WBA

Formative WBAs may be used to assess and provide feedback on any areas of clinical activity. However, other than for the critical skills or where they have been identified to address a concern, WBAs are optional and trainees, therefore, do not need to use WBAs to evidence their learning against each syllabus topic.

Standards for technical skills

Each technical skill listed in this syllabus has a standard ascribed to it ranging from 1 to 4, to support understanding of the CiP supervision level required for completion of training:

1. Has observed. At this level the trainee:
    - Has adequate knowledge of the steps through direct observation
    - Demonstrates that he/she can handle instruments relevant to the procedure appropriately and safely
    - Can perform some parts of the procedure with reasonable fluency
2. Can do with assistance. At this level the trainee:
    - Knows all the steps - and the reasons that lie behind the methodology
    - Can carry out a straightforward procedure fluently from start to finish
    - Knows and demonstrates when to call for assistance/advice from the supervisor (knows personal limitations)
3. Can do whole but may need assistance. At this level the trainee:
    - Can adapt to well- known variations in the procedure encountered, without direct input from the trainer
    - Recognises and makes a correct assessment of common problems that are encountered
    - Is able to deal with most of the common problems
    - Knows and demonstrates when he/she needs help
    - Requires advice rather than help that requires the trainer to scrub
4. Competent to do without assistance, including complications. At this level the trainee:
    - With regard to the common clinical situations in the specialty, can deal with straightforward and difficult cases to a satisfactory level and without the requirement for external input
    - Is at the level at which one would expect a UK consultant surgeon to function
    - Is capable of supervising trainees

COMMON CONTENT MODULE

Basic Sciences

Objective	To acquire and demonstrate a knowledge of the basic science which underpins the practice of surgery
Knowledge	*Applied anatomy*: • Gross and microscopic anatomy of the organs and other structures • Surface anatomy • Imaging anatomy • Development and embryology This will include anatomy of thorax, abdomen, pelvis, perineum, limbs, spine, head and neck. *Physiology*: General physiological principles including: • Thermoregulation • Metabolic, ionic and acid/base homeostasis • Cardiorespiratory homeostasis • Haemostasis • Acid base balance This will include the physiology of specific organ systems relevant to surgical care including the cardiovascular, respiratory, gastrointestinal, urinary, endocrine, musculoskeletal and neurological systems. *Pharmacology*: • The pharmacology of drugs used in surgical practice, both for treatment and prophylaxis, including analgesics, antibiotics, anticoagulants and local anaesthetics • The pharmacology and recommended modification in the perioperative period of the common agents used for the treatment of chronic intercurrent disease • The pharmacological principles of general anaesthesia and intensive care medicine • The pharmacological principles relevant to the treatment of malignancy • The pharmacological principles of immunosuppression *Pathology*: General pathological principles including: • Necrosis and apoptosis • Inflammation and immunity including transplant rejection • Repair, regeneration and healing • Thrombosis and embolism • Shock, systemic inflammatory response syndrome and multiple organ failure • Neoplasia including carcinogenesis, the biology of tumour growth, metastasis and the principles of grading and staging • Genetics including genomics 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. *Microbiology*: • Infection control including sources of infection, asepsis, disinfection and sterilisation • General pathology of bacterial and viral disease including mechanisms of injury and systemic sepsis • Soft tissue infections including cellulitis, abscesses, necrotising fasciitis and gangrene • Hospital acquired infection, antibiotic governance and bacterial resistance • Prevention of the transmission of blood born viral infection during surgery *Medical physics*: • Principles of diagnostic and interventional imaging including plain and contrast radiography, ultrasound, CT, MRI, PET and radionuclide imaging • Principles of diathermy, LASER, ultrasonic aspiration • Principles of radiotherapy • Application of robotics and artificial intelligence to surgery *Medical statistics*: • Principles of screening • The null hypothesis and common tests used with parametric and non-parametric data

The clinical method in surgical practice

Objective	To demonstrate the knowledge and clinical skill necessary to assess and investigate a patient presenting to a surgical team
Knowledge	For each of the index conditions below: • epidemiology • common presentations • expected findings on history and examination • natural history • important investigations and likely findings • management options and published guidelines • prognosis
Clinical Skills	Take a tailored history and perform a relevant examination in an outpatient clinic Detect the need for and initiate resuscitation in an unwell patient Take a tailored history and perform a relevant examination for an acutely unwell patient Construct and investigate a differential diagnosis Facilitate a patient centred discussion of treatment options and agree on a management plan

Reference to other relevant syllabus items	Critical care Professional/leadership skills: good clinical care Surgical care of the paediatric patient	
Index conditions	This section sets out those common and important conditions about which a working knowledge of the relevant clinical science and principles of management are essential for all core surgical trainees.	
Organ system	*Presentations*	*Conditions*
Abdomen	• Abdominal pain • Abdominal swelling • Change in bowel habit • Gastrointestinal haemorrhage • Dysphagia • Dyspepsia • Jaundice	• Appendicitis • Gastrointestinal malignancy • Inflammatory bowel disease • Diverticular disease • Intestinal obstruction • Adhesions • Abdominal hernias • Peritonitis • Intestinal perforation • Benign oesophageal disease • Peptic ulcer disease • Benign and malignant hepatic, gall bladder and pancreatic disease • Haemorrhoids and perianal disease • Abdominal wall stomata • Abdominal trauma including splenic injury
Breast	• Breast lumps and nipple discharge • Acute Breast pain	• Benign and malignant breast lumps • Mastitis and breast abscess
Vascular	• Chronic and acute limb ischaemia • Aneurysmal disease • Transient ischaemic attacks • Varicose veins • Leg ulceration	• Atherosclerotic arterial disease • Embolic and thrombotic arterial disease • Venous insufficiency • Diabetic ulceration • Vascular injury
Cardiac & respiratory		• Coronary heart disease • Valvular heart disease • Bronchial carcinoma • Obstructive airways disease • Tumours of the chest including carcinoma of the bronchus • Thoracic trauma
Genitourinary	• Loin pain • Haematuria • Lower urinary tract symptoms • Urinary retention • Renal failure • Scrotal swellings • Testicular pain	• Genitourinary malignancy • Urinary calculus disease • Urinary tract infection • Benign prostatic hyperplasia • Obstructive uropathy

Musculo-skeletal	• Acute limb pain and deformity • Chronic joint pain and deformity • Back pain	• Simple fractures and joint dislocations • Fractures around the hip and ankle • Degenerative joint disease • Inflammatory joint disease including bone and joint infection • Compartment syndrome • Bony metastatic malignancy
Skin, head and neck	• Lumps in the neck • Skin lumps • Epistaxis • Upper airway obstruction	• Benign and malignant skin and subcutaneous lesions • Benign and malignant lesions of the mouth and tongue • Burns • Soft tissue trauma and skin loss • Infections related to the nose, ears, throat and face
Neurological	• Headache • Coma	• Intracranial tumour • Traumatic brain injury • Common entrapment neuropathies • Peripheral nerve injury • Spinal nerve root entrapment, spinal cord compression & cauda equina compression
Endocrine	• Acute endocrine crises	• Thyroid and parathyroid disease • Adrenal gland disease • Diabetes
Paediatric	• Abdominal pain • Vomiting • Constipation	• Pyloric disease • Intussusception • Undescended testis, PPV and inguinal hernia • Phimosis

Peri-operative care

Objective	To assess and manage preoperative risk and prepare a patient for theatre, to conduct safe surgery in the operating theatre environment and to provide medical care for the patient in the post- operative period.
Pre-operative care	
Knowledge	• Risk factors for surgery and scoring systems including ASA and VTE risk • Antibiotic and VTE prophylaxis guidelines • Principles of ambulatory day surgery including selection and discharge criteria • Ethical principles of, and legislative framework for, capacity and consent • Nutritional assessment methods and feeding options
Clinical skills	• The safe prescribing of pharmacological agents used for the treatment of chronic intercurrent disease, modified appropriately to the peri-operative period • The safe prescribing of measures for antibiotic and VTE prophylaxis • Assessing patient capacity • Obtaining consent for surgery

	• Communication with anaesthetic and scrub teams in advance • Planning perioperative nutrition in advance in partnership with the nutrition team • Engaging with multidisciplinary team discussions including those with oncology and interventional radiology	
<u>Intra-operative care</u>		
Knowledge	• The patient safety movement and the evidence behind the WHO check list • The principles of positioning and pressure area care • Radiation protection legislation • Guidelines for tourniquet use • Safety requirements for use of sharps, LASER and diathermy • What to do when something goes wrong • Anaesthetic monitoring techniques	
Clinical skills	• Maintenance of communication with theatre team throughout procedure • Crisis management	
Technical skills and procedures	• Safe positioning of the patient on the operating table • Safe intraoperative use of sharps and diathermy • Completion of team briefing • Completion of WHO check list (time out and sign out)	2 3 1 3
<u>Post-operative care</u>		

Knowledge	• Delirium
	  ○ Epidemiology and prognosis of delirium
	  ○ Causes and clinical features of delirium
	  ○ The impact of delirium on patient, family and carers
	• Spectrum of post-operative complications
	• Guidelines for indications, prescription and management of complications of the transfusion of blood products	

Clinical skills	• Assessment of the unwell postoperative patient
	• Writing an operation note with clear post-operative instructions
	• Delivery of effective analgesia
	• Diagnosis and treatment of VTE
	• Post-operative monitoring and optimisation of fluid & electrolyte balance
	• Diagnosis and treatment of post-operative infection and sepsis
	• Diagnosis and treatment of transfusion reactions
	• Delirium
	  ○ Assessment of cognitive impairment seeking to differentiate dementia from delirium, with the knowledge that delirium is common in people with dementia
	  ○ Management of patients with delirium including addressing triggers and using non-pharmacological and pharmacological methods where appropriate
	  ○ Explanation of delirium to patients and advocates	

Basic surgical skills

Objective	To acquire and develop throughout the programme those generic technical skills common to all or many areas of surgical practice.	
Knowledge	Surgical wounds: • Classification of surgical wounds • Principles of wound management • Principles underlying incision placement including cosmesis and Langer's lines, vascularity and function • Principles underlying wound closure including suture method, needle types and the physical and biological characteristics of suture material The range, nomenclature and functional design of surgical instruments	
Technical skills and procedures	Effective hand washing, gloving and gowning Accurate, effective and safe administration of local anaesthetic Preparation and maintenance of an aseptic field Incision of skin and subcutaneous tissue: • Ability to use scalpel, cutting diathermy and scissors • Control of superficial bleeding using diathermy and ligation Closure of skin and subcutaneous tissue: • Accurate and tension free apposition of wound edges • Knot tying by hand and instrument Selection and placement of tissue retractors Insertion, fixation and removal of drains Appropriate selection and use of instruments to handle tissue with minimal trauma Taking biopsies, safe labelling and completion of request forms Anticipation of needs of surgeon when assisting Co-ordination of camera and instrument from a 2-dimensional display during surgical endoscopy	4 3 3 3 3 2 2 2 2 2 2

Critical care

Objective	To demonstrate the knowledge and clinical and technical skills necessary to contribute to the management of critically unwell patients suffering from traumatic injuries or sepsis.	
<u>Trauma management</u>		
Knowledge	A systematic, prioritised method of trauma management such as that set out by the American College of Surgeons, Committee on Trauma Scoring systems for assessment of global injury severity including ISS	
Clinical skills	Resuscitation and early management of the patient who has sustained thoracic, head, spinal, abdominal and/or limb injury according to ATLS®, APLS or European Trauma Course guidelines	
Technical skills and procedures	Chest drain insertion	2
<u>Sepsis management</u>		
Knowledge	A systematic, prioritised method of managing the septic patient Recommendations of the surviving sepsis campaign including the "Sepsis 6"	
Clinical skills	Resuscitation and early management of the septic patient	

Technical skills and procedures	Surgical drainage of pus	2
Intensive care medicine		
Knowledge	Classification of levels of critical care Principles of organ support including: • Invasive monitoring of circulation and ionotropic support • Mechanical ventilation and tracheostomy Haemofiltration and haemodialysis	
Clinical skills	Assessment of a patient receiving critical care Surgical contribution, in discussion with the critical care team, to the management plan of a patient receiving critical care	

Surgical care of the paediatric patient

Objective	To assess and manage children with surgical problems, understanding the similarities and differences from adult surgical patients, within the appropriate legal and safeguarding frameworks.
Knowledge	An awareness of the normal physiological parameters at different ages Principles of vascular access in children Working knowledge of trust and Local Safeguarding Children Boards (LSCBs) and Child Protection Procedures Child protection law and the issues of consent in childhood Working knowledge of types and categories of child maltreatment
Clinical Skills	Recognise limitations of own knowledge and experience and seek early advice from dedicated paediatric teams History and examination of paediatric surgical patient Recognition of the unwell child Assessment of respiratory and cardiovascular status in a child Obtaining consent for operative treatment in a paediatric patient

Management of the dying patient

Objective	To demonstrate the knowledge and clinical skills necessary to manage the transition from life to death including palliation of symptoms, certification of death and the discussion of resuscitation status and organ donation.
Knowledge	Awareness of the public debate around resuscitation and palliative care, and organ donation Classification of organ donors The role of the coroner and the certification of death
Clinical Skills	Assessment and control of distress in the dying patient in collaboration with a palliative care team The diagnosis of death following irreversible cessation of brain-stem function Discussion of best interest including resuscitation status and limits of care with patient advocate Discussion of organ donation with family in collaboration with transplant coordinators

Health promotion

Objective	This syllabus module aims to enable all surgical trainees to develop the competencies necessary to support patients in caring for themselves; to empower them to improve and maintain their own health.
General aspects	
Knowledge	Damaging health and social issues such as excessive alcohol consumption, obesity, smoking and illicit drugs and the harmful effects they have on health The connection between mental health and physical health The importance of health education for promoting self-care for patients The GMC's requirement that doctors protect patients and colleagues from any risk posed by their own health
Clinical Skills	Modification of explanations to match the intellectual, social and cultural background of individual patients Patient centred care Identification and utilisation of opportunities to promote health including positive role modelling
Reference to other relevant syllabus items	• Nutrition (Module 5, Perioperative Care) • Drugs and alcohol (Module 1, Pharmacology) • Screening (Module 1, Pathology) • Child protection (Module 7, Surgical Care of the Paediatric Patient)
Obesity	
Knowledge	Classification of excess body mass The health risks posed by obesity including an increased incidence of coronary heart disease, type 2 diabetes, hypertension, stroke, and some major cancers Social, psychological and environmental factors that underpin obesity Physiological and metabolic effects of obesity on the surgical patient Available treatments for obesity including diet, exercise, medication and surgery
Clinical Skills	The ability to treat patients who are obese in a supportive and sensitive manner Assess and explain the higher risks for obese individuals undergoing surgery Management of cardiovascular, respiratory and metabolic complications in patients with obesity undergoing surgery Provide advice and guidance about weight loss to overweight and obese patients within the context of a multidisciplinary team
Dementia	
Knowledge	Clinical features of dementia and the distinction between it and delirium The impact of dementia on patient, family and carers Principles and key provisions of the relevant legislation regarding the safeguarding of vulnerable adults across the UK, such as the Mental Capacity Act 2005 and the Adult Support and Protection (Scotland) Act 2007
Clinical Skills	Recognises cognitive impairment and appropriately refers Management of surgical patients in the context of their dementia A range of techniques and strategies to communicate effectively with people with dementia and their carers/families Assessment of capacity, involvement of advocates and documentation of consent and best interests
Exercise and physical fitness	

Knowledge	Physical inactivity as an independent risk factor for ill health and obesity Relationship between physical exercise programmes and healthy eating and smoking cessation programmes Government behaviour change programmes such as 'Let's Get Moving' and 'Shift into Sports'
Clinical Skills	Utilisation of all patient interactions as opportunities for health and fitness promotion with particular reference to the prevention and management of long-term chronic conditions such as coronary heart disease, diabetes, hypertension, obesity, cancer, osteoporosis, peripheral vascular disease and depression and the promotion of health and well being Modification of advice on physical exercise to the specific requirements of individual patients

CORE SPECIALTY MODULES

Cardiothoracic Surgery

Objective	To acquire experience of the management of cardiothoracic surgical patients in critical care and ward environments and participate under supervision in their operative management.	
<u>Management of the cardiothoracic surgical patient</u>		
Knowledge	Principles of intra-aortic balloon pumps	
Clinical skills	Assessment and early management of the post-operative cardiothoracic surgical patient including the use of inotropes and vasoactive drugs Echocardiography including TOE Assessment and planning the investigation of new and follow-up patients in cardiothoracic surgical outpatient clinics	
Technical skills and procedures	Use of defibrillator	3
<u>Operative cardiothoracic surgery</u>		
Knowledge	Specific knowledge relating to the principles of cardiopulmonary bypass and myocardial management and their consequences. Includes an understanding of the relevant equipment and technology	
Technical skills and procedures	Sternotomy Thoracotomy/thoracoscopy Harvesting long saphenous vein	1 1 2

General Surgery

Objective	To develop the skills required to contribute to the management of general surgical patients in elective and emergency settings and participate under supervision in their operative management.	
<u>Management of the elective general surgical patient</u>		
Clinical skills	Assessment and planning the investigation of new and follow-up patients in general surgical outpatient clinics	
Technical skills and procedures	Outpatient treatment of haemorrhoids	2
<u>Management of the acutely unwell general surgical patient</u>		

Clinical skills	Contribution to the trauma team as general surgical representative Interpretation of abdominal CT scans Assessment and early management of acutely unwell patients presenting with an acute abdomen	
Technical skills and procedures	Rigid sigmoidoscopy	2
Operative general surgery		
Technical skills and procedures	Excision biopsy of skin lesion Repair of primary abdominal wall hernia Open and close midline laparotomy incision Placement of laparoscopic ports Appendicectomy Superficial abscess drainage	2 1 1 1 1 2

Intensive Care Medicine

Objective	To develop the skills required to contribute to the management of surgical patients in the critical care environment.	
Clinical skills	Assessment of a patient receiving critical care Daily management planning for a patient receiving critical care Discharge planning Contribution to critical care outreach service Assessment of patients in the critical care follow up clinic	
Technical skills and procedures	Insertion of central venous catheter under ultrasound guidance Insertion of arterial line Percutaneous tracheostomy	2 2 1

Neurosurgery

Objective	To acquire experience of the management of neurosurgical patients in critical care and ward environments and participate under supervision in their operative management.	
Knowledge	Physiology of intracranial pressure, cerebrospinal fluid and intracranial blood flow Principles of management of subarachnoid haemorrhage	
Clinical skills	Interpretation of cranial CT scans Contribution to the trauma team as neurosurgical representative Assessment and planning the investigation of new and follow-up patients in neurosurgical outpatient clinics Assessment and early management of acutely unwell neurosurgical patient	
Technical skills and procedures	Lumbar puncture Sampling of CSF from and administration of intrathecal antibiotics through, lumbar drains and external ventricular drains Insertion of ICP monitor Insertion of external ventricular drain Burr hole drainage of chronic subdural haematoma Dorsal exposure of spine Opening and closing craniotomy	3 3 2 2 2 1 1

Oral & Maxillofacial Surgery

Objective	To develop the knowledge and skills required to contribute to the management of oral & maxillofacial surgical patients in elective and emergency settings and participate under supervision in their operative management.	
Trauma management		
Knowledge	Patterns and management principles of facial fracture Principles of the management of dento-alveolar trauma Principles of the surgical management of dento-facial sepsis	
Clinical skills	Assessment and immediate management of dento-alveolar trauma Interpretation of plain facial radiographs and CT scans	
Technical skills and procedures	Closure of simple facial lacerations including full thickness lip and eyelid lacerations Surgical management of simple mandibular and zygomatic fracture Application of intermaxillary fixation Surgical airway care including changing tracheostomy	2 1 2 3
Elective OMFS		
Knowledge	Anatomy of teeth and supporting structures Principles of the management of odontogenic cysts and impacted teeth Principles of the management of premalignant and malignant conditions affecting the head and neck	
Clinical skills	Assessment of patients presenting with dento-alveolar and intra oral mucosal signs and symptoms Assessment of skin lesions of the head and neck	
Technical skills and procedures	Dental extraction Surgical removal of retained roots and impacted teeth Biopsy of intraoral lesions Split skin graft Full thickness skin graft Excision and closure of simple skin lesions	2 1 2 1 1 2

Otolaryngology

Objective	To develop the skills required to contribute to the management of otolaryngological patients presenting in elective and emergency settings and participate under supervision in their operative management
Clinical assessment and emergency management	
Clinical skills	Otoscopy Nasal examination with speculum Flexible nasendoscopy Assessment and planning the investigation of patients presenting with a neck lump Recognition of the clinical signs of airway obstruction and respiratory distress in adults and children Interpretation of audiological investigations Interpretation of head and neck CT and MRI Initial assessment and management of patients presenting with: • epistaxis • acute tonsillitis and quinsies

	• hearing loss • facial palsy • facial trauma • foreign body • dysphagia	
Technical skills and procedures	Packing of nose Removal of nasal packing Cautery of nasal mucosa Otomicroscopy and removal of foreign body Drainage of quinsy	2 3 2 2 1
<u>Operative otolaryngology</u>		
Clinical skills	Diagnosis and medical management of post-operative haemorrhage following adenotonsillar surgery	
Technical skills and procedures	Insertion of grommets Reduction of nasal fracture Adult tonsillectomy Paediatric adenotonsillectomy Excision of neck lumps Excision of skin lesions	2 2 2 1 2 2

Paediatric Surgery

Objective	To develop the knowledge and skills required to contribute to the management of paediatric surgical patients presenting in elective and emergency settings and participate under supervision in their operative management.	
Knowledge	The embryology of common congenital malformations Detailed understanding of child protection legislation and working practice	
Clinical skills	Paediatric resuscitation History and examination of neonatal surgical patient Communication with children, their parents and carers Assessment and planning the investigation of new and follow-up patients in paediatric surgical outpatient clinics Assessment and early management of acutely unwell paediatric surgical patients	
Technical skills and procedures	Circumcision Non-neonatal inguinal hernia repair Ligation of patent processus vaginalis Umbilical hernia repair Appendicectomy I & D of abscess Exploration of scrotum (testicular torsion)	1 1 1 1 1 1 1

Plastic Surgery

Objective	To develop the skills required to contribute to the management of plastic surgery patients presenting in elective and emergency settings and participate under supervision in their operative management.	
Clinical skills	Assessment of burns area & severity Assessment of the injured hand Resuscitation of a patient suffering from thermal injury Assessment and planning the investigation of new and follow-up patients in plastic surgery outpatient clinics	
Technical skills and procedures	Split skin graft Full thickness skin graft Repair of divided extensor tendon Excision and closure of simple skin lesions Debridement of contaminated or infected wound Repair of full thickness lip and eyelid lacerations	1 1 1 2 2 1

Trauma & Orthopaedic Surgery

Objective	To develop the knowledge and skills required to contribute to the management of patients with significant musculoskeletal trauma and to gain exposure to elective orthopaedic surgery.	
<u>Trauma management</u>		
Knowledge	Common systems employed for the identification of important fracture subtypes to a level sufficient to allow contribution to discussions about their management at trauma meetings	
Clinical skills	Contribution to the trauma team as orthopaedic representative Interpretation of plain radiographs of common fractures Management of patients in the fracture clinic Assessment and early management of acutely unwell patients suffering the complications of musculoskeletal trauma	
Technical skills and procedures	Application of cast and common splints Manipulation under anaesthesia Open reduction and internal fixation of ankle fracture Operative management of proximal femoral fracture	2 1 1 1
<u>Elective orthopaedics</u>		
Clinical skills	Assessment and planning the investigation of new and follow-up patients in elective orthopaedic surgery outpatient clinics Assessment and early management of acutely unwell patients suffering the complications of elective orthopaedic surgery	
Technical skills and procedures	Arthroscopy Arthroplasty	1 1

Urology

Objective	To develop the skills required to contribute to the management of urology patients presenting in elective and emergency settings and participate under supervision in their operative management.	
Clinical skills	Assessment and planning the investigation of new and follow-up patients in urology outpatient clinics Assessment and early management of patients suffering the complications of urological surgery Assessment and early management of patients with acute testicular pain, urinary retention, ureteric colic and obstructive uropathy	
Technical skills and procedures	Suprapubic catheterisation Flexible cystoscopy Rigid cystoscopy and: • Biopsy and diathermy • Retrograde ureterogram • Insertion retrograde ureteric stent Exploration of scrotum Excision of epididymal cyst Circumcision	3 3 2 2 2 2

Vascular Surgery

Objective	To develop the skills required to contribute to the management of vascular surgery patients presenting in elective and emergency settings and participate under supervision in their operative management.	
Clinical skills	Assessment and planning the investigation of new and follow-up patients in vascular surgery outpatient clinics Interpretation of CT, MR and digital subtraction angiography Clinical assessment of limb arterial supply and venous drainage Measurement of ABPI and lower limb venous circulation using hand help Doppler ultrasound probe and tourniquet	
Technical skills and procedures	Primary varicose vein surgery Exposure & control of major vessels Vascular suturing Open and close midline laparotomy incision Angiography Major lower limb amputation	2 2 1 1 1 1

ST3 PREPARATION MODULES

Cardiothoracic surgery

In order to meet the job specifications of an ST3 trainee, an early years' trainee must take a clear role in the cardiothoracic team, managing cardiac intensive care and ward-based patients under supervision, including the management of acute admissions. They will need to be able to take part

in an outpatient clinic and see new and follow-up patients themselves with the consultant available for advice. Trainees must attend MDT and other departmental meetings and ward rounds and contribute to the surgical care of patients in the operating theatre. They should recognise and initiate the management of common complications and emergencies, over and above those already laid out in the common content and core specialty modules.

This means spending an indicative minimum of 6 months in cardiothoracic surgery in a service which gives trainees access to the appropriate learning opportunities, within a core surgical training programme.

Objective	To acquire sufficient knowledge and skill of the management of patients under the care of a Cardiothoracic team in both elective and emergency environments and in the operating theatre to be ready to enter higher surgical training in Cardiothoracic surgery	
Knowledge	To understand the science, technology and practical applications of cardiopulmonary bypass, myocardial protection and circulatory support An in depth working knowledge of the full range of Cardiothoracic conditions	
Clinical skills	Management of a patient after cardiac or thoracic surgery on the critical care, high dependency and post-operative wards	
Technical skills and procedures	Use of defibrillator Arterial cannulation Central venous cannulation Saphenous vein harvest Median sternotomy Chest aspiration Chest drain insertion and management Thoracotomy Thoracoscopy port placement	4 3 2 3 2 3 3 2 3

General Surgery

In order to meet the job specifications of an ST3 trainee, an early years' trainee must take a clear role in the general surgery team, managing intensive care and ward-based patients under supervision, including the management of acute admissions. They will need to be able to take part in an outpatient clinic and see new and follow-up patients themselves with the consultant available for advice. Trainees must attend MDT and other departmental meetings and ward rounds and contribute to the surgical care of patients in the operating theatre. They should recognise and initiate the management of common complications and emergencies, over and above those already laid out in the common content and core specialty modules.

This means spending an indicative minimum of 12 months in general surgery in a service which gives trainees access to the appropriate learning opportunities, within a core surgical training programme.

Objective	To acquire sufficient knowledge and skill of the management of patients under the care of general surgical teams in both elective and emergency environments and in the operating theatre to be ready to enter higher surgical training in General Surgery
Knowledge	An in-depth working knowledge of the full range of general surgical conditions

Clinical skills	To be able to diagnose and manage a range of elective conditions presenting to general surgeons including appropriate investigation. This should include primary abdominal wall hernias, lesions of the cutaneous and subcutaneous tissues. To be able to assess and initiate management of patients presenting with common conditions electively to subspecialty clinics. This should include gall stones, upper and lower gastrointestinal tract cancers. To be able to assess and provide the early care of a patient presenting with acute abdominal symptoms and signs. This should include localised and generalised peritonitis (Acute cholecystitis, acute diverticulitis, acute pancreatitis, visceral perforation, acute appendicitis and acute gynaecological conditions), obstruction (small and large bowel-obstructed hernias, adhesions, colonic carcinoma) and localised abdominal pain (biliary colic, non-specific abdominal pain). To be able to assess and provide the early care of a patient with suspected abdominal trauma. This should include primary and secondary survey. To be able to recognise assess and provide the early care of a patient presenting with ruptured abdominal aortic aneurysm and acute arterial insufficiency. To be able to provide the early care of a patients presenting with acute urological conditions including acute urinary retention, ureteric colic, urinary tract infection and acute testicular pain. To be able to diagnose and manage with appropriate investigations superficial and common acute septic conditions including subcutaneous abscess, cellulitis, perianal and pilonidal abscess and breast abscess. To be aware of gas gangrene and necrotising fasciitis.	
Technical skills and procedures	Chest drain insertion	3
	Needle biopsy including fine needle aspiration	3
	Rigid sigmoidoscopy	3
	Excision biopsy of benign skin or subcutaneous lesions	4
	Outpatient treatment of haemorrhoids	2
	Induction of pneumoperitoneum for laparoscopy with port placement	2
	Open and close midline laparotomy incision	2
	Appendicectomy	3
	Inguinal hernia repair	2
	Primary abdominal wall hernia repair	2

Oral & Maxillofacial Surgery

A trainee can meet the personal specification for appointment to higher surgical training at ST3 level in oral & maxillofacial surgery after an indicative period of just 12 months of core surgical training. A dually qualified core surgical trainee entering ST3 training in any other specialty would face the same requirements as a non-dentally qualified surgical trainee. The syllabus items of the core specialty module for OMFS should be addressed.

Otolaryngology

In order to meet the job specification of an ST3 trainee, an early years' trainee must take a clear role in the Otolaryngology team, managing clinic and ward-based patients under supervision, including the management of acute admissions. This means spending an indicative minimum of six months and preferably 12 months in Otolaryngology with appropriate special interest experience in a service, which gives trainees access to the appropriate learning opportunities. Experience in specialties complementary to Otolaryngology, such as OMFS, plastic surgery, paediatric surgery, neurosurgery, cardiothoracic surgery, ITU and upper GI surgery is also desirable.

Objective	To acquire sufficient knowledge and skill of the management of patients under the care of the Otolaryngology team in both elective and emergency environments and in the operating theatre to be ready to enter higher surgical training in Otolaryngology	
<u>General clinical skills</u>		
Clinical skills	Take an appropriately focused clinical history Perform a full ENT examination	
<u>Head and Neck</u>		
Knowledge	Anatomy & embryology of the head and neck incl. oral cavity & dentition Physiology of swallowing & speech Microbiology of head and neck The aetiology, presentation, differential diagnosis & management of: • infections of the head and neck • inflammatory disorders of the head and neck • neoplasms of the head and neck • trauma of the head and neck • neck lumps incl. salivary gland & thyroid disease voice & swallowing disorders	
Clinical skills	Management of acute airway compromise including an awareness of the importance of a team approach Demonstrate competence in the initial management of post tonsillectomy haemorrhage	
Technical skills and procedures	Drainage peritonsillar abscess Flexible nasendoscopy Tonsillectomy Direct laryngoscopy and pharyngoscopy Lymph node biopsy Resection of skin lesions of H&N Tracheostomy	4 4 2 2 2 2 1
<u>Otology</u>		
Knowledge	Anatomy & embryology of the ear Physiology of hearing & balance Aetiology, presentation, differential diagnosis & management of infections of: • infections of the ear • ear trauma including skull base trauma • hearing loss, tinnitus & vertigo facial palsy	
Clinical skills	Balance testing Particle repositioning procedures	

	Pure tone audiometry Tympanometry	
Technical skills and procedures	EUA ear and microsuction Removal of foreign bodies Myringotomy & Grommet Suturing of pinna laceration Drainage of pinna haematoma	4 4 2 2 2

<u>Rhinology</u>		
Knowledge	Anatomy & embryology of the nose & paranasal sinuses Microbiology of the nose & paranasal sinuses Nasal physiology including olfaction Aetiology, presentation, differential diagnosis & management of: • epistaxis • infections of the nose & paranasal sinuses • inflammatory disease of the paranasal sinuses • neoplasms of the nose & paranasal sinuses trauma to the nose & paranasal sinuses	
Clinical skills	Assessment & initial management of facial trauma incl. fractured nose Assessment & initial management of epistaxis Perform a structured visual assessment	
Technical skills and procedures	Rigid nasal endoscopy Nasal packing (anterior & posterior) Nasal cautery Manipulation of fractured nose Endoscopic nasal polypectomy	4 4 4 2 2
<u>Paediatric otolaryngology</u> While competencies listed in the other 3 domains of this module will be relevant to paediatric ENT, this domain contains competencies specific to paediatric conditions		
Knowledge	Differences in anatomy of the upper aerodigestive tract, nose and ear between children and adults How ENT disease may present differently in children Speech development Methods for age appropriate hearing assessment Aetiology, presentation, differential diagnosis & management of sleep disordered breathing and airway compromise in children How NAI may present to ENT surgeons & appropriate pathways for onward referral	
Clinical skills	Take an appropriately focused clinical history in children Perform a full ENT examination in children Assessment & initial management of epistaxis in children Assessment & initial management of acute airway compromise in children including an awareness of a team approach to management	
Technical skills and procedures	Myringotomy & grommet insertion Paediatric (adeno)tonsillectomy Nasal cautery	2 2 4

Paediatric Surgery

In order to meet the job specifications of an ST3 trainee, an early years' trainee must take a clear role in the paediatric surgical team managing clinic and ward-based children and their parents and carers under supervision, including the management of acute paediatric surgical admissions. They will need to be able to take part in an outpatient clinic and see patients with their carers themselves with the consultant available for advice. This means spending an indicative period of 6-12 months in paediatric surgery in a service which gives trainees access to appropriate learning opportunities including exposure to paediatric intensive care as well as an indicative period of 6 months in general surgery.

Objective	To acquire sufficient knowledge and skill of the management of patients managed by the paediatric surgery team in both elective and emergency environments and in the operating theatre to be ready to enter higher surgical training in paediatric surgery.	
<u>Management of the elective paediatric surgical patient</u>		
Knowledge	Common general surgical conditions of childhood	
Clinical skills	Clinical assessment and organization of appropriate investigations for elective admissions and out-patients	
Technical skills and procedures	Intravenous cannulation of infants and children	3
<u>Management of the emergency paediatric surgical patient including trauma</u>		
Knowledge	General surgical conditions of childhood including: acute abdominal pain, intussusception, bilious vomiting, patterns of trauma including NAI	
Clinical skills	Assessment and organization of appropriate investigations	
Technical skills and procedures	Intravenous cannulation of children and infants Urethral catheterization of children and infants Air enema reduction of Intussusception	3 3 1
<u>Operative paediatric surgery</u>		
Clinical skills	Taking consent for: inguinal hernia repair, circumcision, orchidopexy, ligation of PPV, umbilical hernia and appendicectomy	
Technical skills and procedures	Circumcision Inguinal hernia (not infant) Ligation of PPV Umbilical hernia repair Appendicectomy I & D of abscess Exploration of scrotum (testicular torsion) Pyloromyotomy	2 2 2 2 2 2 2 1
<u>Intensive care of paediatric surgery patients</u>		
Knowledge	Principles of neonatal and paediatric intensive care	
Clinical skills	Assessment and daily management of patients receiving paediatric/neonatal intensive care	
Technical skills and procedures	Insertion of PIC line Tracheal intubation	3 3

Plastic Surgery

In order to meet the person specifications of an ST3 trainee, an early years' trainee must take a clear role in the plastic surgery team, managing clinic and ward-based patients under supervision, including the management of acute plastic surgery admissions. They will need to be able to take part in outpatient clinics and see patients themselves with the consultant available for advice. This means spending an indicative period of 6-12 months in plastic surgery in a service which gives trainees access to the appropriate learning opportunities. Also, by the time a trainee enters ST3 they need to be familiar with the operating room environment both with respect to elective and emergency cases.

Those conditions that present on an urgent or emergency basis necessarily involve some out of hours working. It is expected that there will be appropriate allocation of duties such that the trainee has the opportunity to gain such experience. It is not regarded as sufficient that trainees be taught on daytime trauma lists as this will mean loss of exposure to the more complex and challenging cases that are an important part of the trainee's experience.

The range of conditions a trainee needs to manage are laid out below:

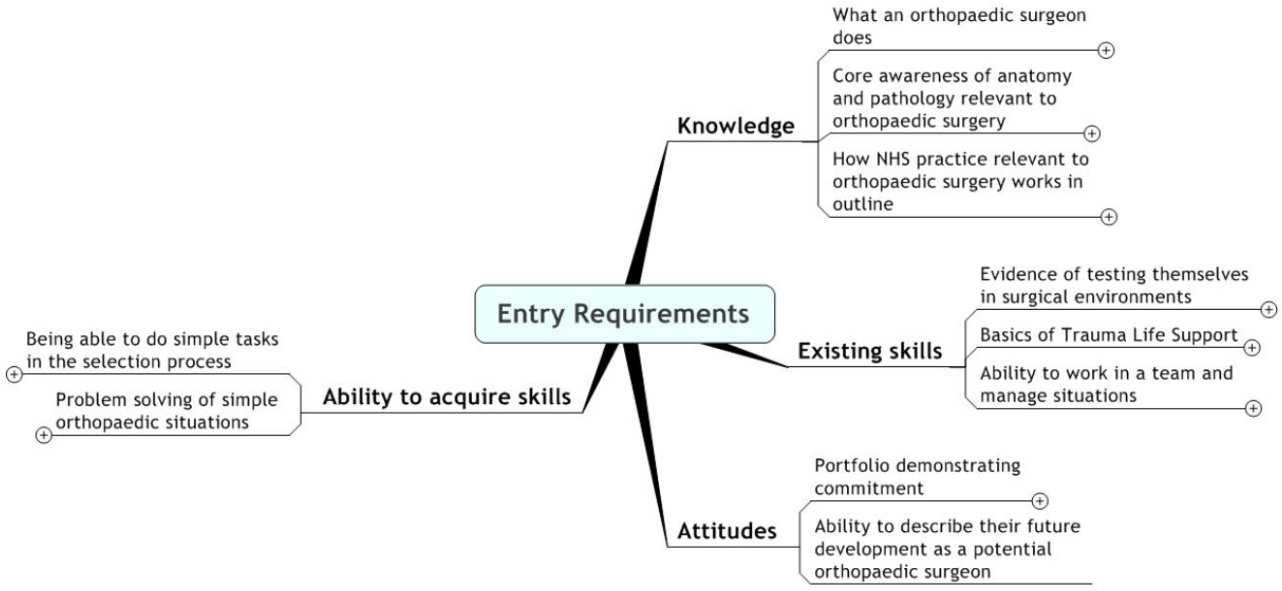
1. Assessment and diagnosis of hand trauma cases and including operative management in some cases with appropriate supervision as appropriate
2. Assessment and initial management of burns and scalds in children and adults.
3. Wound management including complex and contaminated wounds and involving both conservative and operative management
4. Assessment and initial management of cases of lower limb trauma involving compound fractures with soft tissue damage, skin loss, major nerve and/or vessel injury
5. Diagnosis and management of skin lesions, including skin malignancy
6. Competence in the use of general plastic surgery techniques in reconstruction including skin grafting, z-plasty, flap elevation and related techniques. Early competence in the use of the operating microscope
7. Management of common elective plastic surgical procedures

Objective	To acquire sufficient knowledge and skill of the management of patients managed by the plastic surgical team in both elective and emergency environments and in the operating theatre to be ready to enter higher surgical training in plastic surgery.	
<u>Hand Trauma</u>		
Knowledge	Principles of management in hand trauma	
Clinical skills	Assess, diagnose and formulate management plan for hand trauma cases	
Technical skills and procedures	Flexor tendon repair Extensor tendon repair K-wire fixation closed metacarpal and phalangeal fractures Digital nerve repair Washout of hand infection Revision amputation of digit	2 2 2 2 2 2
<u>Burns</u>		
Knowledge	Principles of management in thermal injury including an understanding of respiratory injury	
Clinical skills	Assess and initiate the management of burns and scalds in children and adults Assessment of the airway in thermal injury	

	Fluid resuscitation following thermal injury, informed by standard protocols	
Technical skills and procedures	Change of burns dressings	3
Wound Management		
Knowledge	BAPRAS/BOA guidelines on management of lower limb trauma Principles of the management of complex or contaminated wounds	
Clinical skills	Assessment and provision of advice on treatment of the open tibial fracture with soft tissue loss, major nerve or vessel injury Assess and initiate treatment for the complex or contaminated wound	
Technical skills and procedures	Harvesting of split skin graft Application of vacuum-assisted suction device	3 3
Elective Plastic Surgery		
Knowledge	An appreciation of the breadth of conditions encountered in the elective practice of the plastic surgery	
Clinical skills	Diagnosis of skin lesions, including skin malignancy	
Technical skills and procedures	Use of the operating microscope Skin grafting Z-plasty Flap elevation	2 2 2 2

Trauma & Orthopaedic Surgery

Core trainees wishing to enter T&O for higher training should endeavour to choose a Core Surgical Training programme that enables them to build foundations for a future career in the specialty. This will involve spending an indicative minimum of 12 months in T&O posts as well as an indicative period of 8 months in other surgical specialties relevant to T&O, such as general surgery, vascular surgery, plastic surgery, neurosurgery and intensive care. Further, core trainees wishing to enter T&O at ST3 level are encouraged to be involved in audit and research relevant to T&O.



By the end of Core Surgical Training, trainees wishing to enter ST3 in T&O must show competence in the overall management of simple and common trauma episodes. They should also be part of the trauma team involved in the management of major and complex trauma. Specifically, they must be able to manage a limited range of techniques involved in treating fractures around the hip and simple internal fixations around the ankle or wrist. In terms of operative fixation, this small selection contains common technical problems. The techniques utilised to resolve them are representative of the types and levels of skills which give an indication of a trainee's fitness to proceed to ST3.

Objective	To acquire sufficient knowledge and skill of the management of patients under the care of the Trauma & Orthopaedic team in both elective and emergency environments and in the operating theatre to be ready to enter higher surgical training in Trauma & Orthopaedics.	
Trauma		
Knowledge	Common fracture patterns of upper and lower limbs and spine - presentation, management and complications Prioritisation of the multiply injured patient Soft tissue injuries including compartment syndrome, open fractures, cauda equina syndrome, peripheral nerve injury - diagnosis and early management. Musculo-skeletal infection - diagnosis and early management	
Clinical skills	Peri-operative management of emergency orthopaedic patients. Assessment and management planning, including investigations, of new and follow-up patients in fracture clinics. Interpretation of radiology of musculoskeletal trauma	
Technical skills and procedures	Application of back-slab cast Removal of encircling limb cast MUA - reduction of displaced fracture / dislocation Ankle - closed reduction of fracture/dislocation Ankle - ORIF lateral malleolus fracture Hip - extra-capsular - reduction and insertion of DHS Hip - intra-capsular - hemiarthroplasty replacement Wrist - closed reduction & cast Wrist - closed reduction & per-cutaneous k-wires	3 4 2 3 2 2 2 2 2
Elective Orthopaedics		
Knowledge	Basic science (inc. anatomy, physiology, pharmacology, radiology) relevant to the management of patients with common elective orthopaedic conditions Clinical presentation and pathology of common orthopaedic conditions Principles of management of patients with common orthopaedic conditions Principles of musculoskeletal neoplasia - including skeletal metastases	
Clinical skills	Peri-operative management of elective orthopaedic patients Assessment and management, including investigations, of patients in elective orthopaedic clinic Interpretation of radiology of common orthopaedic conditions Discharge planning of patients with common orthopaedic conditions	
Technical skills and procedures	Total hip arthroplasty Total knee arthroplasty Knee arthroscopy	1 1 1

Urology

In order to meet the job specifications of an ST3 trainee, an early years' trainee must take a clear role in the Urology team, managing clinic and ward-based patients under supervision, including the management of acute urological admissions. They will need to be able to take part in an outpatient clinic and see patients themselves with the consultant available for advice. This means spending an indicative period of 6-12 months in Urology in a service which gives trainees access to the appropriate learning opportunities.

The range of conditions a trainee needs to manage is laid out below:

1. Urinary tract calculi
    a. to be able to provide the early care of a patient presenting with the symptoms suggestive of urinary tract calculi including onward referral
2. Functional urology
    a. to be able to provide the early care of a patient presenting with lower urinary tract symptoms and dysfunction including onward referral to be able
    b. to provide the early care of a patient presenting with urinary tract obstruction including onward referral
    c. to diagnose and initiate management of a patient presenting with acute or chronic urinary retention
3. Urinary tract infection to be able
    a. to provide the early care of a patient presenting with urinary tract infections including onward referral when appropriate
    b. to be able to provide the early care of a patient presenting with epididymitis and scrotal abscess including onward referral when appropriate
4. Urological oncology
    a. to be able to provide the early care of a patient with suspected urological cancer including onward referral
5. Treatment of renal failure
    a. to be able to provide the early care of a patient presenting with renal failure including onward referral when appropriate
6. Testicular pain and swelling
    a. to be able to provide the early care of a patients presenting with acute testicular pain or testicular swelling

Objective	To acquire sufficient knowledge and skill of the management of patients under the care of the Urology team in both elective and emergency environments and in the operating theatre to be ready to enter higher surgical training in Urology.	
<u>Emergency Urology</u>		
Knowledge	Pathophysiology of obstructive uropathy	
Clinical skills	A systematic prioritised method of managing the patient with urosepsis Contribution to the on-call team as urology representative Assessment and early management of patients with acute testicular pain, urinary retention, ureteric colic and obstructive uropathy	
Technical skills and procedures	Ability to insert urethral catheters Ability to insert suprapubic catheters Ability to explore the acutely painful testis	4 3 3
<u>Elective Urology</u>		
Knowledge	Detailed anatomy of the urogenital tract	

	Principles of contemporary urological practice	
Clinical skills	Assessment and early management of the post-operative urology surgical patient Assessment and planning the investigation of new and follow-up patients in urology outpatient clinics	
Technical skills and procedures	Ability to perform flexible cystoscopy Ultrasound guided prostate biopsy	4 2

Vascular Surgery

In order to meet the job specification of an ST3 trainee, an early years' trainee must take a clear role in the surgical team, managing clinic and ward-based patients under supervision, including the management of acute admissions. They will need to be able to take part in an outpatient clinic and see both new and follow-up patients themselves with the consultant available for advice. This means that it is desirable to spend an indicative period of 6 months in vascular surgery and essential to spend a further indicative period of 6 months in general or vascular surgery in a service which gives trainees access to the appropriate learning opportunities. Because vascular surgical experience is not required for ST3 appointment in that specialty, the outcomes in this module exceed the essential criteria for selection.

Objective	To acquire sufficient knowledge and skill of the management of patients under the care of the Vascular Surgical team in both elective and emergency environments and in the operating theatre to be ready to enter higher surgical training in Vascular Surgery.	
<u>Aortic Aneurysm</u>		
Knowledge	Aetiology, presentation, investigation and management options for aortic aneurysm in the elective setting Presentation, investigation and management options for ruptured aortic aneurysm	
Clinical skills	Assessment and planning investigation of new patients in the out-patient setting Assessment and planning management of patients presenting as emergencies Contribution to Aortic Aneurysm planning MDT meetings	
Technical skills and procedures	Exposure of the femoral artery for EVAR Open and close laparotomy wounds	2 2
<u>Limb Ischaemia</u>		
Knowledge	Aetiology, presentation, investigation and management of peripheral arterial disease	
Clinical skills	Assessment and planning investigation of new patients in the outpatient or emergency setting Interpretation of the results of Duplex US, CT, MR and DSA angiography Measurement of ABP index Contribution to multi-disciplinary meetings	
Technical skills and procedures	Exposure of femoral artery Arterial suturing Angioplasty & endovascular stenting	2 2 1
<u>Venous Disease</u>		

Knowledge	Aetiology, presentation, investigation and management of varicose veins, venous ulcers and deep venous thrombosis	
Clinical skills	Assessment and planning investigation of new patients in the outpatient setting Interpretation of results of venous Duplex investigations	
Technical skills and procedures	Endovenous treatment of varicose veins Open surgery on the long saphenous vein	1 2
<u>Amputation</u>		
Knowledge	Indications for amputation and the risks of surgery Principles of rehabilitation after amputation	
Clinical skills	Assessment of patients and planning level of amputation	
Technical skills and procedures	Major limb amputation	2