapy
3 Gastrotomy + non-resectional treatment Need for histology of ulcer edge
3 Partial gastrectomy
3 Total gastrectomy
ACUTE GASTRIC DILATION

KNOWLEDGE
4 Applied Anatomy
4 Pathophysiology Spontaneous; postsplenectomy
4 Clinical presentation
4 Complications

CLINICAL SKILLS
4 History and Examination
4 Investigation Contrast radiology; CT
4 Resuscitation
3 Decision making
4 Non-operative treatment Naso-gastric aspiration
4 Operative options
4 Postoperative management

TECHNICAL SKILLS
3 Endoscopy
3 Gastrectomy
ACUTE GASTRIC VOLVULUS

KNOWLEDGE
4 Applied Anatomy Para-oesophageal hernia
4 Pathophysiology
4 Clinical presentation
4 Investigation Contrast radiology; CT
4 Complications Gastric necrosis

CLINICAL SKILLS
4 History and Examination
4 Investigation
4 Resuscitation Fluid resuscitation
3 Decision making Indications for surgery
4 Operative options- Endoscopic reduction; urgent or delayed surgery
4 Postoperative management

TECHNICAL SKILLS
3 Endoscopy
3 Gastropexy
3 Hiatus hernia repair
3 Total Gastrectomy
GASTRIC CARCINOMA

KNOWLEDGE

4 Applied Anatomy - Arterial blood supply; Lymph node tiers
4 Pathology, Epidemiology; Aetiology - Helicobacter
4 Stage - TNM; pattern of spread
4 Clinical presentation - Early gastric cancer; advanced gastric cancer
4 Investigation Endoscopy, CT, EUS, Laparoscopy
4 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation Endoscopy; CT; EUS; laparoscopy
3 Decision making - Comorbidity assessment; nutritional support
3 Chemotherapy Neoadjuvant; adjuvant
3 Chemoradiotherapy Adjuvant
3 Other non-operative treatment incl palliation, Chemotherapy; pain control
3 Interventional options - Endoscopic; resectional; extended lymphadenectomy
4 Postoperative management - Anastomotic leak; Duodenal stump disruption

TECHNICAL SKILLS

4 Endoscopy
2 Endoscopic palliation incl stenting
2 EMR
3 Gastrojejunostomy
3 Palliative gastrectomy
3 D3 Subtotal gastrectomy
3 D3 Total gastrectomy
GIST

KNOWLEDGE

4 Applied Anatomy
4 Clinical presentation Incidental; upper GI bleed
4 Pathology "Benign" vs malignant
4 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation - OGD +/- biopsy; CT
3 Decision making
3 Chemotherapy Imatinib
4 Operative options Resection; excision
4 Postoperative management

TECHNICAL SKILLS

4 Endoscopy
4 Laparoscopy
3 Open excision
4 Small bowel resection
3 Partial gastrectomy
3 Total gastrectomy
GASTRIC LYMPHOMA

KNOWLEDGE

4 Applied Anatomy
4 Clinical presentation
4 Investigation Endoscopy, CT, PET-CT
4 Pathology Extranodal lymphoma; MALToma
4 Complications Perforation on treatment

CLINICAL SKILLS

4 History and Examination
4 Investigation Endoscopy; CT; PET-CT
3 Decision making
3 Medical management - Chemotherapy; Helicobacter eradication
3 Interventional options
4 Postoperative management

TECHNICAL SKILLS

3 Endoscopy
3 Gastrojejunostomy
3 Total gastrectomy
MORBID OBESITY

KNOWLEDGE

4 Indications for surgery in morbid obesity
4 Therapeutic options for morbid obesity. Types of operations performed
4 General principles of the management of the obese patient perioperatively
4 Long term management of the bariatric patient post surgery

CLINICAL SKILLS

4 History and Examination of the Obese patient
4 Assessment of the post operative bariatric patient
4 Interpretation of Investigations in the obese patient
4 Management decisions for early and late complications of morbid obesity

TECHNICAL SKILLS

2 Laparoscopic access in the morbidly obese
2 Aspiration of lap band port
2 Emergency release of lap band for slippage
2 Insertion of lap band
3 Repair of internal hernia after gastric bypass
1 Roux en Y gastric bypass
1 Revisional gastric surgery for obesity
2 General Surgery for the super morbidly obese patient
Upper GI haemorrhage

**Knowledge**

**Diagnosis:**
4 Anatomy
4 Pathophysiology

**Management:**
4 Treatment options available
3 Indications for surgery

**Post-operative care:**
3 Complications
3 Investigations
3 Management options

**Clinical skills**

**Diagnosis:**
4 History and examination
4 Resuscitation

**Management:**
3 Selection of patients for appropriate intervention

**Post-operative care:**
3 Management of leak
3 Need for re-operation
2 Re-operation for complication
3 Nutrition

**Technical skills**

**Diagnosis:**
2 Gastroscopy-diagnostic

**Management:**
2 Gastroscopy+bleeding therapy
2 Gastroscopy+variceal therapy
2 Gastro/duodenum-under-running of bleeding PU
2 Gastrectomy-distal
SURGICAL NUTRITION

KNOWLEDGE

4 Physiology of the GI tract
3 Assessment of nutritional status
3 Understanding the role of the Nutrition team
3 Causation of nutritional deficiency
4 Metabolic requirements in health and disease
4 Physiology of nutritional support
3 Refeeding syndrome
4 Options for nutritional support - Enteral vs parenteral
3 Indications for nutritional intervention
3 Management of fistulae - Principles of management

CLINICAL SKILLS

4 Assessment of GI tract function
3 Assessment of nutritional status
3 Insertion of enteral feeding tubes
3 Care of the patient on enteral and parenteral support
3 Decision making

TECHNICAL SKILLS

3 Formation of feeding enterostomy (open / lap)
3 Vascular access for Parenteral feeding
3 PEG tube insertion / replacement
Hepatopancreatobiliary
Gallstone disease

Knowledge
4 Anatomy
4 Pathophysiology
4 Microbiology
4 Complications - Acute cholecystitis, Empyema, Mucocoele, Acute pancreatitis, Chronic cholecystitis, Common bile duct stone, Gall stone ileus, Gall bladder cancer
4 Post-operative problems – Bile duct injury
3 Methods of bile duct repair – primary repair over a T-tube; hepaticojejunostomy with Roux-en-Y reconstruction

Clinical Skills
4 History & examination- acute/ emergency, elective
4 Investigation – US, ERCP, MRCP, CT
4 Resuscitation
4 Decision making re conservative v. surgical treatment and early v. delayed operation
4 Non-operative treatment including ERCP, percutaneous cholecystostomy
4 Operative options
4 Laparotomy for biliary peritonitis with placement of drains
4 Post-operative management

Technical Skills
3 Cholecystectomy-Laparoscopic
3 Cholecystectomy-open
3 Biliary-CBD-exploration
2 Biliary-bile duct injury repair
2 Hepaticodocho- jejunostomy
Acute pancreatitis

Knowledge

4 Abdominal anatomy
4 Differential diagnosis
4 Aetiology
4 Clinical features
4 Scoring system – recognition of severity
4 Pathophysiology
4 Complications
4 ERCP, MRCP

Clinical Skills

4 History and Examination
4 Investigation- CRP, US, CT
4 Resuscitation
4 Treatment of options
4 Role of systemic antibiotics
4 Surgical approaches
4 Management of pancreatic necrosis and haemorrhage
4 Insertion of nasojejunal tube

Technical Skills

4 Central venous line insertion
4 Laparotomy
2 ERCP
4 Cholecystectomy-laparoscopic
3 Cholecystectomy-open
3 Exploration CBD
2 Pancreatectomy-distal
2 Pancreatic debridement/ necrosectomy
2 Pancreatic pseudocyst drainage
CHRONIC PANCREATITIS

KNOWLEDGE

4 Applied Anatomy
4 Pathophysiology
4 Clinical presentation
4 Investigation
4 Complications
4 Postoperative problems

CLINICAL SKILLS

4 History and Examination
4 Investigation
4 Resuscitation
4 Decision making
3 Non-operative treatment incl ERCP
4 Operative options
4 Postoperative management

TECHNICAL SKILLS

2 ERCP
2 Pancreateicojejunoanostomy
2 Pancreaticoduodenectomy
2 Distal pancreatectomy
2 Hepatico-jejunostomy
2 Pseudocyst drainage
PANCREATIC CANCER / PERIAMPULLARY CANCER

KNOWLEDGE

4 Applied Anatomy
4 Pathophysiology Epidemiology; aetiology
4 Stage - TNM
4 Pathology ACA pancreas; ampullary
4 Clinical presentation Painless Jaundice; Pain
4 Investigation CT; MRCP; MRI; EUS
4 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation CT; MRCP; MRI; EUS
4 Decision making Comorbidity; Nutritional assessment
4 Non-operative treatment incl palliation, nutrition
4 Interventional options e.g. ERCP, PTC
4 Postoperative management

TECHNICAL SKILLS

2 Pancreatoduodenectomy
2 Distal pancreatectomy
2 ERCP
2 Biliary bypass
2 Gastroenterostomy
CYSTIC TUMOURS

KNOWLEDGE
4 Applied Anatomy
4 Pathophysiology, Epidemiology; aetiology
4 Pathology- Benign; Malignant
4 Clinical presentation
4 Investigation- CT; MRCP; EUS
4 Complications

CLINICAL SKILLS
4 History and Examination
4 Investigation CT; MRCP; EUS
3 Decision making
3 Non-operative treatment incl palliation, nutrition
3 Interventional options e.g. ERCP, PTC
4 Postoperative management

TECHNICAL SKILLS
2 Pancreatoduodenectomy
2 Distal pancreatectomy
2 ERCP
2 Biliary bypass
2 Gastroenterostomy
NEUROENDOCRINE TUMOURS

KNOWLEDGE

4 Applied Anatomy
4 Pathophysiology
4 Pathology - Functioning; Nonfunctioning
4 Clinical presentation- Symptoms of functioning tumour
4 Investigation CT; EUS; MRCP
4 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation CT; EUS; MRCP
4 Decision making
3 Non-operative treatment incl palliation, nutrition
3 Interventional options e.g. ERCP, PTC
4 Postoperative management

TECHNICAL SKILLS

2 Pancreaticoduodenectomy
2 Distal pancreatectomy
2 Enucleation
2 ERCP
2 Biliary bypass
2 Gastroenterostomy
INTRADUCTAL PAPILLARY MUCINOUS NEOPLASMS

KNOWLEDGE

4 Applied Anatomy
3 Pathophysiology IPMN
3 Pathology
4 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation
3 Decision making
3 Non-operative treatment incl palliation, nutrition
3 Interventional options e.g. ERCP, PTC
4 Postoperative management

TECHNICAL SKILLS

2 Pancreatecoduodenectomy
2 Distal pancreatectomy
2 Total pancreatectomy
2 ERCP
2 Biliary bypass
2 Gastroenterostomy
# PANCREATIC TRAUMA

## KNOWLEDGE
- 4 Applied Anatomy
- 4 Pathophysiology
- 4 Clinical presentation Blunt and abdominal injury
- 4 Investigation CT; MRI
- 4 Complications Pancreatic fistula

## CLINICAL SKILLS
- 4 History and Examination
- 4 Investigation CT; MRI; Laparoscopy
- 4 Resuscitation
- 3 Decision making
- 3 Non-operative treatment
- 3 Interventional options e.g. ERCP, radiological drainage
- 4 Postoperative management Pancreatic fistula; Nutritional support

## TECHNICAL SKILLS
- 3 Cholecystectomy
- 2 Debridement & drainage
- 2 Pancreateicojejunostomy
- 2 Pancreateicoduodenectomy
- 2 Distal pancreatectomy
- 2 Pseudocyst drainage
Liver metastases

Knowledge

4 Anatomy of liver and segments
4 Physiology of liver and liver function
4 Understanding of metastatic process
4 Pathology of primary colorectal cancer and liver metastases
4 Prognostic factors
3 Diagnostic techniques including modern imaging
3 Role of tumour markers in early diagnosis
4 Screening and surveillance following surgery for colorectal cancer
3 Modern chemotherapy, both intrahepatic and systemic for liver metastases
2 Different forms of in-situ ablative techniques, including radiofrequency ablation
2 Full knowledge of factors influencing surgical outcome following resection

Clinical skills

4 Techniques of liver biopsy
4 Post-operative management of major liver resection
4 Management of liver failure

Technical skills

4 Laparoscopy
PRIMARY LIVER CANCER

KNOWLEDGE

4 Applied Anatomy
4 Pathophysiology Hepatitis C
4 Pathology Differential diagnosis; HCC
4 Clinical Presentation
4 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation
4 Decision making
4 Assessment and management of liver insufficiency Child's classification
4 Non-operative treatment incl chemoembolisation and biological therapy
4 Interventional options e.g. ablation
4 Postoperative management

TECHNICAL SKILLS

2 Major hepatectomy
2 Peripheral wedge or segmental resection
HILAR TUMOURS AND GALLBLADDER CANCER

KNOWLEDGE

4 Applied Anatomy
4 Pathophysiology Incidental finding at Cholecystectomy
4 Pathology Classification of hilar tumours
4 Clinical presentation
4 Complications

CLINICAL SKILLS

4 History and Examination
4 Investigation ERCP; MRCP; CT; MRI
4 Decision making
4 Non-operative treatment incl PDT, brachytherapy
4 Interventional options e.g. stenting
4 Postoperative management

TECHNICAL SKILLS

2 Extended hepatectomy
2 Central liver resection
2 Hepatic artery lymphadenectomy
2 Hepaticodochojejunostomy
BENIGN AND CYSTIC TUMOURS

KNOWLEDGE
4 Applied Anatomy
4 Pathophysiology Simple cysts; complex cysts; hydatid disease
4 Pathology
4 Clinical Presentation
4 Complications

CLINICAL SKILLS
4 History and Examination
4 Investigation CT; MRI
4 Decision making
4 Non operative options e.g. medical treatment of hydatid disease
4 Interventional options e.g. embolisation
4 Postoperative management

TECHNICAL SKILLS
2 Fenestration
2 Liver resection
Liver trauma

*Knowledge*

4 Anatomy
4 Pathophysiology
4 Complications

*Clinical Skills*

4 History & examination
4 Investigation
4 Resuscitation
4 Management options

*Technical Skills*

4 Liver-trauma-debridement/packing
Colorectal
Benign anorectal disease

Knowledge

Haemorrhoids:
4 Aetiology of internal and external haemorrhoids
4 Anatomical distinctions between internal and external haemorrhoids
4 Classifications for internal haemorrhoids
4 Indications, contraindications and complications of non-operative treatment of haemorrhoids – topical applications, stool modifiers/softeners
4 Indications, contraindications and complications of office treatment of haemorrhoids
3 Indications, contraindications and complications of operative treatment of haemorrhoids
4 Modifications of therapy with: Inflammatory bowel disease (IBD), Pregnancy, HIV, Coagulopathies, Portal hypertension/rectal varices

Anal Fissure:
4 Aetiology of anal fissure
4 Anatomical location of a classic anal fissure

Abscess and fistula:
4 The origin of cryptoglandular abscess and fistula
4 Classification of anorectal cryptoglandular abscess-based on anatomical spaces
4 Parks classification of anal fistula
4 The natural history of surgically treated anal abscess, including the risk of fistula formation
4 Operative strategy for anal fistula based on sphincter involvement/location
4 Complications resulting from abscess/fistula surgery: recurrence, incontinence

Hidradenitis Suppurativa:
4 Pathophysiology of hidradenitis suppurativa

Pilonidal Disease:
4 Pathophysiology of pilonidal disease

Anal Stenosis:
4 Aetiology

Pruritus Ani:
4 Aetiology and clinical presentation of pruritus ani

Sexually Transmitted Diseases:
4 Aetiology of condylomata acuminata
2 Aetiology of HIV, syphilis, gonorrhoea, Chlamydia, herpes
3 Influence of human papilloma virus serotypes on the subsequent development of cancer

Clinical Skills

Haemorrhoids:
4 Assessment of the signs and symptoms of the following: thrombosed external haemorrhoids, internal haemorrhoids by stage, skin tags
4 Management of haemorrhoids including the indications and contraindications for: rubberband ligation, injection sclerotherapy, infrared coagulation, laser, operative and stapled haemorrhoidectomy
4 Perform two of the OPD techniques and operative haemorrhoidectomy
4 Manage the complications resulting from OPD management: bleeding, pain, sepsis
4 Manage the complications resulting from haemorrhoidectomy: urinary retention, haemorrhage, faecal impaction, infection
**Anal Fissure:**
4 Assessment of the signs and symptoms of anal fissure
4 Arrange the nonoperative management of anal fissure, including stool modifications/softeners, topical anaesthetics, topical pharmacology
4 Indications, contraindications, and complications of the following: lateral internal sphincterotomy, anal stretch, anal advancement flap
4 Pre and post-operative care of lateral sphincterotomy, anal advancement flap for fissure
2 Treat complications resulting from operations; persistent fissure, incontinence, stenosis, “keyhole” deformity

**Abscess and fistula:**
4 Differentiate cryptoglandular abscess and fistula from other causes
4 Assessment of abscess/fistula by techniques designed to elucidate pathological anatomy: Goodsell’s rule and digital examination, fistulogram, injections, MRI, endoanal ultrasound
4 Management of anorectal abscess including pre-operative and post-operative care and the appropriate procedure based on anatomical spaces
3 Treatment options for fistula-in-ano including fibrin glue / fistula plug
4 Modify therapy for: necrotising fasciitis, Fournier’s gangrene, leukaemia, other immunocompromised patients, inflammatory bowel disease
4 Assess rectovaginal fistula in terms of aetiology and location
4 Modify therapy for: necrotising fasciitis/Fournier’s gangrene, Leukaemia, other immunocompromised patients, inflammatory bowel disease
3 Manage rectovaginal fistula with regard to classification, preoperative evaluation, and treatment of rectovaginal fistula, based on location and aetiology
2 Arrange pre and postop care for rectovaginal fistula due to obstetric injury
2 Manage rectourethral fistula depending on location and aetiology

**Hidradenitis Suppurativa:**
4 Assess the symptoms and signs of hidradenitis suppurativa
2 Manage hidradenitis suppurativa by both medical and surgical means

**Pilonidal Disease:**
4 Assess the symptoms and signs of pilonidal disease: abscess, sinus
4 Perform surgical management of pilonidal disease

**Anal Stenosis:**
4 Arrange nonoperative management
2 Operative management of anal stenosis including division of stricture and flap procedures

**Pruritus Ani:**
4 Arrange medical management and surgical management of pruritus ani with attention to: hygiene, diet, anatomical (obesity, deep anal cleft), coexisting anal pathology, systemic disease, gynaecologic-associated, infections, postantibiotic syndrome, contact dermatitis, dermatology, radiation, neoplasm, idiopathic pruritis ani

**Sexually Transmitted Diseases:**
4 Diagnosis of condylomata acuminata
4 Medical (topical chemicals) and surgical treatment options for condylomata acuminata
2 Diagnosis and treatment of HIV, syphilis, gonorrhoea, Chlamydia, herpes

**Technical Skills**

**Haemorrhoids:**
4 Haemorrhoids-endoscopic treatment (injection, banding or infrared coagulation)
3 Haemorrhoidectomy-operative
2 Haemorrhoidectomy- Stapled

**Anal Fissure:**
4 Lateral sphincterotomy
2 Anal advancement flap for fissure/stenosis

**Abscess and fistula:**
4 Abscess-drainage through perineal region
4 Fistula-in-ano-low-lay open
3 Fistula-in-ano-high-drainage seton
3 Fistula-in-ano-high-cutting seton
2 Fistula-in-ano-high-advancement flap
2 Fistula-in-ano - placement of fistula plug
2 Fistula-operation for rectovaginal fistula

**Pilonidal disease:**
4 Pilonidal sinus-lay open
4 Pilonidal sinus-excision+suture
2 Pilonidal sinus-graft or flap

**Anal Stenosis**
2 Anal advancement flap for fissure/stenosis

**Sexually Transmitted Diseases:**
4 Anal skin tags/warts-excision
**Benign colon**

**Knowledge:**

**Diverticular Disease**
4 Aetiology of colonic diverticular disease
4 Incidence and epidemiology of colonic diverticular disease
4 Complications and classification of diverticular disease including: bleeding, perforation, abscess, fistula, stricture
4 Hinchey classification of complicated diverticular disease

**Volvulus:**
4 Aetiology of volvulus of the colon
4 Incidence and epidemiology of volvulus of the colon
4 Complications of colonic volvulus including obstruction, ischaemia, perforation

**Rectal bleeding:**
4 Aetiology of lower GI bleeding

**Massive lower GI bleeding:**
4 Aetiology of massive lower GI bleeding
4 Utility, specificity and sensitivity of colonoscopy, angiography and radio-isotope scintigraphy in evaluation of lower GI bleeding
3 Angiographic treatment of lower GI bleeding
3 Evaluation of recurrent lower GI bleeding, including use of enteroscopy, exploratory laparotomy and intraoperative endoscopy

**Vascular Malformations:**
4 Aetiology of angiodysplasia
3 Classification of haemangiomas, their clinical presentations and predominant GI sites

**Endometriosis:**
4 Pathophysiology of endometriosis
3 Indications for intervention and the operative and non-operative management of endometriosis

**Colon Trauma:**
Uses and limitations of the following imaging and diagnostic tests in the evaluation of blunt abdominal trauma
4 Plain abdominal films
4 Computed tomography scan
4 Ultrasound
4 Peritoneal lavage

**Rectal Trauma:**
4 Identify clinical situations requiring evaluation for rectal trauma

**Clinical Skills**

**Diverticular disease:**
4 Recognise the clinical patterns (including right sided diverticular disease) presenting symptoms, physical findings and natural history of colonic diverticular disease
4 Arrange appropriate diagnostic studies in suitable sequence in the evaluation of both acute and chronic colonic diverticular disease
4 Medical and dietary management of colonic diverticular disease
4 Medical management for acute diverticulitis
4 Pre-operative assessment including the indications for surgery, surgical procedures, and complications for acute diverticulitis
3 Choose appropriate surgical procedures including CT guided drainage for the management of acute diverticulitis
3 Perform appropriate resection for diverticular disease including consideration of the extent of resection, use of ureteral stents, and indications for diversion
3 Appropriate surgical procedures for dealing with complications (fistula, stricture, recurrent episodes) of acute diverticulitis
3 Patient selection and techniques for reversal of Hartmann’s procedure including use of ureteric stents and indications for diversion

**Volvulus:**
4 Recognise the clinical patterns, presenting symptoms, physical findings, and natural history of colonic volvulus based upon its site
4 Arrange diagnostic studies in appropriate sequence
4 Appropriate operative procedures for volvulus depending on site

**Rectal bleeding:**
4 Arrange appropriate evaluation of the patient based on age and other medical conditions

**Massive lower GI bleeding:**
4 Assess haemodynamic stability and outline a resuscitation plan
3 Practice an algorithm for the evaluation of lower GI bleeding including exclusion of coagulopathy, gastroscopy, colonoscopy, selective mesenteric angiography, radioisotope scintigraphy, on table colonoscopy with antegrade lavage
2 Perform endoscopic treatment of lower GI bleeding including coagulation, injection therapy and laser ablation
3 Manage the patient with regard to the indications for surgery, appropriate surgical procedures and their possible complications based upon cause, location, patient age and medical condition
2 Perform intraoperative evaluation and management of persistent massive lower GI bleeding without an identified site
3 Manage post-operative lower GI bleeding

**Vascular Malformations:**
4 Assess clinical presentation and endoscopic findings of angiodysplasia
3 Manage the patient with regard to indications for intervention and the operative and nonoperative management of angiodysplasia
3 Arrange radiological and endoscopic management, nonoperative and operative management, based on location

**Endometriosis**
3 Recognition of the clinical presentation and the endoscopic and laparoscopic findings of endometriosis

**Colon Trauma:**
4 Manage the patient with penetrating abdominal trauma with understanding of the criteria for exploratory laparotomy, wound exploration, peritoneal lavage
4 Perform appropriate surgical management of colon trauma in the context of the severity of associated injuries and stability of medical condition, including the following:
4 Manage a patient, either operatively or nonoperatively with colonic trauma due to colonoscopic perforation or laparoscopic perforation

**Rectal Trauma:**
4 Diagnosis of rectal trauma and associated injuries
4 Perform surgical management of rectal trauma including drainage, faecal diversion, rectal washout, primary repair

**Anal Trauma:**
4 Manage traumatic anal injuries by faecal diversion, and/or repair
Foreign Bodies:
4 Evaluate patients with rectal foreign bodies
4 Perform various methods of extraction of foreign bodies and assess the indications for surgery
4 Manage postextraction evaluation with regard to indications for inpatient observation and indications for surgery

Technical Skills

Diverticular disease-treatment:
3 Colectomy-left
3 Colectomy-sigmoid
4 Colostomy-construction
3 Hartmann's procedure
3 Hartmann's reversal

Volvulus:
4 Sigmoidoscopy-rigid
3 Sigmoidoscopy-flexible
3 Colonoscopy-diagnostic
3 Colonoscopy-therapeutic

Massive lower GI bleeding:
4 Colonoscopy-diagnostic
3 Colectomy – total + ileostomy
3 Colectomy-right
3 Colectomy-left
3 Colectomy-sigmoid
4 Colostomy-construction
3 Hartmann's procedure
4 Ileostomy-construction

Vascular malformations
3 Colonoscopy-diagnostic
3 Colonoscopy-other

Colon Trauma:
3 Colon-primary repair
3 Colectomy-right
3 Colectomy-left
3 Colectomy-sigmoid
3 Colectomy-transverse
3 Colectomy-total+ileostomy
3 Hartmann's procedure
4 Colostomy-construction
4 Ileostomy-construction

Rectal Trauma:
3 Colostomy-construction
4 Hartmann's procedure
3 Ileostomy-construction
2 Rectum-operation for trauma

Anal Trauma
4 Colostomy-construction
2 Anal sphincter repair including postanal repair, anterior sphincter repair + rectocele repair
Colorectal neoplasia

Knowledge

Epidemiology of colorectal cancer and polyps
4 Epidemiology of colorectal cancer and polyps including incidence and prevalence, influence of socio-economic, racial and geographic factors

Aetiology
4 Diet: fat, fibre, calcium, selenium, vitamins (antioxidants), dietary inhibitors, alcohol and smoking, prostaglandin inhibitors
4 Adenoma-carcinoma sequence: evidence, categorise adenomas into low risk, intermediate and high risk and discuss screening procedures, significance of metaplastic polyps
3 De novo carcinomas
4 Susceptibility to colorectal cancer (CRC): family history, Personal Past History (CRC, Polyps, Other cancers), groups at risk
4 Hereditary nonpolyposis colorectal cancer (HNPCC): clinical features
4 Familial adenomatous polyposis: clinical definition, extracolonic lesions, cancer risk
3 Hamartomas: definition, juvenile polyposis, Peutz- Jeghers syndrome

Colorectal cancer screening
4 The general population
4 Persons at moderate risk
4 Persons at high risk

Clinical presentation
4 Distribution of CRC within the colon

Staging and prognostic factors
4 Current staging systems (Dukes, TNM)
4 Clinical prognostic factors: age, mode of presentation, clinical stage, blood transfusion
4 Histologic/biochemical features: histological grade, mucin secretion, signet-cell histology, venous invasion
3 The significance of extent of disease including patterns of spread: direct continuity, intramural, transmural, distal margins, circumferential margins, transperitoneal, lymphatic, haematogenous, implantation
4 The assessment of disease extent: detection and management of synchronous lesions, distant metastatic disease, preop detection of local invasion, regional metastatic disease

Management of colon cancer
4 The indications and contraindications for surgical treatment
4 Pre- and post-operative care
4 Operative technique
4 Outcomes and complications of colon cancer
4 The rationale and inactions for the use of adjuvant chemotherapy

Management of rectal cancer
3 Indications and contraindications, operative technique, pre and postop care, complications and outcomes for:
Local therapy: transanal, Kraske transsacral, York- Mason transssphincteric, transanal endoscopic microsurgery (TEM), fulguration, laser, endocavitary radiation.
Sphincter-sparing resections: high and low anterior resection, tumour specific mesorectal excision, total mesorectal excision, coloanal anastomosis with or without colonic J pouch
3 Sphincter-sparing resections
3 Rationale and indications for the use of adjuvant chemoradiotherapy
3 Current staging and role of pre and post op radiotherapy
The detection and treatment of recurrent and metachronous colon
4 Patterns of recurrence
4 Detection of recurrence using CEA, colonoscopy and imaging
4 Natural history of recurrent colorectal cancer
4 Risks and detection of metachronous lesions
4 Pain management

Anal neoplasia
4 The significance of the anatomical distinction between the anal margin and the anal canal tumours
4 The differential lymphatic drainage of the anal canal and margin
4 The histological transition of the anal canal
4 Association with sexual practices
4 High-risk groups
4 Staging classification of anal neoplasia
3 Epidermoid carcinoma: histologic types, routes of metastasis/recurrence
2 Role of salvage therapies: abdominoperineal resection, chemotherapy, radiotherapy
2 Other anal canal malignancies: adenocarcinoma, small cell cancer, melanoma

Clinical skills

Clinical presentation
4 Recognise the clinical signs and symptoms of patients presenting with colorectal cancer

Management of colon cancer
3 Manage malignant change within an adenomatous polyp
3 Familiarity with the indications and contraindications to surgery, operative technique, pre and post-operative care, outcomes and the complications of colon cancer
3 Special considerations in the operative management of Colon cancer: colonic stents, intraluminal cytotoxic irrigation, on-table lavage, perforation, synchronous lesions
3 En-bloc resections of adjacent organs
3 Extended resections to include total abdominal colectomy

Management of rectal cancer
4 Diagnosis of rectal cancer

The detection and treatment of recurrent and metachronous colon
3 Treatment of recurrent colorectal cancer: natural history, chemotherapy, resection, local ablation
3 Treatment of pelvic recurrences with radiation, chemotherapy, resection
3 Manage Carcinomatosis: with bowel obstruction, with ureteral obstruction
4 Palliative care

Miscellaneous malignant lesions of the colon and rectum
4 Recognise the clinical presentation, assess prognostic factors, and manage carcinoid – Ileal, appendiceal, carcinoid syndrome
3 Recognise the clinical presentation, assess prognostic factors, and manage Lymphoma
2 Recognise the clinical presentation, assess prognostic factors, and manage GIST

Anal Canal Neoplasia
2 Treatment of epidermoid carcinomas based on stage: local excision, chemoradiotherapy, abdominoperineal resection, inguinal node management
3 Diagnosis and management of lesions of the anal canal including HPV genotypes associated with cancer, HIV infection, anal intraepithelial neoplasia (AIN), immunosuppression
3 Squamous cell carcinoma: clinical features, differential diagnosis, surgical management by local excision, chemoradiotherapy and abdominoperineal resection
3 Basal cell carcinoma: clinical features, differential diagnosis, management
3 Bowen's disease: histology, differential diagnosis, natural history, related cancers, management including anal mapping, wide local excision, reconstruction and observation in patients with HIV
3 Paget's disease: theories of histiogenesis, clinical features, management
3 Buschke-Lowenstein tumour: clinical presentation and course, treatment options

**Technical skills**

**Management of colon cancer**
3 Colonoscopy-diagnostic
3 Colonoscopy-therapeutic
3 Hartmann's Procedure
3 Colectomy-left
3 Colectomy-right
3 Colectomy - transverse
3 Colectomy-sigmoid
3 Colectomy - total
3 Colostomy-construction
3 Ileostomy-construction

**Management of rectal cancer**
2 Transanal microsurgery
2 Peranal excision of rectal lesion
2 Rectum-posterior approach
2 Rectum-anterior resection
2 Rectum-anterior resection + coloanal anastomosis
2 Rectum-AP excision
3 Posterior pelvic clearance
3 Pelvic exenteration

**The detection and treatment of recurrent and metachronous colon**
2 Reoperation-pelvic malignancy

**Anal Canal Neoplasia**
3 Anal tumour-excision
3 Rectum-AP excision
Functional disorders

Knowledge

Faecal Incontinence:
4 Classification of the various types of incontinence, their incidence and their Pathophysiology
2 Anatomical, neurological, dermatological, and endoscopic findings that differentiate various types of incontinence
3 Normal and abnormal findings in imaging studies used in incontinence including MRI
3 Knowledge of a scoring system for faecal incontinence
3 Indications, uses and results of biofeedback in incontinence
3 Indications for and techniques used in surgery for incontinence, including complications and functional results: postanal repair, anal sphincter repair, muscle transpositions, artificial bowel sphincter, sacral nerve stimulation
3 Understand the concept of antegrade continent enema conduits

Rectal prolapse:
4 The incidence, pathophysiology and epidemiology of rectal prolapse
2 Understanding of internal intussusception, with its radiological findings and treatment options
3 Understand the perineal and abdominal surgical options for prolapse with the indications for each approach, complications, recurrence rate and functional results

Solitary rectal ulcer
3 Understanding the associated pelvic floor disorder

Constipation:
4 Normal colonic physiology (including gut hormones and peptides) and the process of defaecation
4 Definition of constipation and its epidemiology
4 Classification of types and causes of constipation, differential diagnosis in a patient with constipation
4 Different types of laxatives and describe the indications, contraindications, modes of action, and complications of each: stimulant, osmotic, bulk-forming, lubricant
3 Diagnostic criteria for anismus
3 Indications, techniques, complications and results of rectocele repair
3 Role of colectomy in colonic inertia including indications, complications and expected results
4 Common causative factors for colonic pseudo-obstruction

Chronic rectal pain syndrome
2 Differential diagnosis for rectal pain including levator ani syndrome, proctalgia fugax, chronic idiopathic pelvic pain, coccygodynia

Clinical skills

Faecal incontinence:
4 Take a directed history to differentiate types of incontinence
4 Perform a physical examination to differentiate types of incontinence
3 Identify and interpret anorectal physiology tests
4 Outline a non-operative bowel management plan incorporating: dietary measures, medications, enemas, perineal skin care, anal plug
3 Make a treatment plan for a patient with incontinence, including knowledge of side effects
2 Select patients for operation according to the physical and laboratory findings
2 Select type of operative repair
3 Select patients for temporary and permanent faecal diversion

Rectal prolapse:
4 Clinical presentation and findings in rectal prolapse
3 Differentiate between mucosal prolapse, prolapsing internal haemorrhoids and rectal prolapse
3 Appropriate management of incarcerated and strangulated rectal prolapse
2 Manage constipation and incontinence in the context of rectal prolapse
2 Perform operation for rectal prolapse - perineal or abdominal; open or laparoscopic
2 Manage a patient with recurrent rectal prolapse

**Solitary Rectal Ulcer:**
2 Recognise the clinical presentation, endoscopic and histological findings in a patient with solitary rectal ulcer

**Constipation:**
4 Take a directed history for a patient with constipation and perform a directed physical examination
2 Arrange a treatment plan based on endoscopic, radiological and physiology tests: defaecating proctogram, transit studies, anorectal manometry, EMG, balloon expulsion, contrast enema, endoscopy
3 Identify melanosis coli on endoscopy and discuss its significance
3 Plan a treatment programme for a patient with constipation that may include the following: dietary measures, fibre, laxatives, prokinetic medications, enemas, suppositories, psychological support
4 Evaluate and manage with medical or surgical means a patient with suspected colonic pseudo-obstruction
4 Recognise the clinical presentation of symptomatic rectocele
2 Management of anismus: medical management, biofeedback, botulinum toxin, surgery
2 Manage short segment/adult Hirschsprung's disease
2 Diagnosis and both non-operative and operative management of enterocele and sigmoidocele
2 Evaluation and management of recurrent constipation after colectomy

**Irritable bowel syndrome:**
4 Diagnose irritable bowel syndrome and outline a medical treatment programme that may include the following: diet, fibre, laxatives, prokinetic medications, enemas, suppositories, psychological support

**Chronic rectal pain syndrome**
2 Manage pelvic pain by means of: bowel management programmes, analgesics, antidepressants, levator massage, electrogalvanic stimulation, nerve blocks, steroid injections, botulinum toxin injections, biofeedback, psychiatric or psychological treatment, surgery

**Technical skills**

**Faecal incontinence:**
2 Anal sphincter repair including postanal repair, anterior sphincter repair
2 Anal sphincter - artificial sphincter/sacral nerve stimulation

**Rectal prolapse:**
2 Prolapse-abdominal rectopexy
2 Prolapse-rectopexy + sigmoid resection
2 Prolapse-perineal repair

**Constipation**
3 Rectocele repair
Inflammatory bowel disease

Knowledge

Inflammatory bowel disease - general:
4 The contribution of genetics and immune function to the development of inflammatory bowel disease (IBD)
4 The possible influence of infectious agents, psychological issues and environmental factors
4 The epidemiologic features of Crohn's disease and ulcerative colitis
2 The criteria for severity of disease as defined by Crohn's disease activity index and Truelove classification
4 The endoscopic, radiographic, and laboratory findings of ulcerative colitis and Crohn's disease
4 The distinguishing histologic characteristics of ulcerative colitis and disease
4 The differential diagnosis of Inflammatory Bowel Disease

Reproduction and Inflammatory Bowel Disease
3 The interaction of IBD and pregnancy
2 The impact of IBD on fertility
2 Drug therapy, investigations and surgery during pregnancy

Ulcerative colitis
4 The mechanism of action, indication, appropriate dosage, side effects, and toxicity of the drugs used for the treatment of ulcerative colitis: aminosalicylates, corticosteroids, antibiotics
3 Understand the role of nutritional support in the management of ulcerative colitis
3 The risk of cancer, with the factors increasing risk
4 Be able to identify the indications for surgery for ulcerative colitis including: intractability, severe acute colitis, toxic megacolon, haemorrhage, prophylaxis for carcinoma/dysplasia, carcinoma, complications of extraintestinal manifestations, complications of medications
3 Understand the operative management of indeterminate colitis

Crohn's disease:
4 The mechanism of action, indication, appropriate dosage, side effects, and toxicity of the drugs used for the treatment of Crohn's disease: aminosalicylates, corticosteroids, antibiotics
3 Understand the role of nutritional support in Crohn's disease
4 Risk of large and small bowel carcinoma and risk factors
4 Awareness of the indications for surgery for Crohn's disease including: intractability, intestinal obstruction, fistula/abscess, complications

Other inflammatory conditions-ischaemic colitis:
4 Vascular anatomy of the colon
4 The aetiology of acute colonic ischaemia

Other inflammatory conditions-radiation bowel disease:
3 Risk factors for and susceptibility to injury from radiotherapy
2 Mechanisms of acute and chronic radiation injury
2 Microscopic findings of radiation injury Microscopic findings of radiation injury
3 Understand surgical options for radiotherapy injuries

Other inflammatory conditions-infectious colitis:
4 Epidemiology, aetiology, pathogenesis, laboratory and endoscopic evaluation, medical management and indications for surgery for clostridium difficile colitis
4 In suspected infectious colitis understand relevance of travel history, role of stool culture, testing for ova, cysts and parasites and hot stool sample for amoebiasis, role of lower GI endoscopy with biopsy for histological evaluation and culture, role of rectal and perineal swabs, role of serology in the detection of amoebiasis and strongyloidiasis, infectious colitis as a precipitating factor for inflammatory bowel disease
4 Management of diarrhoea in the immunocompromised patient including HIV
Clinical skills

Inflammatory bowel disease - general:
4 Recognise and compare the clinical pattern, presenting symptoms, physical findings and natural history of ulcerative colitis and Crohn's disease
4 The extraintestinal manifestations of IBD
4 diagnostic assessment for inflammatory bowel disease to exclude other colitides

Ulcerative colitis:
4 Recognise the presentation and manage proctitis, left-sided colitis, extensive colitis, severe acute colitis, toxic megacolon
4 Joint management of a patient unresponsive to initial treatment
3 Organise surveillance and interpret biopsy results of dysplasia
3 indications and contraindications, operative technique, post-operative care, functional results, and complications of the operations for ulcerative colitis
2 recognise and describe the management of the following conditions associated with the ileoanal pouch anal anastomosis: intestinal obstruction, pelvic sepsis, pouchitis, anastomotic/pouch vaginal and perineal fistula, stenosis, sexual dysfunction, retained mucosa
2 Follow-up for retained rectum after colectomy

Crohn's disease:
4 Initial treatment specific to the site of involvement in a patient with Crohn's disease
4 medical management of a patient unresponsive to initial treatment
3 Organise surveillance and interpret biopsy results of dysplasia
4 Management of the following complications of Crohn's disease: Obstruction/ stenosis, fistula, abscess, perforation, haemorrhage, toxic megacolon, severe acute colitis
3 Indications and contraindications, operative technique, post-operative care, functional results, risk of recurrence, and complications of operations for Crohn's disease
3 Management of the following manifestations of anorectal Crohn's disease: abscess, anal fistula, fissure

Other inflammatory conditions - ischaemic colitis/ radiation colitis:
4 Clinical presentation of ischaemic colitis
4 Natural history, diagnosis, and be able to manage ischaemic colitis
4 Recognise and manage ischaemic colitis after abdominal aortic aneurysm repair
3 Manage the complications of radiotherapy: fistula, obstruction, malabsorption, necrosis, haemorrhage
3 Arrange local therapy for radiation proctitis

Miscellaneous colitidis
2 Manage the following: diversion colitis, neutropenic enterocolitis, collagen-vascular colitis, microscopic colitis

Technical skills

Ulcerative colitis- surgical management
3 Colectomy-total+ileostomy
3 Colectomy-total+ileorectal anastomosis
3 Rectum-panproctocolectomy+ileostomy
2 Ileoanal anastomosis+creation of pouch

Crohn's disease -surgical management:
2 Rectum-panproctocolectomy+ileostomy
3 Colectomy-right
3 Colectomy-transverse
2 Colectomy-left
2 Colectomy-sigmoid
2 Colectomy-total+ileostomy
2 Colectomy-total+ileorectal anastomosis
3 Crohn's-ileocaecectomy
2 Strictureplasty-Crohn's
2 Gastroenterostomy
2 Intestinal fistula operation
2 Fistula-in-ano-high-advancement flap
2 Fistula-in-ano-high-cutting seton
2 Fistula in ano-high-drainage seton
2 Fistula-in-ano-high-other
2 Fistula-in-ano-low-lay open
2 Fistula-operation for rectovaginal fistula
Endoscopy for lower GI Surgeons

Knowledge

Equipment:
4 Structure and function of an endoscope, processor and accessories, including diathermy

Sedation and monitoring:
4 Sedative and analgesic drugs and side-effects
4 Appropriate patient monitoring
4 Treatment of adverse effects

Proctoscopy:
4 Indications for proctoscopy
4 Complications of proctoscopy

Rigid sigmoidoscopy:
4 Indications for rigid sigmoidoscopy
4 Complications of rigid sigmoidoscopy
4 Patient preparation and documentation

Flexible sigmoidoscopy:
4 Indications for flexible sigmoidoscopy
4 Complications of flexible sigmoidoscopy
4 Patient preparation and documentation
4 Basic Skills in Endoscopy course

Clinical Skills

Equipment:
4 Clean and disinfect equipment in accordance with BSG guidelines
4 Use equipment in accordance with manufacturer's instructions

Sedation and monitoring:
4 Ability to safely and effectively sedate a patient for endoscopy
4 Monitor appropriately before, during and after procedure

Flexible sigmoidoscopy:
4 Deal appropriately with findings, including biopsy
4 At least 200 procedures performed within a year, 50 supervised and 50 with immediate advice available

Technical Skills

Proctoscopy:
4 Proctoscopy
4 Haemorrhoids-OP treatment(injection, banding or infrared coagulation)

Rigid sigmoidoscopy:
4 Sigmoidoscopy-rigid

Flexible sigmoidoscopy:
4 Sigmoidoscopy-flexible
**Stomas**

**Knowledge**

**Indications for stomas:**
4 Indications for colostomy
4 Indications for ileostomy
4 Types of stomas (loop, end, end loop, double barrel) in relation to indications

**Complications:**
4 High-output ileostomy

**Stoma management:**
4 Stoma appliances, and appropriate selection
3 Indications, contraindications and complications for stoma irrigation

**Stoma physiology:**
4 the physiologic changes associated with ileostomy, colostomy, urostomy
4 normal ileostomy function including anticipated daily outputs and changes that occur in output with post-operative adaptation
4 Causes of high output stomas
4 Differential diagnosis of high output

**Patient education and counselling:**
4 The possible effects that a stoma may have on medication dosage and absorption

**Clinical skills**

**Pre-operative evaluation for stomas:**
4 Discuss ostomy expectations with patients regarding function and anticipated output along with precautions for fluid and electrolyte balance, depending upon the type of stoma involved
3 Demonstrate proper siting and marking techniques for all stoma placement, including such considerations as scars, the umbilicus, skin creases, belt and clothing and positioning (standing, sitting and supine positions)

**Stoma creation and closure:**
3 Perform stoma construction and closure
3 Organise preparation for stoma closure in the case of temporary faecal diversion including: timing of closure, necessary pre-operative evaluation, care of the post-operative stoma site wound

**Post-operative care:**
4 Appreciate the normal post-operative course for colostomy and ileostomy function
4 Recognise the signs, symptoms and management for the following complications that occur in the immediate post-operative period: ischaemia, mucocutaneous separation

**Complications:**
4 Recognise and manage high-output ileostomy
2 Recognise parastomal skin irritation of significance, list a differential diagnosis, and make recommendations for appropriate management
3 Manage ileostomy and colostomy prolapse
2 Management of parastomal hernia
3 Recognise and manage skin conditions associated with stomas
4 Recognise and manage ileostomy food obstruction

**Stoma management:**
4 Early post-operative management of conventional stoma
4 Advise on various skin barriers and accessory products available for the management of stomas
3 Management of a retracted stoma
4 Advise on dietary considerations for patients with an ileostomy or a colostomy, including impact of diet on stoma output, flatus, odour, bolus obstruction

**Stoma physiology:**
4 Appropriately manage fluid and electrolyte abnormalities

**Patient education and counselling**
3 Demonstrate stoma bag emptying, stoma bag changing, management of leakage

**Technical skills**

**Stoma creation and closure:**
3 Ileostomy-construction
3 Colostomy-construction
2 Ileostomy-closure
2 Colostomy-closure
3 Hartmann’s procedure
2 Hartmann’s reversal
2 Colostomy-revision
2 Ileostomy-revision
3 Hernia repair- parastomal
Breast - Oncoplastic
BREAST ASSESSMENT

KNOWLEDGE

Normal anatomy
4 Breast and nipple
4 Axilla and related drainage
4 Chest wall
4 Abdominal wall
3 Breast aesthetics Measurements

Embryology / developmental abnormalities
Accessory nipples, hypo/hypertrophy, asymmetry

Breast and endocrine physiology
Endogenous hormones
4 Puberty / menarche
4 Pregnancy
4 Lactation
4 Menopause
Exogenous hormones
4 OCP, HRT, SERMS etc

Breast assessment
4 Triple assessment Understand indications, use, interpretation
4 Diagnostic grid/concordance
4 Imaging: Ultrasound, mammography: standard views
4 Pathology Cytology FNAC
4 Histology core biopsy Punch biopsy

Extended assessment
4 Additional mammography views
4 MRI
3 vacuum biopsy
4 surgical biopsy

Management
4 Record findings - diagnostic grid
3 Interpret findings
3 develop plan
3 communicate findings and plan

CLINICAL SKILLS

4 History
4 Examination Breast, nodal basin, relevant systems Inspection and palpation
4 Investigation Triple assessment Ultrasound interpretation
4 Imaging techniques Mammography interpretation

TECHNICAL SKILLS

4 Fine needle aspiration Cytology; cyst/abscess drainage
3 Image guided
4 Core biopsy Clinical
3 Image guided
4 Punch biopsy
BENIGN BREAST CONDITIONS

KNOWLEDGE

4 Applied Anatomy
4 Embryology
4 Pathophysiology Benign disorders BBC
4 Cysts
4 Fibroadenoma
4 Duct disease / ectasia / papilloma
4 Breast pain
4 Skin conditions e.g. eczema
4 Gynaecomastia
4 Breast sepsis – Lactational microbiology
4 Breast sepsis - non lactational Periductal - microbiology
3 Other - microbiology

CLINICAL SKILLS

4 History and Examination Breast, nodal basin, relevant systems
4 Investigation
4 Triple assessment
3 Imaging techniques: Ultrasound interpretation, Mammography interpretation, MRI - indications and interpretation
3 Management plan

TECHNICAL SKILLS

4 Drainage of breast abscess Open
3 Image guided
4 Breast lump excision
3 Excision image guided lesion
4 Microdochectomy
4 Major duct excision
4 Fistulectomy
3 Nipple eversion
3 Reduction Mammoplasty
3 Mastopexy
3 Augmentation
BREAST CANCER

KNOWLEDGE

4 Genetics of breast cancer - Family History
3 NICE Guidelines
3 Risk lesions LCIS, ADH

Pathology of in-situ breast cancer
3 Clinicopathology
3 Epidemiology

Invasive breast cancer
4 Taxonomy
4 Staging
4 Epidemiology
4 Cancer biology

Prognostic factors
3 Chief prognostic factors
3 Relevance to treatment
4 Risk assessment / genetic testing / counselling Advice, diet, lifestyle, screening, risk reduction surgery

Screening
3 National Health Breast Screening Programme / Family history Evidence, organisation
3 Screening assessment Delivery, imaging modality, results
Cancer staging
4 Bone scan, MRI, CT, PET, tumour markers etc Understand indications and use of imaging

Management/ treatment
4 Risks and benefits of treatment/no treatment Understand indications
3 Treatment Indications for breast conservation / mastectomy
3 Neoadjuvant therapies including primary medical therapy
3 Indications for radiotherapy
3 Adjuvant chemotherapy - principles and indications
3 Endocrine therapies
3 Herceptin

Breast Service Delivery and QA
4 Multidisciplinary Teams
3 Guidelines and protocols - network, national, etc NICE
3 Ass of Breast Surgeons
3 National Health Breast Screening Programme
2 ASCO, ST Gallen

CLINICAL SKILLS

4 History and Examination Breast, nodal basin, relevant systems
4 Investigation Triple assessment

Imaging techniques
4 Ultrasound interpretation
4 Mammography interpretation
3 MRI - indications and interpretation

Management plan
4 Develop and record plan
3 Communication / informed consent

TECHNICAL SKILLS

Wide local excision
4 Palpable lesion
4 Image wire localised/ skin marked - impalpable

Mastectomy
4 Simple
3 Skin sparing, nipple sparing/ sacrificing
4 Modified radical
3 Skin reducing

Axillary surgery
4 removal axillary breast tissue/nipple
4 Lymph node biopsy
4 Axillary clearance – Primary . Level 1-3
4 Axillary clearance - completion (delayed)
4 Axillary surgery – repeat (recurrence)
4 SLNB (dual technique)
4 SLNB (blue dye only)

Reconstructive surgery
3 Indications
3 Immediate and delayed Implant only
3 Latissimus dorsi flap with or without implant
2 Breast Aesthetics TRAM flap
2 Breast dimensions DIEP flap
3 Reduction mammoplasty
3 Augmentation
2 Lipomodelling
2 Liposuction
2 Skin grafting
3 Salvage surgery Chest wall resurfacing
3 Complex wound management VAC dressings

Oncoplastic techniques
3 Mastopexy
3 Therapeutic mammoplasty
3 Round block
3 Grisotti
3 Symmetrisation surgery

Nipple areolar complex
3 Nipple free graft
3 Nipple reconstruction local flap
3 Skin graft
3 Nipple tattoo
3 Nipple sharing

Developmental corrections
3 Gynecomastia
3 Tubular breast
3 Hypoplasia
Vacuum excision
2 Mammatome/ encore system
Endocrine
Neck swellings

Knowledge

4 Anatomy of triangles of the neck including: submental / submandibular / anterior / posterior
4 Causes of enlargement of salivary glands / thyroid gland incl. thyroglossal cyst / lymph nodes / other
(vascular, skin & soft tissue incl. branchial cyst)

Clinical skills

4 History and examination of neck swellings
4 Investigation of neck swellings including diagnostic imaging, ENT assessment, pathology and biochemistry

Technical skills

4 Biopsy-FNA
3 Lymph node biopsy-cervical
Thyroid

Knowledge

3 Anatomy of the neck, in particular thyroid and parathyroid glands
3 Pathophysiology of thyroid swellings - generalised/ solitary; functioning/non-functioning
3 Benign disorders of thyroid growth
3 Diffuse enlargement, nodular disease
3 Disorders of thyroid function Causes, Treatment options
3 Thyroid malignancy Differentiated, medullary, anaplastic, lymphoma
3 Genetic implications of thyroid malignancy
3 Thyroid replacement therapy in benign disease
3 Follow up and non surgical management / treatment of thyroid malignancy
2 Medical treatment of thyrotoxicosis
3 Principles of operation for thyroid swellings and thyrotoxicosis
4 Complications of thyroid surgery

Clinical Skills

4 History + examination
3 Investigations-Thyroid function + autoantibodies; FNA; Ultrasound;Isotope scan
3 Indications for surgery- thyrotoxicosis, benign nodular disease, malignancy
3 Decision for operative or non-operative management and choice of operation
4 Management of post-operative bleeding, airway problems or hypocalcaemia
3 Diagnosis and management of recurrent thyroid disease- bbenign, malignant, MDT

Technical Skills

Operative management:
3 Thyroid-lobectomy
3 Thyroidectomy- subtotal
2 Thyroidectomy - total
2 Thyroidectomy-toxic goitre
2 Thyroidectomy-total+cervical node dissection
2 Thyroid surgery-reoperative
2 Cervical approach to retrosternal goitre
2 Sternotomy for retrosternal goitre
2 Thymectomy - transcervical approach


**Parathyroid**

**Knowledge**

3 Anatomy / embryology / pathophysiology
3 Genetic implication of parathyroid disease
3 Hypercalcaemia; causes, investigation, medical management
3 Hypocalcaemia, causes, investigation, medical management
3 Causes of hyperparathyroidism: Primary, renal, MEN, persistent or recurrent carcinoma
3 Diagnosis and assessment
3 Indications for and types of imaging
3 Indications for surgery in renal parathyroid disease
3 Surgical strategies for hyperparathyroidism
3 Intra-operative management, Frozen section, PTH assay
4 Complications of parathyroid surgery
3 Options for and organisation of follow-up

**Clinical Skills**

4 History + examination + investigation (biochemical / radiological)
3 Selection for surgery
3 Options: 4 gland exploration, single gland exploration, Subtotal resection, Transcervical thymectomy
3 Focussed approach to parathyroid surgery
2 Indications for mediastinal exploration
4 Management of bleeding, airway problems or hypocalcaemia

**Technical Skills**

2 Parathyroidectomy
2 Parathyroid surgery - reoperation
2 Thymectomy - transcervical
ADRENAL

KNOWLEDGE

3 Anatomy and physiology of adrenal
2 Genetic implications of adrenal disease
3 Causes of adrenal mass
2 Disorders of adrenal function Hyperadrenalism
2 Hypoadrenalism
2 Indications for surgery
2 Effect of hormone producing tumours in perioperative period
2 Open or laparoscopic surgery
2 Different approaches to adrenal - Anterior, posterior, laparoscopic
2 Complications of adrenalectomy

CLINICAL SKILLS

3 History and examination
2 Investigations - Biochemical, radiological
2 Selection for surgery
2 Preoperative preparation for hormone secreting tumours - Endocrinologist, Anaesthetist consultation
3 Postop management of acute adrenal insufficiency
2 Postoperative management of patients with hormone secreting tumours
3 Management of postop bleeding and infection
3 Appropriate follow-up

TECHNICAL SKILLS

2 Adrenalectomy
PANCREATIC ENDOCRINE

KNOWLEDGE

3 Presentation of neuroendocrine tumours - Insulinoma, gastrinoma, MEN1, glucagonoma, VIPoma, non-functioning tumour
3 Investigation
3 Treatment options
3 Complications Bleeding, fistulae, diabetes

CLINICAL SKILLS

3 History and examination
3 Investigations Biochemical, radiological, preop and intraop ERCP, EUS
2 Treatment options and preop preparation Laparoscopic or open Pancreatic resection, enucleation, Biliary bypass, hepatic resection, ablation of tumour
2 Metastatic disease management
3 Postop complications Indication for re-operation, Pancreatic leak / fistula, nutrition

TECHNICAL SKILLS

2 Reoperation
2 Pancreas enucleation
2 Distal pancreatectomy
2 Pancreaticoduodenectomy
3 Biliary bypass
2 Left hepatectomy
2 Right hepatectomy
2 Ablation of hepatic tumour
MEN SYNDROMES

KNOWLEDGE

3 MEN syndromes - MEN1, MEN2, Familial medullary thyroid cancer
3 Genetics and screening
3 Pathophysiology
3 Clinical presentation
3 Subclinical disease
3 Natural history
3 Diagnosis and management Medullary thyroid cancer, hyperparathyroidism
2 Phaeochromocytoma, pancreatic neuroendocrine disease
3 Indications and timing for surgery Recurrent MTC, parathyroid disease
3 Complications of organ related operation
3 Recurrent disease

CLINICAL SKILLS

3 History and examination
3 Investigations Biochemistry, radiology, cytology/histology, genetic
3 Management of at risk patients / families Counselling, endocrinologist and genetics consultation
3 Choice of appropriate operation
2 Postoperative management Relevant to specific operation
3 MDT Liaison
Vascular
Superficial Venous disease

Knowledge

Varicose veins - primary varicose veins:
4 Anatomy of the venous system
4 Aetiology and physiology - Venous dynamics, Pathology, Superficial venous incompetence
4 Complications of varicose veins - Venous hypertension, Oedema, lipodermatosclerosis, ulceration
4 Indications for surgery for varicose veins

Recurrent varicose veins:
3 Failure of primary intervention
3 Neovascularisation
3 Recanalisation
3 Pelvic venous reflux
3 Indications for investigation and treatment

Clinical Skills

Varicose veins:
4 History - Presenting symptoms and complications
4 Examination of the venous system of the lower limbs - varicosities, venous incompetence, complications
4 Select patients who require pre-operative investigations such as Duplex scanning
4 Select patients who require surgery and type of surgery
4 Non-operative management
3 Complications of varicose vein surgery

Technical Skills

Varicose veins - primary varicose veins
4 Injection sclerotherapy
4 Vvs-long saphenous-SFJ lign+/strip+/-avulsions
3 Vvs-SPJ ligation+/strip+/avulsions
4 Vvs-multiple stab avulsions
4 Endovascular ablation

Varicose veins - recurrent varicose veins
3 Vvs-recurrent-re-do SFJ lign+/-avulsions
3 Vvs-recurrent-multiple stab avulsions
3 Vvs-recurrent-re-do SPJ lign+/-avulsions
Deep Vein Thrombosis

**KNOWLEDGE**

4 Anatomy of deep veins lower limb / pelvis
3 Pathophysiology of DVT
4 Management of uncomplicated DVT
3 Early / late complications of DVT
4 Prophylaxis
3 Indications for intervention Caval filter, Protected thrombolysis, Surgical Thrombectomy

**CLINICAL SKILLS**

4 History and examination
3 Investigations Duplex, Venography (MR or standard)

**TECHNICAL SKILLS**

3 Endovenous therapy(thrombolysis)
2 Venous thrombectomy
Chronic deep venous insufficiency

**KNOWLEDGE**

3 Pathology of deep venous incompetence DVT  
2 Valvular dysfunction  
2 Valvular agenesis

**Management options**

3 Compression  
3 Valvuloplasty  
2 Valve transplant  
2 Bypass  
2 Amputation

**CLINICAL SKILLS**

3 History  
3 Examination Diagnose complications  
3 Investigation Duplex, Venography
Haematology

Knowledge

Heparin:
4 Role of antithrombin III and the dual action of heparin on thrombin (factor II) and factor Xa (IX a and XI a also)
4 Half-life, routes of administration and uses of heparin.
4 Complications of heparin therapy
4 Intraoperative use of heparin including monitoring techniques (TEG) and reversal
4 Mechanism of action and complications of protamine sulfate

Low Molecular Weight Heparin (LMWH):
4 Rationale for the development of LMWH and its advantages over unfractionated heparin
4 Mechanism of action
4 Understanding of why it can be used without monitoring and why it is less haemorrhagic than unfractionated heparin
4 Clinical applications in HITS and prophylaxis
4 Cost benefits of out patient treatment of venous thrombosis

Heparin-induced Thrombocytopenia (HIT):
4 Understanding of the incidence of Heparininduced Thrombocytopenia (HIT), of thrombotic complications and the mortality rate
4 Risk factors
4 Differences between Type I and Type II HIT
4 Diagnostic criteria
4 Pathophysiology of antibody formation
4 Limitations of the various diagnostic tests
4 Indications for further anticoagulation and agents available

Warfarin:
4 Mechanism of action including the roles of proteins C and S
4 Understanding of why heparin should be given for the first 4-4 days of warfarin treatment
4 Medical conditions, foods and common drugs that affect warfarin’s anticoagulant activity
4 Complications of warfarin therapy and how to reduce them
4 Recommended INR levels
4 Indications, methods and complications of reversing warfarin

Antiplatelet therapy:
4 Structure and function of the platelet
4 Role of platelets in primary and secondary haemostasis and in pathologic thrombosis
4 Sequence of platelet activation
4 Platelet agonists and antagonists
4 Antiplatelet agents currently available and their mechanisms of action

Clinical Skills

Heparin:
4 Recognition of patients who require heparin and their subsequent management

Low Molecular Weight Heparin (LMWH):
4 recognition of patients who require low molecular weight heparin and their subsequent management

Heparin-induced Thrombocytopenia (HIT):
4 Management of a patient with HIT

Warfarin:
4 Management of a vascular patient on warfarin
4 Management of over anticoagulation
Antiplatelet therapy:
4 Appropriate prescribing of antiplatelet drugs in the vascular patient
Acute limb ischaemia

Knowledge

Acute limb ischaemia
4 Anatomy of the arterial system
4 Pathophysiology of acute limb ischaemia- embolism, thrombosis, trauma, iatrogenic interventions
3 Risk factors for acute limb ischaemia
4 Knowledge of causes of acute limb ischaemia
3 Conservative management
3 Management - embolectomy, thrombolysis, primary amputation
3 Subsequent management and investigation of patient with acute limb ischaemia
2 Pathophysiology of compartment syndrome
4 Ischaemia reperfusion injury and systemic effects
3 Ways of attenuating effects of reperfusion

Clinical skills

Acute limb ischemia
4 History and examination to detect acute limb ischaemia
3 Arrange appropriate urgent investigations: duplex, angiogram, ECHO
4 Can recognise when intervention is not appropriate

Complications of acute limb ischaemia
3 Manage patient when embolectomy fails
3 Manage patient with rhabdomyolysis
2 Peroperative thrombolysis
2 Emergency bypass

Thrombolysis
4 Manage patient undergoing Thrombolysis
3 Management of complications of Thrombolysis

Technical skills

Acute limb ischaemia
4 Surgical approaches to the arterial tree
4 Surgical control of upper and lower limb blood vessels
4 Thrombo-embolectomy-arterial-femoral
3 Thrombo-embolectomy-arterial-brachial
3 Thrombo-embolectomy-arterial-popliteal
3 Peroperative angiogram and thrombolysis
2 emergency vascular reconstruction
4 Percutaneous angiogram

Complications of acute limb ischaemia
4 Fasciotomy
Chronic lower limb ischaemia

Knowledge

Chronic lower limb ischaemia - assessment:
4 Anatomy of arteries supplying the lower limb.
3 Role of ultrasound and angiography and other imaging (e.g. MRA)
2 Role of angioplasty

Pathology
4 Atherosclerosis (atherothrombosis) and complications.
4 Cystic adventitial disease, popliteal entrapment, fibromuscular dysplasia
4 Co-existing disorders - Diabetes, Buerger's disease, autoimmune vasculitis
4 Congenital disorders - Persistent sciatic artery
4 Recognition of cardiovascular risk and management
4 Understanding of diabetes and impact on arterial disease
4 Epidemiology of tobacco smoking
3 Natural history of lower limb arterial disease
4 Critical limb ischaemia

Chronic lower limb ischaemia - Management:
4 Basic principles of management of hypertension and hyperlipidaemia and diabetes
4 Role of antiplatelet drugs
3 Role of exercise
4 Indications for intervention
3 Surgical approaches to infra-inguinal vessels
4 Types of anaesthesia
3 Potential complications of vascular surgery
2 Technical components of vascular anastomosis and commonly occurring problems

Amputation:
4 Types of amputation and advantages of each
4 Potential complications of amputation

Clinical skills

Chronic lower limb ischaemia - assessment:
4 Ability to take a relevant history and examine vascular system
3 Ability to run risk factor clinic
3 Use of ankle pressure measurements
3 Role of Duplex ultrasound, CT angio, MRA
2 Interpretation of angiograms

Chronic lower limb ischaemia - management:
3 Selection for surgery, angioplasty, amputation
3 Management of post-operative wounds, seroma
3 Management of graft complications, graft surveillance programme

Technical skills

2 Percutaneous angiography
2 Exposure of aorta, iliac, femoral, popliteal and tibial vessels
2 Exposure of axillary artery
2 Vascular anastomosis (end-to-end, end-to-side)
2 Aorto-iliac & aorto-femoral bypass
2 Ilio-femoral bypass
2 Axillo-femoral bypass
2 Fem endarterectomy / patch
2 Ilio-femoro and femoro-femoral cross-over
2 Above-knee femoro-popliteal bypass
2 Below-knee femoro-popliteal bypass
2 Distal bypass (AT, PT & peroneal)
2 Pedal bypass
2 Vein preparation insitu/ reversed/arm vein/SSV
2 Vein cuff / patch
2 Intra-operative assessment doppler & angiography

Amputation:
2 Level Selection
3 Amputation-digit(s)
2 Transmetatarsal amputation
2 Amputation-BK- Posterior flap, skew flap
2 Knee disarticulation
2 Amputation-AK
Upper limb ischaemia/Thoracic Outlet Syndrome

Knowledge

Chronic Upper limb ischaemia - diagnosis and assessment:
4 Anatomy of the vessels of the upper limb and thorax
4 Pathophysiology of ischaemia of the upper limb; atheroma, external pressure, radiation, inflammation, radiation, embolism
4 Pathophysiology of subclavian steal
2 Thoracic outlet syndrome, knowledge of anatomy, presentation, differential diagnosis, pathology and investigation

Chronic Upper Limb ischaemia - treatment:
2 Indications for conservative management, radiological intervention and surgery
2 Indications for treatment of subclavian steal
2 Wires, sheaths and stents for upper limb use
2 Techniques and conduits for upper limb bypass
2 Drug treatment eg prostacyclin

Chronic Upper limb ischaemia - ongoing care:
2 Means of secondary prevention of upper limb ischaemia
2 Complications of surgery for upper limb ischaemia
2 Causes of pain in the upper limb following intervention including complex regional pain syndrome
2 Therapeutic options for management of CRPS including dorsal sympathectomy

Clinical Skills

Chronic Upper limb ischaemia - diagnosis and assessment:
4 History and examination of the vascular system of the upper limb
2 History and examination of the upper limb to diagnose thoracic outlet syndrome
2 Appropriate investigation; Duplex ultrasound, MR angiography, angiography CTA, IADSA

Chronic Upper Limb ischaemia - treatment:
2 Selection of patients for different forms of intervention

Chronic Upper limb ischaemia - ongoing care
2 Manage complications of surgery or interventional radiology including surveillance
2 Thoracoscopic cervical sympathectomy

Technical Skills

Chronic Upper Limb ischaemia - treatment:
2 Amputation-digit(s) / upper limb
2 Thoracic outlet syndrome- surgical decompression
2 Carotid-subclavian bypass
Aortic aneurysm

Knowledge

Aortic aneurysm - diagnosis and assessment:
4 Anatomy of the aorta and main branches
4 Pathology and risk factors for aneurysm formation
4 Indications for intervention
4 Natural history
4 Investigation - Ultrasound/CT scan/MR scan
3 Screening programmes

Aortic aneurysm - treatment:
3 Knowledge of open repair
2 indications, limitations and methods of assessment for endovascular repair suitability

Aortic aneurysm - ongoing care:
3 Complications of open aortic surgery
3 Means of secondary prevention of vascular disease
3 indications for renal support

Aortic Aneurysm - Management of complex aneurysms:
2 strategy to deal with : horseshoe kidney, inflammatory, mycotic aneurysm, aorto-caval fistula, co-existent renal transplant

Endovascular AAA repair - ongoing management:
2 Types of endoleak
2 Follow-up regimen and management of complications
2 Indications for supra-renal fixation

Clinical Skills

Aortic aneurysm - diagnosis and assessment:
4 History and examination
4 Assessment of co-morbidity - Able to objectively assess cardiac, respiratory and renal system

Aortic aneurysm - treatment:
4 Selection of patients for conservative management, open operation or Endovascular stent graft

Aortic aneurysm - ongoing care:
3 Ability to recognise and manage complications: bleeding (including DIC), thrombosis, embolism, , organ failure and leg ischaemia
2 Aorto-caval fistula, gut ischaemia
2 infected graft
Aortic Aneurysm - Management of complex aneurysms:
2 Able to repair AAA in conjunction with aortocaval fistula, when inflammatory aneurysm, transplanted and horseshoe kidney
2 Able to deal with mycotic AAA

Technical Skills

Elective Aortic aneurysm – open surgery:
2 AAA-tube graft-part-control/dissection
2 AAA-tube graft-proximal anastomosis
2 AAA-tube graft-part -distal aortic anastomosis
2 AAA-tube graft - complete operation
2 AAA-bifurcated graft-part-control/dissection
2 AAA-bifurcated graft-part-proximal anastomosis
2 AAA-bifurcated graft-part-femoral anastomosis
2 AAA-bifurcated graft-complete operation

**Endovascular AAA repair:**
2 Endovascular repair part operation-can place guidewire in aorta and deploy proximal end of graft
2 Endovascular repair part operation- can deploy distal ends of graft in iliac arteries
2 Remove graft that has migrated and replace with open graft
2 Deal with occluded limb
2 Supra-renal fixation of graft
2 Recognise endoleak on angiogram and treat it endovascularly
Ruptured abdominal aortic aneurysm

Knowledge

Diagnosis and management
4 Patients at risk
4 Clinical features
4 Role and timing of investigation
4 Hypovolaemia relevant to the condition
4 Understands importance of immediate intervention
3 Role of emergency endovascular management

Operation
4 Anatomy of the abdomen and major vessels- supra-coeliac and infrarenal approach
3 Basic physiology of aortic clamping
3 Intra-abdominal compartment syndrome and intra-operative management
4 Coagulopathy

Post-operative care
3 Nutrition
4 Fluid Balance
4 Respiratory and renal physiology
4 Cardiac function

Complications
4 Early and late complications – open and endovascular
3 Indications for investigation such as CT scan

Clinical skills

Diagnosis and management
4 History and examination
3 Patient Selection and assessment of co-morbidity

Operation
4 Recognises signs of coagulopathy and initiate basic treatment

Post-operative care
3 Understands need for nutritional support
4 Fluid requirements
3 Able to work in an ITU environment

Complications
3 Clinical recognition of complications: bleeding, thrombosis, embolism, organ failure
3 Recognise need for early and late reintervention

Technical skills

Ruptured Aortic aneurysm – open surgery:
2 AAA-tube graft-part-control/dissection
2 AAA-tube graft-proximal anastomosis
2 AAA-tube graft-part -distal aortic anastomosis
2 AAA-tube graft - complete operation
2 AAA-bifurcated graft-part-control/dissection
2 AAA-bifurcated graft-part-proximal anastomosis
2 AAA-bifurcated graft-part-femoral anastomosis
2 AAA-bifurcated graft-complete operation
2 Suprarenal aortic aneurysm repair
2 Femoral thrombectomy and or additional lower limb revascularisation.
2 Endovascular AAA repair
Femoral aneurysm

Knowledge

Femoral artery aneurysm - diagnosis and assessment:
4 Anatomy of the femoral artery and branches
3 Aetiology
3 Indications for intervention
3 Natural history of femoral artery aneurysms
4 Investigation: ultrasound, CT scan, role of angiography

Femoral Artery Aneurysm - treatment:
3 Indications for interventional treatment
4 Knowledge of surgical approaches

Ruptured Femoral Artery Aneurysm - treatment
4 Recognise and investigate

Clinical Skills

Femoral artery aneurysm - diagnosis and assessment:
4 History and examination
4 Assessment of co-morbidity
2 Perform ultrasound examination of femoral artery

Femoral Artery Aneurysm - treatment:
2 Selection of patients for conservative management
2 Methods of repair of femoral artery aneurysm

Technical Skills

Ruptured Femoral Artery Aneurysm
2 Extra-peritoneal control of iliac vessels
**Popliteal aneurysm**

**Knowledge**

**Popliteal artery aneurysm - diagnosis and assessment:**
4 Anatomy of the popliteal artery and branches
3 Aetiology
3 Indications for intervention
3 Natural history, risk of limb loss
3 Investigation: Ultrasound, CT scan, MR scan, role of angiography

**Popliteal Artery Aneurysm - treatment**
3 Indications for interventional treatment
2 Knowledge of surgical approaches
2 Indications for open versus endovascular repair

**Thrombosed popliteal artery aneurysm:**
4 Recognise and describe clinical symptoms and signs
2 Investigation: Duplex, angiography
2 Treatment options; thrombolysis, surgery, conservative
2 Complications of thrombolysis, bleeding, distal embolisation
3 Indications for facsiotomy

**Clinical Skills**

**Popliteal artery aneurysm - diagnosis and assessment:**
4 History and examination
3 Assessment of co-morbidity
2 Perform ultrasound examination of popliteal artery

**Popliteal Artery Aneurysm - treatment:**
2 Selection of patients for conservative management, open operation or endovascular stent graft

**Thrombosed popliteal artery aneurysm:**
3 Initiate thrombolysis
4 Manage patient undergoing thrombolysis

**Technical Skills**

**Popliteal Artery Aneurysm - treatment:**
2 Percutaneous angiography
2 Peroperative angiography
2 Peroperative thrombolysis
2 Aneurysm-popliteal-repair-exclusion bypass of popliteal artery aneurysm
2 Aneurysm-Popliteal-repair-direct inlay graft repair
3 Fasciotomy
False aneurysm

Knowledge

False aneurysms of peripheral arteries – diagnosis and assessment:
3 Pathology of false aneurysms
3 Aetiology: Trauma, post surgical, infective, connective tissue disorders
2 Complications of false aneurysms

Treatment of false aneurysm:
3 Recognise sites of common occurring false aneurysms: Femoral, brachial, radial aortic, anastomotic
3 Indications for direct repair, ligation or endovascular repair
2 Indications for use of thrombin

Clinical Skills

False aneurysms of peripheral arteries – diagnosis and assessment:
3 History and examination
3 Assessment of co-morbidity
2 Perform ultrasound examination of femoral artery

Treatment of false aneurysm:
2 Selection of appropriate treatment
2 Ultrasound thrombin injection of false aneurysm

Technical Skills

Treatment of false aneurysm:
2 False aneurysm repair-IV drug abuser
2 False aneurysm repair-post anastomosis
2 False aneurysm repair-post catheterisation
2 False aneurysm-ligation
2 Extra peritoneal control of iliac vessels
Carotid body tumors + aneurysms

Knowledge

Diagnosis and assessment of carotid body tumour:
2 Epidemiology and pathology
2 Associated medical conditions
2 Investigation: Angiogram, CT scan, MR angiogram, CT angiogram, MIBI Scan

Treatment of carotid body tumours:
2 Indications for treatment

Management of complications of treatment for carotid body tumours:
2 Understanding of possible complications: Bleeding, cranial nerve injury, airway obstruction, malignancy

Carotid aneurysms:
3 Aetiology, pathology and natural history
3 Diagnosis
3 Investigation: Duplex, CT scan, MR angiogram
2 Indications for surgery

Clinical Skills

Diagnosis and assessment of carotid body tumour:
3 Clinical examination and recognise clinical features

Management of complications of treatment for carotid body tumours:
2 Identify and manage complications

Carotid aneurysms:
4 Clinical examination
2 Methods of reconstruction including: Direct repair, Vein jump graft

Technical Skills

Treatment of carotid body tumours:
2 Carotid body tumour excision
Carotid aneurysms:
2 Carotid aneurysm excision
VASCULAR ACCESS

Knowledge
4 anatomy of upper and lower limb arteries and veins
4 List indications for VA
4 Knowledge of methods of renal support; advantages and disadvantages
4 Physiology of arterio-venous fistulae
4 Knowledge of conduit material
4 List complications of VA
3 Knowledge of preoperative investigations including ultrasound

Clinical Skills
2 Pre-operative assessment and choice of VA
2 Arrange appropriate investigations
2 Create brachiocephalic fistula
2 Create basilic vein transposition AV fistula
2 Create forearm loop graft
2 create thigh loop graft
2 Undertake revision procedures
2 Arrange surveillance
Renal artery disease

Knowledge

Pathology of renal artery disease:
4 Normal renal artery anatomy
4 Physiology of renal control of blood pressure
3 Pathophysiology of renovascular disease and acute and chronic renal failure
3 Renal Pathology: atherosclerosis, emboli, fibromuscular dysplasia, aneurysmal disease, arteritis, trauma and drug treatments

Diagnosis and Investigation:
3 Clinical manifestations
3 Investigations; duplex, MRA, CT angiography, Isotope scans and IADS

Treatment:
3 Drug treatments and risk factor modification
3 Renal protection; drugs, contrast agents and iv fluids
3 Range of balloons, wires, sheaths, guiding catheters used in renal artery interventions
3 Role of angioplasty and stenting in renal artery disease
3 Surgical approach and options for renal artery disease
3 Complications of Treatment

Clinical Skills

Diagnosis and Investigation:
3 History and examination- renal failure, renal artery disease
3 Investigations: Urine and Blood Tests, Ultrasound scan, Interpretation

Treatment:
3 Prescribing appropriate medical therapies and avoidance of nephrotoxic agents
3

Complications of Treatment:
4 Manage patient in acute renal failure

Technical Skills

Treatment:
3 Selection for medical, radiological and or surgery treatment
2 Renal artery angioplasty /stenting /embolisation
2 Reconstruction-arterial-renal
**Carotid artery disease**

**Knowledge**

4 Anatomy and pathophysiology of various types of stroke  
3 Classification schemes for acute stroke  
3 Scales for describing the severity of acute stroke  
3 Definition of a transient ischaemic attack (TIA) and provide a differential diagnosis for a suspected TIA  
3 The relationship between thrombophilia/coagulopathies and TIAS  
3 Genetic causes of stroke  
3 Epidemiology of risk factors for cerebral infarction  
2 BHS, NICE, RCP and SIGN guidelines for the treatment of hypertension and hyperlipidaemia  
3 The use of CT, MRI/A, Carotid Duplex, Transcranial Doppler, IA DSA and Echocardiography  
3 The place of acute intervention including thrombolysis and neurosurgery  
3 Complications of acute stroke and their multidisciplinary management  
2 Cost effectiveness of stroke prevention measures  
2 Principles of management of atrial fibrillation  
2 Principles of use of antiplatelet agents  
2 Principles of selection for carotid endarterectomy and stenting  
2 Techniques of carotid surgery  
2 use and interpretation of intraoperative measurements

**Clinical Skills**

2 Assess stroke risk in primary and secondary prevention setting  
4 Appropriate clinical assessment including investigation and management plan  
4 Provision of intensive monitoring to acute patients  
3 Interpretation of CT and MRI/A Brain Scans  
3 Interpretation of Carotid duplex and Carotid Angiography  
2 Treat and lower blood pressure and lipids after stroke  
3 To be able to initiate and control heparin and oral anticoagulants  
3 To provide appropriate clinical advice on the use of antiplatelet agents

**TECHNICAL SKILLS**

2 Carotid endarterectomy - complete - GA  
2 Carotid endarterectomy - complete - LA  
2 Carotid Endarterectomy - part - dissection  
2 Carotid endarterectomy - part - endarterectomy  
2 Carotid endarterectomy - part - patch closure  
2 Re-do carotid endarterectomy  
2 Endovascular stent
Carotid trauma/ dissection

Knowledge

Diagnosis and management of carotid artery trauma:
2 Mechanisms of sharp and blunt carotid artery injury
2 Aetiology of carotid artery dissection
2 Investigation: Angiography, Duplex, MR angiography, CT Scan
2 Medical management of carotid dissection

Airway management:
3 Indications for tracheostomy

Clinical Skills

Diagnosis and management of carotid artery trauma:
2 Perform Duplex Scan
3 Control of bleeding in injured artery
3 Arterial trauma management
2 Repair including: intimal flap, direct repair, vein jump graft, use of shunt
Mesenteric vascular disease

Knowledge

4 Anatomy of aorta and mesenteric vessels
4 Pathophysiology of acute mesenteric ischaemia including embolism, thrombosis, venous occlusion, trauma, gut ischaemia following aortic reconstruction
4 Pathophysiology of chronic mesenteric ischaemia including atherosclerosis, aneurysm, extrinsic compression syndromes
4 Presentation of mesenteric vascular disease
3 Investigation - angiography, CT/CTA
2 Means of treatment of acute/chronic mesenteric ischaemia both via operation and interventional radiology
3 Complications of treatment

Clinical Skills

Mesenteric ischaemia - diagnosis and assessment:
4 Resuscitation
3 History and examination - acute
2 History and examination - chronic
3 Arrange appropriate investigation to exclude other pathology
3 Arrange appropriate investigation to identify mesenteric ischaemia, including mesenteric angiography, intra-arterial DSA, CT, MRA imaging, pre and post prandial mesenteric Duplex ultrasound
3 Interpretation of the clinical picture with the radiological abnormalities
3 Selection of patients for appropriate intervention whether emergency or elective

Technical Skills

2 Percutaneous angiography
2 Peroperative angioplasty
2 Reconstruction-arterial-mesenteric
3 Small bowel resection
3 Hartmann's procedure
VASCULAR TRAUMA

KNOWLEDGE

4 Surgical anatomy - Relationship to fractures, nerves, associated structures
4 Mechanisms of vascular injury – Traumatic / iatrogenic
3 Pathophysiology of trauma and muscle ischaemia
3 Pathophysiology of A-V fistula
3 Investigations Invasive/ Non-invasive
3 Operative approach to specific injuries - Vascular, Combined arterial and Venous, Orthopaedic / neurological
3 Technical options for repair
3 Fasciotomy

CLINICAL SKILLS

4 Symptoms and signs of acute arterial / venous injury
3 Investigation - Ankle / brachial pressure index, Duplex, DSA
4 Manage multiply injured patient
3 Manage systemic effects of arterial trauma – rhabdomyolysis

TECHNICAL SKILLS

Surgical options
3 Ligation
3 Lateral suture repair
3 End to end anastomosis
3 Interposition vein / prosthetic graft
3 Panel / spiral grafts
3 Fasciotomy

Radiological
3 use of shunts
3 Imaging techniques
2 options for control of bleeding
HYPERHYDROSIS

KNOWLEDGE
4 Anatomy of sympathetic nervous system
4 Physiology of sympathetic nervous system
3 Pathophysiology
3 Presentation

Treatment options
3 Conservative + Medical
3 Surgical - cervical and lumbar sympathectomy

CLINICAL SKILLS
4 History and examination
2 Management strategy

TECHNICAL SKILLS
3 Axillary Botox therapy
2 Surgery- Thoracoscopic sympathectomy
Disorders of the Lymphatic Channels

Knowledge

Anatomy and pathophysiology of disorders of the Lymphatic channels:
3 Anatomy of the adult lymphatic system from the level of the terminal lymphatics to the cisterna chyli
3 Microscopic anatomy of the lymphatic capillaries and conducting lymph vessels and specifically how they differ from veins and arteries
3 Physiological determinants of lymph flow, including intrinsic contractility of lymph vessels, increased interstitial pressure, muscular activity, arterial pressure, respiratory pressure, and gravity
3 Major differences between the physiology of the lymphatic system from the venous system
3 Major functions of the lymphatic system, including transport of interstitial fluid and macromolecular proteins lost from capillaries, bacterial and fungal infections, foreign material
2 Classification of causes of lymphoedema
2 Primary lymphoedema Congenital -Nonfamilial; Familial (Milroy's Disease)
2 Primary Lymphoedema Praecox - Non-familial; Familial (Meige Disease)
2 Primary Lymphoedema Tarda
2 Secondary lymphoedema, including filariasis, lymph node excision and radiation, tumour invasion, infection, and trauma
2 Functional classification of lymphoedema based on the underlying lymphatic anatomy as determined by lymphangiography
2 Compensatory mechanisms that develop in response to increased interstitial pressure, and the tissue effects of chronic lymphatic obstruction including impaired immune cell trafficking, lymphatic obstruction, and chronic intestinal inflammation
2 Secondary consequences of long-standing lymphedema: infection, fibrosis, and neoplasia
3 Functional and anatomical abnormalities that cause chylous disorders
3 Consequences of the loss of chyle into body cavities or through a chyloticutaneous fistula

Diagnosis and Assessment of lymphoedema:
2 Accuracy and limitations of the imaging modalities used to evaluate lymphatic disease: lymphoscintigraphy, computed tomography, and magnetic resonance imaging
2 Technique of lymphoscintigraphy, the features of a normal lymphoscintogram and the typical scintographic findings in primary and secondary lymphoedema
2 Indications, techniques, interpretation and complications of lymphangiograms

Management of lymphoedema:
2 Mechanisms of action and effectiveness/ineffectiveness of pharmacologic agents such as diuretics, benzopyrones, and steroids in the treatment of lymphoedema
2 Mechanical techniques to reduce a limb swelling including elevation, compression (elastic and non-elastic support, intermittent pneumatic compression, including pressure, ratio of compression/decompression, duration of therapy), and manual lymphatic drainage
2 Role of antibiotics in the treatment and prophylaxis of recurrent cellulitis in patients with chronic lymphoedema
2 Indications for surgical management of chronic lymphoedema

Diagnosis and management of chyle leak:
2 Biochemical and radiological methods of assessing a patient with a possible chyle leak

Clinical Skills

Diagnosis and Assessment of lymphoedema:
3 History and examination
3 Distinguish lymphoedema from other causes of extremity oedema
3 Differentiate between the various clinical presentation of and complications of chronic lymphoedema including infection (fungal and bacterial) and malignancy

Management of lymphoedema:
2 Non-operative management of primary and secondary lymphoedema
To be familiar with the operative technique, complication rate, and effectiveness of excisional procedures including the Charles procedure, Thompson's buried dermal flap, suction curette, and Sistrunk procedures.

2. Indications, technique, complication rate, and outcome of direct lymphatic reconstruction such as lymphovenous anastomosis including lymphnodal-venous and lymphvenous procedures.

2. Indications, technique, complication rate, and outcome of lymphatic grafting.

2. To describe the indication, technique, complications rate of indirect lymphatic reconstructions such as the mesenteric bridge operation, omental flap, and autotransplantation of free lymphatic flap.

2. Indications, technique, complications, and outcome of procedures for primary chylous disorders.

**Diagnosis and management of chyle leak:**


2. Nutritional management of chyle leak including the indications for low fat diet, medium chain triglyceride diet and parenteral nutrition.
Interventional Radiology

Knowledge

Principles
3 Physics and hazards of ionising radiation to patients and staff
2 The sensitivity of different organs to ionizing radiation and the maximum yearly whole body dose
3 Current statutory requirements concerning the medical use of ionising radiation
4 Patients at high risk for blood borne pathogens
3 Procedures at high risk for radiation skin injuries and how to avoid such injuries
4 Incidence of hepatitis C in the IR patient population
3 Factors that affect radiation exposure to both patients and staff
2 Maintenance schedules for radiation protection devices

2 Arterial and venous access sites
2 Measures to improve angiographic image
2 Risks of radiation contrast
2 Risks of angiography and intervention
3 Indications for angioplasty / stenting
3 Expected results of angioplasty / stenting
3 Complimentary role of endovascular therapy Medical / surgical therapy
2 Role of different catheter types
2 Use of different guidewire types

Clinical Skills
3 Be able to operate radiation equipment safely and effectively
3 Appropriate use of lead protective clothing, lead glasses, shields and gloves
3 Uses methods of reducing the radiation dose to the patient and operator during IR procedures
3 Aware of how to limit / reduce work related musculoskeletal injuries in the IR environment
3 Able to reduce accidental exposure to blood and body fluids in the IR suite
Technical skills

2 Retrograde femoral artery puncture
2 Antegrade femoral artery puncture
2 Other arterial puncture
2 Ultrasound guided vascular puncture
3 Venous access
2 Secure vascular access with sheath, Flush catheter and sheath
2 Position guidewire using fluoroscopy
2 Place non-selective catheter in aorta
2 Satisfactory diagnostic angiograms - Peripheral, renal, mesenteric, fistula
2 Recognises inadequate study
2 Use drugs appropriately - Vasodilators, anticoagulants, analgesics, sedatives, antiperistaltics
2 Angioplasty - Safely negotiates stenosis, appropriate balloon, check angiogram
2 Stenting Primary and secondary stenting
Transplant
Access for dialysis

Knowledge

4 Renal failure: Classification, Causes, Pathophysiology, Treatment options
3 Renal dialysis: Indications, Types of dialysis, Access sites, Complications, Timing of access
4 Vascular anatomy of the upper and lower limbs
4 Principles of pre-operative preparation and post-operative management including assessment of cardiac function and venous conduits

Clinical skills

Assess patients referred for vascular access:
3 Prepare patients for theatre including appropriate investigations
4 Identify appropriate access site

Needling techniques
2 buttonhole
2 rope-ladder
2 Use of PTFE grafts

Manage post-operative care:
3 investigations
3 Fluid Management
3 Drug therapy
3 Vascular complications - steal, venous hypertension, cardiac failure and aneurysm

Manage complications:
3 Thrombosis
3 Haemorrhage
3 Infection
3 CAPD peritonitis including sclerosing peritonitis

Technical skills

4 Insert central venous dialysis catheter including tunnelled catheters
4 Insert and remove peritoneal dialysis catheter
2 Access-arterio-venous fistula
2 Access-arterio-venous fistula-ligation
2 Construct A-V fistula: radio-cephalic, brachio-cephalic, brachio-basilic
2 Access-secondary vascular
Organ retrieval for transplant

Knowledge

4 Contraindications to organ donation: General/ Organ-specific
4 Criteria for brainstem death
4 Pathophysiology of brainstem death
3 Principles of donor management and organ preservation
4 Surgical anatomy of multi-organ retrieval

Clinical Skills

3 Assess and manage organ donors (including live and NHB donors)
3 Multiple abdominal organ retrieval from cadaveric donors

Technical Skills

3 Kidney transplant-donor operation-cadaver
3 Kidney transplant-donor operation-live donor
3 Liver transplant-donor operation-cadaver hepatectomy
3 Pancreatic transplant-donor pancreatectomy
Renal transplantation

Knowledge

4 Acute and chronic renal failure: Causes, Pathophysiology, Treatment options, Complications
3 Indications and contraindications for: Kidney transplantation, Cadaveric and live kidney donation
4 Anatomy: Kidney anatomy and anomalies, Implantation site
3 Immunology: HLA matching, Cytotoxic cross match, Rejection, Immunosuppression
3 Principles of pre-operative preparation and postoperative management

Clinical skills

3 Select appropriate patient from the waiting list

Manage post-operative care:
3 Fluid management
3 Drug therapy
3 Renal biopsy

Identify and treat post-operative complications:
3 Vascular complications
3 Ureteric complications
3 Rejection
3 Infection
3 Drug side effects

Technical skills

2 Kidney transplant-donor operation-cadaver
2 Kidney transplant-donor operation-live donor
2 Kidney transplant
2 Kidney transplant - complete operation - cadaver donor
2 Kidney transplant - complete operation - live donor
2 Kidney transplant - complete operation - regraft
3 Kidney transplant - part - dissection of iliac vessels
3 Kidney transplant - part - renal vein anastomosis
3 Kidney transplant - part - renal artery anastomosis
3 Kidney transplant - part - ureteric anastomosis to bladder
2 Kidney transplant - part - uretero-ureterostomy
Liver transplantation

Knowledge
4 Acute and chronic liver failure: Causes, Pathophysiology, Complications, Treatment options
2 Indications and contraindications for: Liver transplantation, Cadaveric and live liver donation
2 Liver anatomy: Anatomical variants, Surgical anatomy for splitting/reduction/live donation
2 Immunology: Rejection, Immunosuppression
2 Principles of pre-operative preparation and postoperative management
2 Principles of peri-operative management
2 Complications of liver transplantation and their management

Clinical Skills
2 Select appropriate patient from the waiting list
2 Manage post-operative care: Investigations, Fluid management, Drug therapy, Liver biopsy
2 Identify and treat post-operative complications: Vascular complications, Biliary complications, Rejection, Infection, Recurrent disease, Drug side effects

Technical Skills
2 Liver transplant-donor operation-cadaver hepatectomy
2 Liver transplant-recipient operation
2 Liver transplant-part-recipient hepatectomy
2 Liver transplant-part-porta hepatis dissection
2 Liver transplant-part-caval dissection+hepatic venous dissection
2 Liver transplant-part-implantation of donor liver
2 Liver transplant-part-caval anastomosis
2 Liver transplant-part-portal vein anastomosis+Liver reperfusion
2 Liver transplant-part-portal venous conduit
2 Liver transplant-part-hepatic artery anastomosis
2 Liver transplant-part-hepatic arterial conduit
2 Liver transplant-part-duct-to-duct Biliary anastomosis
2 Liver transplant-part-Roux loop Biliary anastomosis
2 Liver transplant-part-workbench preparation
2 Liver transplant-part-donor liver reduction
2 Liver transplant-part-donor liver split
Pancreatic transplantation

Knowledge

Diabetes:
4 Causes
4 Pathophysiology
4 Treatment options
4 Complications

Indications and contraindications for transplants in the diabetic:
2 Kidney transplantation alone
2 Simultaneous kidney + pancreas transplant
2 Pancreas transplant alone
2 Pancreas transplant after kidney transplant
2 Indications and contraindications for pancreatic donation

Anatomy:
4 Pancreatic
2 Implantation site

Immunology:
2 HLA matching.
2 Cytotoxic cross match
2 Rejection
2 Immunosuppression

2 Principles of pre-operative preparation and postoperative management

Clinical Skills

2 Select appropriate patient from the waiting list

Manage post-operative care:
2 Investigations
2 Fluid management
2 Drug therapy
2 Pancreatic biopsy

Identify and treat post-operative complications:
2 Vascular complications
2 Duct leaks
2 Pancreatitis
2 Rejection
2 Infection
2 Drug side effects

Technical Skills

2 Pancreatic transplant-donor pancreatectomy
2 Pancreatic transplant-implant graft
2 Convert bladder drainage to enteric drainage
Paediatric Surgery
Abdominal Pain

Knowledge
3 Pattern of symptoms and relation to likely pathology and age of child
3 Differential diagnosis
3 Place and value of investigations
3 Place of operative intervention, and associated outcomes

Clinical Skills
3 Ability to assess ill child
3 Ability to form a viable investigation and treatment plan

Technical Skills
3 Appendicectomy
3 Laparotomy/laparoscopy
Child with groin condition

Knowledge

Undescended testis
3 Developmental anatomy
3 Natural history of undescended testis and retractile testis
3 Place of conservative management
3 Indications for and outcomes of surgery

Penile inflammatory conditions
3 Developmental anatomy
3 Natural history
3 Place of conservative management
3 Indications for and outcomes of surgery

Inguinal Hernia
3 Developmental anatomy
3 Natural history
3 Indications for and outcomes of surgery

Hydrocele
3 Developmental anatomy
3 Natural History
3 Place of conservative management
3 Indications for and outcomes of surgery

Acute scrotum
3 Natural history
3 Place of conservative management
3 Indications for and outcomes of surgery

Clinical Skills

Undescended testis
3 Ability to assess child and reach appropriate diagnosis
3 Ability to form a treatment plan
3 Ability to differentiate true undescended testis from retractile variant

Penile inflammatory conditions
3 Ability to assess child and reach appropriate diagnosis
3 Ability to form a treatment plan

Inguinal Hernia
3 Ability to assess child and reach appropriate diagnosis
3 Ability to form a treatment plan

Hydrocele
3 Ability to assess child and reach appropriate diagnosis
3 Ability to form a treatment plan

Acute scrotum
3 Ability to access child and reach appropriate diagnosis
3 Ability to form a treatment plan
Technical Skills

Undescended testis
3 Orchidopexy

Penile inflammatory conditions
3 Circumcision

Inguinal hernia
3 Inguinal hernia (not neonatal) operation

Hydrocele
3 Hydrocele operation

Acute scrotum
3 Inguinal hernia (not neonatal) operation
3 Hydrocele operation
3 Operation for testicular torsion
Intussusception

Knowledge

3 Pattern of symptoms and relation to likely pathology and age of child
3 Role of radiology both for diagnosis and interventional management
3 Differential diagnosis

Clinical Skills

3 Ability to assess child and recognise severity of illness
3 Ability to take appropriate resuscitative measures and form a viable investigation and treatment plan
3 Ability to communicate with all relevant groups
3 Reduction of intussusception
Urological Conditions

Knowledge

Haematuria
3 Pattern of symptoms and relation to likely pathology and age of child
3 Place and value of investigations
3 Differential diagnosis

Urinary Tract Infection
3 Pattern of symptoms and relation to likely pathology and age of child
3 Place and value of investigations
3 Differential diagnosis

Circumcision
3 Developmental anatomy of the foreskin
3 Natural history of the foreskin

Clinical Skills

Haematuria:
3 Ability to assess child
3 Ability to form a viable investigation and treatment plan
3 Ability to communicate with all relevant groups

Urinary Tract Infection:
3 Ability to assess child
3 Ability to form a viable investigation and treatment plan
3 Ability to communicate with all relevant groups

Circumcision
3 Ability to assess indications for circumcision

Technical Skills

Haematuria
3 Suprapubic catheter insertion

Circumcision
3 Circumcision
**Abdominal Wall Conditions**

**Knowledge**

**Epigastric hernia:**
3 Developmental anatomy  
3 Natural history  
3 Indications for and outcomes of surgery

**Supra-umbilical hernia:**
3 Developmental anatomy  
3 Natural history to include contrast with umbilical hernia  
3 Indications for and outcomes of surgery

**Umbilical hernia:**
3 Developmental anatomy  
3 Natural history  
3 Indications for and outcomes of surgery  
3 Place of conservative management

**Clinical Skills**

**Epigastric hernia:**
3 Ability to assess child and reach appropriate diagnosis  
3 Ability to form a treatment plan

**Supra-umbilical hernia:**
3 Ability to assess child and reach appropriate diagnosis  
3 Ability to form a treatment plan

**Umbilical hernia:**
3 Ability to assess child and reach appropriate diagnosis  
3 Ability to form a treatment plan

**Technical Skills**

**Epigastric hernia:**
3 Abdominal wall hernia operation

**Supra-umbilical hernia:**
3 Abdominal wall hernia operation

**Umbilical hernia:**
3 Abdominal wall hernia operation
Child with Vomiting

Knowledge
3 Patterns of symptoms and relation to likely pathology
3 Significance of bile stained vomiting
3 Place and value of investigations
3 Differential diagnosis
3 Methods of medical management
3 Place of operative intervention, and associated outcomes

Clinical Skills
3 Ability to assess ill child including an assessment of severity of dehydration
3 Ability to form a viable investigation and treatment plan

Technical Skills
3 Pyloromyotomy
Constipation

Knowledge

3 Pattern of symptoms and relation to likely pathology and age of child
3 Place and value of investigations
3 Differential diagnosis to include medical anomalies and socio-psychological aspects of symptom

Clinical Skills

3 Ability to assess child
3 Ability to form a viable investigation and treatment plan
3 To include community aspects of further management

Technical Skills

3 Manual evacuation
Head and Neck Swellings

Knowledge

3 Pattern of symptoms and relation to likely pathology and age of child
3 Place and value of investigations
3 Differential diagnosis
3 Relevance of embryonic development of head and neck structures

Clinical Skills

3 Ability to assess child
3 Ability to form a viable investigation and treatment plan

Technical Skills

3 Lymph node biopsy
**Trauma**

**Knowledge**

3 Algorithms for assessment of trauma victims - primary survey  
3 Algorithms for assessment of trauma victims - secondary survey  
3 Likely effects of different types of trauma and relation to age of child  
3 Investigation protocols and local variations thereof  
3 Awareness of NAI and local procedures for dealing with this category of trauma  

**Clinical Skills**

3 Ability to appropriately assess trauma cases and carry out resuscitative measures  
3 Ability to prioritise interventions  
3 Ability to act as part of a team or lead team as appropriate  
3 PALS course  

**Technical Skills**

3 Chest drain insertion  
3 Central venous line insertion  
3 Suprapubic catheter insertion
Miscellaneous Paediatric Conditions

Knowledge

Superficial Abscess
3 Causes of superficial abscess in children
3 Anatomy of underlying structures
3 Predisposing conditions

Ingrowing Toenail
3 Causes of ingrowing toenail
3 Anatomy of nail and nail bed
3 Treatment options available

Clinical Skills

Superficial Abscess
3 History and examination
3 Recognition of the need for other investigation
3 Recognition of need for drainage or antibiotics

Ingrowing Toenail
3 History and examination
3 Recognition of need for operative treatment

Technical Skills

Superficial Abscess
3 Abscess drainage

Ingrowing Toenail
3 Ingrowing toenail operation
Academic and research curriculum
**Academic activity**

**Knowledge**

**Research:**
4 Research methodology

**Teaching:**
4 Teaching methods

**Clinical Skills**

**Research:**
4 Ability to analyse published evidence
3 ability to pose a research question (clinical, basic or population health)
3 Develop a proposal to solve the research question
3 Identify, consult and collaborate with appropriate content experts to conduct the research
3 propose the methodology approach to solve the question
3 carry out the research outlined in the proposal
3 Disseminate and defend the results of the research
3 identify areas for further research that flow from the results

**Teaching:**
4 Ability to teach small groups
4 Ability to give a lecture
3 ability to design a curriculum/teaching programme
3 ability to design and carry out an assessment

**Technical skills**

4 Ethics application
4 Formal audit
4 presentation to a national meeting
4 publication in a peer-reviewed journal
In these last 2 years prior to CCST, the trainee needs to complete to level 4 General Surgery, emergency and elective, and his/her selection of speciality. The syllabus topics for surgical specialties are the same as of previous years.
Professional Behaviour and Leadership
Good clinical care

Patient assessment
- Undertakes patient assessment (including history and examination) under difficult circumstances. Examples include:
  - Limited time available (Emergency situations, Outpatients, ward referral),
  - Severely ill patients
  - Angry or distressed patients or relatives
- Uses and interprets findings adjuncts to basic examination appropriately e.g. electrocardiography, spirometry, ankle brachial pressure index, fundoscopy, sigmoidoscopy
- Recognises and deals with complex situations of communication, accommodates disparate needs and develops strategies to cope
- Is sensitive to patients cultural concerns and norms
- Is able to explain diagnoses and medical procedures in ways that enable patients understand and make decisions about their own health care.

Clinical reasoning
- In a complex case, develops a provisional diagnosis and a differential diagnosis on the basis of the clinical evidence, institutes an appropriate investigative and therapeutic plan, seeks appropriate support from others and takes account of the patients wishes

Record keeping
- Produces comprehensive, focused and informative records which summarise complex cases accurately

Time management
- Organises, prioritises and manages daily work efficiently and effectively
- Works with, guides, supervises and supports junior colleagues
- Starting to lead and direct the clinical team in effective fashion

Patient safety
- Leads team discussion on risk assessment, risk management, clinical incidents
- Works to make organisational changes that will reduce risk and improve safety
- Promotes patients safety to more junior colleagues
- Recognises and reports untoward or significant events
- Undertakes a root cause analysis
- Shows support for junior colleagues who are involved in untoward events

Infection control
- Performs complex clinical procedures whilst maintaining full aseptic precautions
- Manages complex cases effectively in collaboration with infection control specialists
Being a good communicator

• Shows mastery of patient communication in all situations, anticipating and managing any difficulties which may occur
• Able to break bad news in both unexpected and planned settings
• Fully recognises the role of, and communicates appropriately with, all relevant team members
• Predicts and manages conflict between members of the healthcare team
• Beginning to take leadership role as appropriate, fully respecting the skills, responsibilities and viewpoints of all team members
Teaching and Training

• Performs a workplace based assessment including giving appropriate feedback
• Devises a variety of different assessments (eg MCQs, WPBAs)
• Appraises a medical student, nurse or colleague
• Acts as a mentor to a medical student, nurses or colleague
• Plans, develops and delivers educational programmes with clear objectives and outcomes
• Plans, develops and delivers an assessment programme to support educational activities
Keeping up to date and understanding how to analyse information

- Demonstrates critical appraisal skills in relation to the published literature
- Demonstrates ability to apply for appropriate ethical research approval
- Demonstrates knowledge of research organisation and funding sources
- Demonstrates ability to write a scientific paper
- Leads in a departmental or other local journal club
- Contributes to the development of local or national clinical guidelines or protocols
- Organise or lead a departmental audit meeting
- Lead a complete clinical audit cycle including development of conclusions, the changes needed for improvement, implementation of findings and re-audit to assess the effectiveness of the changes
- Seeks opportunity to visit other departments and learn from other professionals
**Manager**

**Self awareness and self management**
- Participates in case conferences as part of multidisciplinary and multi agency team
- Responds to service pressures in a responsible and considered way
- Liaises with colleagues in the planning and implementation of work rotas

**Team working**
- Discusses problems within a team and provides an analysis and plan for change
- Works well in a variety of different teams
- Shows the leadership skills necessary to lead the multidisciplinary team
- Begins to lead multidisciplinary team meetings
  - Promotes contribution from all team members
  - Fosters an atmosphere of collaboration
  - Ensures that team functioning is maintained at all times.
  - Recognises need for optimal team dynamics
  - Promotes conflict resolution
- Recognises situations in which others are better equipped to lead or where delegation is appropriate

**Leadership**
- Shadows managers
- Attends multi-agency conference
- Uses and interprets departments performance data and information to debate services
- Participates in clinical committee structures within an organisation

**Quality and safety improvement**
- Able to define key elements of clinical governance
- Demonstrates personal and service performance
- Designs audit protocols and completes audit cycle
- Identifies areas for improvement and initiates improvement projects
- Supports and participates in the implementation of change
- Leads in review of patient safety issue
- Understands change management

**Management and NHS Structures**
- Can describe in outline the roles of primary care, including general practice, public health, community, mental health, secondary and tertiary care services within healthcare
- Participates fully in clinical coding arrangements and other relevant local activities
- Participate in team and clinical directorate meetings including discussions around service development
- Discuss the most recent guidance from the relevant health regulatory agencies in relation to the surgical specialty
- Describe the local structure for health services
- Discusses funding allocation processes and how that might impact on the health organisation
Promoting good health

- Demonstrates awareness of management of long term conditions
- Develops management plans in partnership with the patient that are pertinent to the patient's long term condition
- Engages with relevant external agencies to promote improving patient care
- Support small groups in a simple health promotion activity
- Discuss with small groups the factors that have an influence on their health and describe steps they can undertake to address these
- Provide information to an individual about a screening programme offering specific guidance in relation to their personal health and circumstances concerning the factors that would affect the risks and benefits of screening to them as an individual
Probity and Ethics

- Recognises and responds to both system failure and individual error
- Provides timely accurate written responses to complaints when required
- Counsels patients on the need for information distribution within members of the immediate healthcare team
- Seek patients' consent for disclosure of identifiable information
- Discuss with patients with whom they would like information about their health to be shared
- Understand the importance the possible need for ethical approval when patient information is to be used for any purpose
- Understand the difference between confidentiality and anonymity
- Know the process for gaining ethical approval for research
- Able to assume a full role in making and implementing decisions about resuscitation status and withholding or withdrawing treatment
- Able to support decision making on behalf of those who are not competent to make decisions about their own care
- Obtains consent for interventions that he/she is competent to undertake, even when there are communication difficulties
- Identifies cases which should be reported to external bodies
- Identify situations where medical legal issues may be relevant
- Work with external bodies around cases that should be reported to them.
- Collaborating with external bodies by preparing and presenting reports as required
Academic and research curriculum
**Academic activity**

**Knowledge**

Research:
4 Research methodology

Teaching:
4 Teaching methods

**Clinical Skills**

Research:
4 Ability to analyse published evidence
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3 carry out the research outlined in the proposal
3 Disseminate and defend the results of the research
3 identify areas for further research that flow from the results

Teaching:
4 Ability to teach small groups
4 Ability to give a lecture
3 ability to design a curriculum/teaching programme
3 ability to design and carry out an assessment

**Technical skills**

4 Ethics application
4 Formal audit application
4 presentation to an international meeting
4 publication in a refereed journal as a first author
4 successful completion of a higher degree
4 participation in a systematic review with defined outcomes