



ROYAL COLLEGE OF
PHYSICIANS AND
SURGEONS OF GLASGOW



Joint Committee on Intercollegiate Examinations

Intercollegiate Specialty Examination in Vascular Surgery

Syllabus Blueprint 2016

The Royal College of Surgeons of Edinburgh
Nicolson Street Edinburgh EH8 9DW
Tel: 0131 662 9222
www.jcie.org.uk

Principles for Blueprinting Assessment to the Curriculum in Surgical Specialties

1. Standard educational practice requires a curriculum to include an indication of how each aspect of the syllabus is to be assessed. This “blueprinting” process also shows how each aspect relates to Good Medical Practice.
2. Each specialty syllabus has been mapped to a range of assessments:
 - a. CEX
 - b. CBD
 - c. DOPS
 - d. PBA
 - e. MSF
 - f. Section 1 of the specialty FRCS (written section)
 - g. Section 2 of the specialty FRCS (clinical and oral section)
3. This does not imply that the indicated assessments must be used.
4. The indications are not exclusive, and it is possible that other types of assessment which have not been indicated may also be used to assess individual items.
5. In general:
 - a. Knowledge will be assessed by Section 1 and Section 2 FRCS and by CBD.
 - b. Clinical skills will be assessed by CEX and Section 2 FRCS
 - c. The use of scenarios within Section 2 FRCS allows a wide range of clinical skills to be assessed.
 - d. Technical skills will be assessed by DOPS and PBA
 - e. Professional skills will be assessed by MSF
6. The blueprinting indicates which assessments may be used for each item at any stage through training.
7. The Good Medical Practice domains are:
 1. Knowledge, skills and performance
 2. Safety and quality
 3. Communication, partnership and teamwork
 4. Maintaining trust

VASCULAR PHYSIOLOGY	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
Knowledge of the physiology of the circulation								
KNOWLEDGE								
Detailed knowledge of the control of blood pressure and factors affecting it		X				X	X	1
Detailed knowledge of blood flow, haemostasis and the effects of haemorrhage		X				X	X	1
Detailed knowledge of the effects of ischaemia and reperfusion		X				X	X	1
Detailed knowledge of microcirculatory and lymphatic physiology		X				X	X	1
CLINICAL SKILLS								
Able to safely manage a patient in the early post-operative phase after major vascular	X						X	1,2
Able to correct clotting abnormalities in patients undergoing vascular interventions		X					X	1,2
Able to undertake prophylactic and therapeutic anticoagulation		X					X	1,2
Can explain vascular physiology to patients and colleagues	X						X	1,3
TECHNICAL SKILLS AND PROCEDURES								
N/A								

VASCULAR PATHOLOGY	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Knowledge of the diseases (congenital and acquired) of the circulation								
KNOWLEDGE								
Is aware of the congenital and pathological conditions that affect the circulation		X				X	X	1
A detailed knowledge of atherosclerosis and its associated risk factors, venous disease, lymphatic disease, thrombo-embolic disease, vasospastic and vasculitic disease		X				X	X	1
A detailed understanding of the mechanisms of vascular trauma		X				X	X	1
Causes of peripheral neuropathy		X				X	X	1
Alternative causes for limb pain (neurological and musculoskeletal)		X				X	X	1
CLINICAL SKILLS								
Able to take detailed history from patient with arterial or venous disease	X						X	1
Examination of ischaemia and aneurysmal disease	X						X	1
Examination of varicose veins and swollen leg	X						X	1
Can detect pathological arterial and venous abnormalities	X						X	1
Able to prioritise - recognises patients who need to be seen or treated urgently		X					X	1,2
Selects appropriate investigations tailored to the individual patient		X				X	X	1,2
Can explain vascular disease to patients and colleagues		X					X	1,3
TECHNICAL SKILLS AND PROCEDURES								
Hand-held Doppler assessment of varicose veins			X					1
Ankle Brachial Pressure Indices and waveform interpretation			X					1
Duplex ultrasound assessment of varicose veins			X					1

VASCULAR EPIDEMIOLOGY	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Knowledge of the epidemiology of vascular disease								
KNOWLEDGE								
Principles of epidemiology, including basic study design and relevant terms.		X				X	X	1
Epidemiology of peripheral arterial disease.		X				X	X	1
Epidemiology of venous disorders including varicose veins and venous thromboembolism.		X				X	X	1
Epidemiology and interactions of major vascular risk factors including smoking demographics		X				X	X	1
CLINICAL SKILLS								
Explanation of risk factors to a patient with vascular disease	X						X	1,3
TECHNICAL SKILLS AND PROCEDURES								
N/A								

SCREENING AND SURVEILLANCE	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Knowledge of the principles of screening								
KNOWLEDGE								
Key elements of design and delivery of screening tests in general		X				X	X	1
AAA screening and surveillance programme		X				X	X	1
Governance and quality control of AAA screening		X				X	X	1
EVAR/TEVAR and vein graft surveillance		X				X	X	1
CLINICAL SKILLS								
Counselling a patient undergoing screening or who has a positive screening test	X						X	1,3
TECHNICAL SKILLS AND PROCEDURES								
Measure AAA diameter in US scan			X					1

RISK FACTOR MODIFICATION	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Knowledge of vascular risk factors and risk-factor modification								
KNOWLEDGE								
Blood pressure control		X				X	X	1
Lipid lowering therapy		X				X	X	1
Management of diabetes		X				X	X	1
Smoking cessation		X				X	X	1
Antiplatelet and anticoagulant therapy		X				X	X	1
Exercise and exercise therapy		X				X	X	1
Dietary factors and weight control		X				X	X	1
Guidelines for hypertension and hyperlipidaemia management (BHS, NICE, RCP, SIGN)		X				X	X	1,2
CLINICAL SKILLS								
Explanation of risk factor modification to a patient	X						X	1,3
Ability to assess and prescribe blood pressure and other risk factor medication		X					X	1,2

KNOWLEDGE								
Coagulation and fibrinolysis pathways		X				X	X	1
Epidemiology, natural history, and molecular basis of haemophilia and thrombophilia		X				X	X	1
Pharmacology of unfractionated heparin, LMWH, warfarin and antiplatelet agents		X				X	X	1
Principles of donor selection and preparation of blood components including donor selection, preparation of blood products and viral safety		X				X	X	1
Coagulation factors and their side effects		X				X	X	1
Principles of clinical blood transfusion including hazards of blood transfusion, SHOT report and the role of the hospital transfusion committee		X				X	X	1
Methods of blood conservation including pre-donation and intra-operative cell salvage		X				X	X	1
Mechanism of DIC, effect of massive, transfusion, renal and hepatic disease		X				X	X	1
CLINICAL SKILLS								
Interpretation of laboratory results		X				X	X	1,2
Methods and complications of reversing anti-coagulation in patients with and without haemorrhage		X					X	1,2
Management of haemophilia and thrombophilia in terms of treatment and prophylaxis before vascular surgery		X					X	1
Initiation and monitoring of anticoagulation	X	X					X	1,2
Initiation of antiplatelet therapy in various situations	X	X					X	1,2
Appropriate use of blood and blood products	X	X					X	1,2
Management of complications from blood transfusion		X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Intra-operative use of heparin, monitoring techniques (TEG) and reversal using protamine				X				1,2

CLINICAL AUDIT, RESEARCH & HEALTH ECONOMICS	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
An understanding of the relevance of clinical audit, research and health economics to the practice of vascular surgery								
KNOWLEDGE								
National Vascular Database		X				X	X	1,2
Principles of audit and quality control		X				X	X	1,2
Principles of clinical research and systematic review		X				X	X	1,2,4
Evidence-based vascular practice		X				X	X	1,2
Knowledge of key health economic terms		X				X	X	1
Important generic QoL tools for venous and arterial disease		X				X	X	1
Relevance of QALYS and calculation of incremental cost effectiveness ratios		X				X	X	1
Types of health economic analyses		X				X	X	1
Planning and budgeting vascular services		X				X	X	1,2,3
CLINICAL SKILLS								
Participation in local and national audit of outcomes					X			1,2,4
Conducting a morbidity and mortality meeting		X			X			1,2,3
Conducting a journal club		X			X			1,2,3
Participation in clinical research					X			1,2,3
Presentations at vascular meetings (e.g. VSGBI and ESVS)					X			1,3
Publications in vascular journals (e.g. EJVES and JVS)					X			1,2,4
Can explain the principles of health economics to patients, colleagues and managers	X				X	X	X	1,2,3
TECHNICAL SKILLS AND PROCEDURES								
N/A								

OUTPATIENT, WARD and MDT MEETINGS	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Assess individual vascular outpatients and inpatients								
Manage an outpatient clinic, ward round and MDT meeting								
KNOWLEDGE								
Individual patient assessment:							X	1
Relevant vascular anatomy, physiology and clinical knowledge		X				X	X	1
Outpatient and inpatient service:								
Understanding of hospital organisation		X				X	X	1,3
Understanding of multi-disciplinary team and meetings		X				X	X	1,3
Relevant guidelines for vascular disease management		X				X	X	1
CLINICAL SKILLS								
Individual patient assessment:							X	1
Focused history taking and examination	X	X					X	1
Organise appropriate investigations	X	X				X	X	1
Management of an outpatient clinic, ward round and MDT meeting:					X		X	1,3
Presentation of patients on ward round and at MDT	X							1,3
Ability to allocate management of patients to appropriate team members	X				X		X	1,3
Appropriate referral to other specialists when indicated		X					X	1,3
Liaison with critical care and other support services (e.g. pain team, physiotherapy, rehab)					X		X	1,3
Ability to prioritise urgent patient appointments, investigations and interventions					X			1,3
Prompt and clear clinic letters and discharge summaries					X			1,3
TECHNICAL SKILLS AND PROCEDURES								
N/A								

PRINCIPLES OF VASCULAR IMAGING	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Radiation safety, principles and indications for vascular imaging								
KNOWLEDGE								
Principles of ultrasound, CT and MR imaging and catheter angiography		X				X	X	1
Dangers of ionizing radiation and safe practice		X				X	X	1,2
Monitoring of ionizing radiation and how exposure can be reduced		X				X	X	1,2
Regulations and requirements in use of ionizing radiation		X				X	X	1,2
Indications and factors determining appropriate investigation for a patient with vascular disease		X				X	X	1

Vascular contrast agents and associated hazards		X				X	X	1,2
CLINICAL SKILLS								
Explanation of various imaging modalities to a patient	X						X	1,3
Selection of appropriate investigation		X					X	1
Evaluate patient for procedure	X						X	1
Identify factors that increase risk for patient		X					X	1,2

VASCULAR ULTRASOUND	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
To understand and be able to perform basic vascular ultrasound								
KNOWLEDGE								
Understand the principles of Doppler ultrasound		X				X	X	1
Understand limitations of US scanning		X				X	X	1
Understand ultrasound spatial resolution in relation to scan plane		X				X	X	1
Understand the requirements for imaging different vascular territories		X				X	X	1
Ultrasound image interpretation		X				X	X	1
CLINICAL SKILLS								
Explanation of ultrasound to a patient	X						X	1,3
TECHNICAL SKILLS AND PROCEDURES								
Able to choose the appropriate ultrasound probe			X					1
Able to optimize grey scale imaging			X					1
Able to optimize colour flow imaging			X					1
Able to optimize pulsed wave settings			X					1
Able to perform superficial venous ultrasound studies			X					1
Able to perform arterial ultrasound studies for intra-operative quality control			X					1
Able to screen for AAA and measure the AP diameter			X					1
Percutaneous puncture of saphenous vein under US control			X					1
Percutaneous puncture of femoral artery under US control			X					1

COMPUTED TOMOGRAPHIC IMAGING	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
To understand, interpret and manipulate CT imaging and CT angiography								
KNOWLEDGE								
Understand how CT images are generated		X				X	X	1
Understand concepts of helical and multi-slice scanning		X				X	X	1
Understand that scans are performed in the axial plane		X				X	X	1
Understand CT spatial resolution		X				X	X	1
Recognise X-ray dose and risks associated with study		X				X	X	1,2
Recognise the need to tailor individual scan to clinical problem e.g. AAA elective vs. emergency, mesenteric/renal, carotid, peripheral, venous		X				X	X	1,2
Understand basic principles of image reformatting in various planes		X				X	X	1
Understand the principle behind image reconstruction and MIP images		X				X	X	1
Understand the use of intravascular and oral contrast agents		X				X	X	1
Recognise risks of intravascular contrast and how to avoid them		X				X	X	1,2
Understand common artifacts		X				X	X	1
CLINICAL SKILLS								
Explanation of CT and the risks to a patient	X						X	1,3
Able to manage contrast reactions		X					X	1,2
Able to recognise normal cross-sectional anatomy		X				X	X	1
Able to recognise vascular pathology on scans		X				X	X	1
TECHNICAL SKILLS AND PROCEDURES								
Able to manipulate images on the console	X							1
Able to obtain appropriate measurements of blood vessels	X							1

MAGNETIC RESONANCE IMAGING	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
To understand, interpret and manipulate MR imaging and MR angiography								
KNOWLEDGE								
Understand how MR images generated		X				X	X	1
Recognise the risks of MRI		X				X	X	1,2
Understand that scans are performed in any plane		X				X	X	1
Understand MR spatial resolution in relation to scan plane		X				X	X	1
Recognise the need to tailor individual scan to clinical problem e.g. AAA elective vs. emergency, mesenteric/renal, carotid, peripheral, venous		X				X	X	1,2
Understand the principles of non contrast MR angiographic techniques		X				X	X	1
Understand the principles of contrast enhanced MR angiographic techniques		X				X	X	1
Understand basic principles of image reformatting in various planes		X				X	X	1
Understand the principle behind image reconstruction and MIP images		X				X	X	1
Understands the different types of MR angiographic contrast		X				X	X	1
Recognise common MR artifacts		X				X	X	1
CLINICAL SKILLS								
Explanation of MRA and the risks to a patient	X						X	1,3
Able to recognise normal cross-sectional anatomy		X					X	1
Able to recognise vascular pathology on scans		X				X	X	1
TECHNICAL SKILLS AND PROCEDURES								
Able to manipulate images on the console	X							1
Able to obtain appropriate measurements of blood vessels	X							1

CATHETER ANGIOGRAPHY	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
To understand and perform intra-operative catheter angiography								
KNOWLEDGE								

Commonly used arterial and venous access sites		X				X	X	1
Commonly used contrast agents, including CO2		X				X	X	1
Road-mapping, parallax, measurement techniques, hand and power injection		X				X	X	1
Measures to improve angiographic imaging e.g. breath holding, multi-masking, centering, collimation, frame rate, antegrade etc		X				X	X	1,2
Risks of angiography		X				X	X	1,2
Guidewire and catheter types, characteristics and indications		X				X	X	1
Introducer, dilator and sheath types, characteristics and indications		X				X	X	1
CLINICAL SKILLS								
Explanation of catheter angiography and the risks to a patient	X						X	1,3
TECHNICAL SKILLS AND PROCEDURES								
Retrograde femoral artery puncture			X					1
Antegrade femoral artery puncture			X					1
Ultrasound guided arterial and venous puncture			X					1
Obtains secure vascular access with sheath, flushes catheters and sheaths appropriately			X					1
Pressure measurement			X					1
Positions guidewire using fluoroscopy and places non selective catheter in aorta			X					1
Keep radiation dose to minimum by use of appropriate e.g. fluoroscopy, collimation, runs			X					1,2
Obtain satisfactory intra-operative angiograms			X					1
Recognize inadequate study and need for alternative angiographic views		X						1

ENDOVASCULAR PROCEDURES	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
To gain endovascular knowledge and skills								
KNOWLEDGE								
Indications and outcomes for endovascular intervention		X				X	X	1
The complementary role of endovascular therapy to medical and surgical therapy		X				X	X	1
Balloon and stent types, characteristics and indications		X				X	X	1
Stent-graft types, characteristics and indications		X				X	X	1
Materials used for embolisation, characteristics and indications		X				X	X	1
Closure devices, characteristics and indications		X				X	X	1
CLINICAL SKILLS								
Explanation of endovascular intervention and the risks to a patient	X						X	1,3
Undertakes preoperative checks and team briefing	X			X			X	1,2,3
Demonstrates good patient, personal and team safety					X		X	1,2,3
Ensures good asepsis, especially when prosthetic materials are involved							X	1,2
Good communication with patient and all members of the angio team					X		X	1,3
Accurate procedural record and post-procedural instructions					X		X	1,3
Recognizes complications e.g. dissection, embolisation		X					X	1,2
Uses drugs appropriately e.g. vasodilators, anticoagulants, analgesics, sedatives, anti-peristaltics		X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Chooses appropriate equipment e.g. catheter, sheath, guidewire, balloon, stent				X				1
Perform selective catheterization				X				1
Manipulate catheter and wire across stenosis				X				1
Performs balloon angioplasty in various vascular territories				X				1
Performs primary stenting in various vascular territories				X				1
Performs selective embolisation				X				1
Use of closure devices				X				1

OPEN VASCULAR SURGERY	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
To gain open vascular surgical knowledge and skills								
KNOWLEDGE								
Knows the importance of preoperative checks and team briefing for patient safety		X		X		X	X	1,2,3
Antibiotic prophylaxis and anticoagulation		X				X	X	1
Blood transfusion and the management of transfusion-related complications		X				X	X	1
Intra-operative cell salvage and the use of other blood products		X				X	X	1
Principles of local anaesthesia and local blocks e.g. metatarsal		X	X			X	X	1
Common vascular skin incisions and exposures		X	X			X	X	1
Methods of vascular control		X				X	X	1
Principles of vascular reconstruction		X				X	X	1
Intervention for VVs		X				X	X	1
Selection of amputation level		X				X	X	1
Types and characteristics of bypass grafts, anastomoses and vascular sutures		X				X	X	1
Types and characteristics of vascular instruments		X				X	X	1
CLINICAL SKILLS								
Explanation of open vascular surgery and the risks to a patient	X						X	1,3
Demonstrates good patient, personal and team safety				X				1,2,3
Ensures good asepsis, especially when prosthetic materials are involved				X				1,2
Good communication with patient and all members of the theatre team				X	X			1,3
Accurate procedural record and post-procedural instructions				X				1,3
TECHNICAL SKILLS AND PROCEDURES								
Wound debridement			X					1
Local amputation (e.g. toes)				X				1
Major amputation (e.g. BKA)				X				1
Harvesting of long saphenous (or other) vein			X					1
Exposure and control of veins (e.g. SFJ)				X				1
Exposure and control of arteries (e.g. common femoral)				X				1
Arteriotomy and direct or patch repair				X				1
End-to-end and end-to-side anastomosis				X				1
Embolectomy + on-table arteriogram/thrombolysis				X				1

ACUTE LOWER LIMB ISCHAEMIA	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
-----------------------------------	-----	-----	------	-----	-----	----------------	----------------	-----

Anatomy and embryological development of arteries supplying the lower limb.		X				X	X	1
Pathology of atherosclerosis, thrombosis and complications.		X				X	X	1
Pathology of non –atherosclerotic arterial conditions (e.g. fibromuscular dysplasia, Buerger’s disease, vasculitis and pyoderma gangrenosum)		X				X	X	1
Vascular anomalies (e.g. persistent sciatic artery, cystic adventitial disease and popliteal entrapment)	X					X	X	1
Role of medical treatment/exercise therapy		X				X	X	1
Wound dressings & VAC		X				X	X	1
CLINICAL SKILLS								
Selection for revascularisation or amputation		X					X	1,2
Management of postoperative wound infection and graft complications		X					X	1,2
Graft surveillance		X					X	1
Amputation level selection	X						X	1
Rehabilitation after amputation		X					X	1
Lower limb prostheses		X					X	1
TECHNICAL SKILLS AND PROCEDURES								
Exposure of infrarenal aorta, iliac, femoral, popliteal, tibial and pedal vessels				X				1
Aorto-iliac & aorto-femoral bypass				X				1
Axillo-femoral bypass				X				1
Femoral and profunda endarterectomy and patch				X				1
Ilio-fem and fem-fem bypass				X				1
Above and below-knee fem-popliteal bypass				X				1
Distal bypass (AT, PT, peroneal & pedal)				X				1
Vein preparation in-situ/reversed/arm vein/SSV				X				1
Vein cuff / patch				X				1
Intra-operative assessment with Doppler and angiography				X				1
Wound debridement				X				1
Angioplasty/stenting aorta/iliac/SFA/popliteal/tibial				X				1
Sartorius muscle flap				X				1
Digital/ray amputation				X				1
Transmetatarsal/transtibial (Burgess, skew)/through knee/above knee amputation				X				1
Hindquarter amputation				X				1

VASCULAR COMPLICATIONS OF DIABETES	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Assessment and management of patients with complications of diabetes affecting the leg/foot								
KNOWLEDGE								
Anatomy of the foot		X				X	X	1
Complications of diabetes affecting the foot including neuropathy, ulceration, osteomyelitis and Charcot foot		X				X	X	1
Investigations (XRray, ultrasound & MR of foot, arteriography)		X				X	X	1
Prevention of complications		X				X	X	1,2
Orthotic devices and principles of offloading		X				X	X	1,2
Interpretation of microbiology data and selection of antibiotics		X				X	X	1
Emergency treatment for infection		X					X	1,2
Revascularisation procedures		X				X	X	1
CLINICAL SKILLS								
Explanation of principles of foot care to diabetic patients	X						X	1,2
Examination of diabetic foot/ulceration	X						X	1,2
ABPI, pole test, 10g monofilament test	X						X	1
Setting up a sliding scale	X	X						1,2
TECHNICAL SKILLS AND PROCEDURES								
Surgical debridement of foot			X					1
Wound care			X					1

VASCULAR DISEASE OF THE UPPER LIMB	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Ability to recognise and manage: (i) acute upper limb ischaemia, (ii) chronic upper limb ischaemia and (iii) thoracic outlet syndrome								
KNOWLEDGE								
Anatomy:								
Upper limb vasculature		X				X	X	1
Upper limb neurology		X				X	X	1
Thoracic outlet		X				X	X	1
Pathology:								
Thromboembolic disease		X				X	X	1
Atherosclerotic disease		X				X	X	1
Thoracic outlet syndrome		X				X	X	1
Subclavian steal syndrome		X				X	X	1
Vasospastic disease		X				X	X	1
Trauma		X				X	X	1
Management:								
Conservative (physiotherapy)		X					X	1
Pharmacological (anticoagulant/prostacyclin)		X					X	1
Endovascular (angioplasty/stent)		X					X	1
Surgical (rib resection, embolectomy, bypass)		X					X	1
CLINICAL SKILLS								
Take a relevant history and examine the upper limb vessels and nerves including provocative testing	X						X	1,3
Role of Doppler, duplex ultrasound, CT, MRA and conventional angiography.		X					X	1
Selection for surgical/endovascular intervention		X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Exposure of subclavian, vertebral, axillary, brachial and radial arteries				X				1
Brachial embolectomy				X				1
Subclavian aneurysm repair				X				1
Subclavian to brachial bypass				X				1

Assessment and management of elective aneurysms

KNOWLEDGE								
Anatomy of aorta and main branches		X				X	X	1
Pathology of aortic aneurysms (atherosclerotic inflammatory, mycotic, collagen disorders, post-dissection, vasculitic)		X				X	X	1
Aortic dissection		X				X	X	1
Thoracoabdominal aneurysms		X				X	X	1
Pathology of other aneurysms (popliteal, visceral, carotid, subclavian, false aneurysms)		X				X	X	1
Investigation – US, CT A, MRA and PET		X				X	X	1
Treatment options (medical, open, EVAR, hybrid)		X				X	X	1
CLINICAL SKILLS								
History and examination, palpation of aorta	X						X	1,3
Assessment of comorbidity, cardiorespiratory/renal	X	X					X	1,2
Endovascular planning		X					X	1
Ability to recognise/manage postop. complications: bleeding, thrombosis, embolism, organ failure, endoleak, infection		X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Open repair infrarenal AAA				X				1
Inflammatory AAA repair				X				1
Internal iliac aneurysm repair				X				1
Juxta-renal AAA repair				X				1
Supra-renal AAA repair				X				1
Thoraco-abdominal aneurysm open repair				X				1
Thoraco-abdominal aneurysm hybrid repair				X				1
Popliteal aneurysm repair				X				1
Visceral aneurysm repair				X				1
Carotid aneurysm repair				X				1
Subclavian aneurysm repair				X				1
Repair femoral false aneurysm				X				1
Re-operation for infected graft				X				1
Endovascular repair infrarenal AAA				X				1
Internal iliac artery/aneurysm coiling				X				1
Aorto-uniliac stent-graft, iliac occluder & crossover graft				X				1
Juxta-renal or suprarenal AAA – fenestrated /branched stent				X				1
Thoracic aneurysm/dissection stentgraft				X				1
Correction of endoleak				X				1
Stenting of peripheral/visceral aneurysm				X				1

ANEURYSM - EMERGENCY	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Assessment and management of emergency aneurysms								
KNOWLEDGE								
Risk factors for aneurysm rupture		X				X	X	1
Appropriate/timely investigation of an emergency aneurysm (acute/ruptured)	X	X				X	X	1
Open and endovascular treatment options		X				X	X	1
Surgical methods of immediate aortic control - supra- coeliac and infrarenal				X		X	X	1
Intra-abdominal compartment syndrome	X	X				X	X	1
CLINICAL SKILLS								
History and examination	X						X	1,3
Assessment of co-morbidity	X	X					X	1,2
Selection of patients for conservative management, open or endovascular repair		X					X	1,2
Recognise/manage complications	X	X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Open repair ruptured infrarenal AAA				X				1
Suprarenal/supracoealic clamp				X				1
Femoral thrombectomy and or additional lower limb revascularisation.				X				1
Balloon control of aorta				X				1
Endovascular repair ruptured infrarenal AAA				X				1
Endovascular stenting of acute aortic dissection				X				1
Endovascular stenting of acute aortic transection				X				1
Aorto-uniliac stent-graft, iliac occluder and crossover graft				X				1

VASCULAR ACCESS (VA)	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
To describe need for VA, common methods of VA, establish VA and manage complications of VA								
KNOWLEDGE								
Anatomy of upper and lower limb arteries and veins		X				X	X	1
List indications for VA		X				X	X	1
Knowledge of methods of renal support; advantages and disadvantages		X				X	X	1
Physiology of arterio-venous fistulae		X				X	X	1
Knowledge of conduit material		X				X	X	1
List complications of VA		X				X	X	1
Knowledge of preoperative investigations including ultrasound		X				X	X	1
CLINICAL SKILLS								
Pre-operative assessment and choice of VA	X						X	1,2
Arrange appropriate investigations	X	X					X	1
Ultrasound assessment of patient needing vascular access			X					1
TECHNICAL SKILLS AND PROCEDURES								
Radio-cephalic AVF				X				1
Brachiocephalic fistula				X				1
Basilic vein transposition AV fistula				X				1
Create forearm loop graft				X				1

Create thigh loop graft				X					1
Saphenous vein transposition AV fistula				X					1
On-table fistulogram/angioplasty				X					1
Graft thrombectomy and revision				X					1
Ligation/excision of fistula or graft				X					1
DRIL or other salvage procedure				X					1
Complex revision procedures				X					1
Percutaneous fistulography and endovascular intervention				X					1
Ultrasound-guided cannulation of jugular vein and femoral artery			X						1
Insert central venous dialysis catheter			X						1
Insert peritoneal dialysis catheter			X						1

RENOVASCULAR DISEASE AND TRANSPLANTATION	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Knowledge and management of vascular problems related to renal disease and vascular surgical problems in patients with renal disease and renal transplantation								
KNOWLEDGE								
Renal & reno-vascular anatomy		X				X	X	1
Role of kidney in control of blood pressure		X				X	X	1
Role of kidney in calcium homeostasis		X				X	X	1
Pathophysiology of chronic kidney disease		X				X	X	1
Pathophysiology of acute kidney injury		X				X	X	1
Pre-renal: shock, trauma, sepsis, atherosclerosis		X				X	X	1
Renal: intrinsic renal disease, toxins		X				X	X	1
Post renal: obstruction, stone, tumour		X				X	X	1
CLINICAL SKILLS								
Pre-operative assessment	X						X	1,2
Arrange appropriate investigations	X	X					X	1
Role of CT angiography in assessing renal disease		X					X	1
Indications for renal angiography/angioplasty		X					X	1
Indications for retrograde Ureteric imaging		X					X	1
Indications for isotope renography		X					X	1
Indications for selective renal vein sampling		X					X	1
Indications for renal biopsy		X					X	1
TECHNICAL SKILLS AND PROCEDURES								
Open approach to kidney				X				1
Laparoscopic approach to kidney				X				1
Exposure of renal vessels				X				1
Renal artery Endarterectomy/bypass				X				1
Open surgical nephrectomy				X				1
Radiological access to renal arteries				X				1
Renal artery embolisation				X				1
Renal artery angioplasty				X				1
Living kidney donor nephrectomy open/laparoscopic				X				1
Renal autotransplant				X				1
Renal allotransplant				X				1
Transplant nephrectomy				X				1

MESENTERIC VASCULAR DISEASE	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Assessment and management of patients with acute and chronic mesenteric ischaemia								
KNOWLEDGE								
Anatomy of mesenteric arterial and venous system		X				X	X	1
Physiology of mesenteric vasculature		X				X	X	1
Pathophysiology of mesenteric ischaemia		X				X	X	1
Presentation of mesenteric vascular disease - acute and chronic		X				X	X	1
Investigation - Mesenteric angiography, CT		X				X	X	1
Treatment - Medical, surgical, endovascular		X				X	X	1
Complications		X				X	X	1
CLINICAL SKILLS								
History and examination of acute and chronic presentation	X						X	1,3
Resuscitation	X						X	1
Interpretation of investigations	X	X					X	1,2
General management		X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Radiological intervention (lysis, angioplasty, stenting)				X				1
Mesenteric thromboembolectomy				X				1
Mesenteric bypass				X				1

SUPERFICIAL VENOUS DISEASE	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Assessment and management of varicose veins, including recurrent veins and complications								
KNOWLEDGE								
Anatomy of the superficial venous system		X				X	X	1
Physiology of venous dynamics		X				X	X	1
Graduated support		X				X	X	1
Pathology of superficial venous incompetence		X				X	X	1
Neovascularisation		X				X	X	1
Recanalisation		X				X	X	1
Pelvic venous reflux		X				X	X	1
Complications of venous hypertension		X				X	X	1
Oedema, lipodermatosclerosis, ulceration, bleeding, recurrence		X				X	X	1

CLINICAL SKILLS								
Presenting symptoms and complications	X	X					X	1
Examination varicosities and venous incompetence	X						X	1
Identify complications	X						X	1
Interpretation of venous duplex	X	X					X	1
Interpretation of venography	X	X					X	1
Interpretation of plethysmography	X	X					X	1
Management options (conservative, sclerotherapy, endovenous thermal ablation, surgery)		X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Apply compression bandage				X				1
Injection sclerotherapy				X				1
Truncal foam sclerotherapy				X				1
Cannulate long and short saphenous veins under US control				X				1
Endovenous thermal ablation (EVLT/VNUS)				X				1
Surgery (multiple phlebectomies, sapheno-femoral junction ligation, sapheno-popliteal junction ligation, long saphenous vein strip)				X				1
Recurrent varicose vein surgery				X				1

DEEP VENOUS THROMBOSIS								
OBJECTIVE	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
Assessment and management of patient with deep venous thrombosis								
KNOWLEDGE								
Anatomy of deep veins lower limb / pelvis		X				X	X	1
Pathophysiology of thrombosis and DVT		X				X	X	1
Management of uncomplicated DVT		X				X	X	1
Early / late complications of DVT		X				X	X	1
Thrombophilia		X				X	X	1
Thromboprophylaxis		X				X	X	1
Investigations(Ultrasound, duplex, V/Q scans, CTPA)		X				X	X	1
Indications for intervention (caval filters, thrombolysis, surgical thrombectomy)		X				X	X	1
CLINICAL SKILLS								
History and examination	X						X	1,3
Investigation (Duplex, interpretation MRV and CTPA)	X	X					X	1
TECHNICAL SKILLS AND PROCEDURES								
Endovenous therapy (thrombolysis)				X				1
Venous thrombectomy				X				1
Insertion and removal of caval filter				X				1

DEEP VENOUS INSUFFICIENCY								
OBJECTIVE	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
Assessment and management of patient with deep venous insufficiency								
KNOWLEDGE								
Pathology of deep venous insufficiency (DVT, valvular dysfunction, valvular agenesis)		X				X	X	1
Management options (compression systems, valvuloplasty, valve transplant, bypass, amputation)		X				X	X	1
CLINICAL SKILLS								
History - identify risk factors	X						X	1
Examination - diagnose complications	X						X	1
Investigation – Duplex, venography, plethysmography)	X	X					X	1
TECHNICAL SKILLS AND PROCEDURES								
Apply compression bandage				X				1
Biopsy of leg ulcer				X				1
Perforator ligation				X				1
Deep venous reconstruction				X				1
Venous bypass (e.g. Palma)				X				1
Iliac venous stent				X				1

LYMPHOEDEMA								
OBJECTIVE	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
Assessment and management of patients with lymphoedema								
KNOWLEDGE								
Anatomy of lymphatic system		X				X	X	1
Physiology		X				X	X	1
Pathophysiology		X				X	X	1
Classification of lymphoedema (primary and secondary)		X				X	X	1
Clinical features		X				X	X	1
Complications - chronic effects		X				X	X	1
Investigation – lymphoscintigraphy, lymphangiogram, CT/ MRI		X				X	X	1
Management – manual compression, compression bandaging, compression hosiery, surgical options		X				X	X	1
CLINICAL SKILLS								
History and examination	X						X	1
Interpretation of investigations	X	X					X	1,2
Management plan		X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Application of compression bandage				X				1
Treatment of lymphoedema and lymphatic leaks				X				1

SUPERFICIAL SEPSIS INCLUDING NECROTISING INFECTIONS								
OBJECTIVE	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
Diagnosis and basic management of gas gangrene and other necrotising infections.								
KNOWLEDGE								
Superficial abscess:								
Aetiology		X				X	X	1

Assessment, resuscitation and management of patients with acute abdomen

KNOWLEDGE								
Abdominal anatomy		X				X	X	1
Causes of the acute abdomen		X				X	X	1
Pathophysiology of shock		X				X	X	1
Pathophysiology of peritonitis and sepsis		X				X	X	1
CLINICAL SKILLS								
History and examination	X						X	1
Resuscitation	X	X					X	1
Arrange Investigation (ultrasound, CT)	X	X						1
Indication for surgery		X					X	1
TECHNICAL SKILLS AND PROCEDURES								
Central line insertion under US guidance			X					1
Diagnostic laparotomy			X					1
Diagnostic laparoscopy			X					1
Abdominal lavage			X					1

ACUTE INTESTINAL OBSTRUCTION	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Recognise and manage most cases of postoperative intestinal obstruction in conjunction with abdominal surgeons								
KNOWLEDGE								
Abdominal anatomy		X				X	X	1
Aetiology of intestinal obstruction		X				X	X	1
Pathophysiology of shock / sepsis		X				X	X	1
Differential diagnosis		X				X	X	1
Treatment options		X				X	X	1
CLINICAL SKILLS								
History and examination	X						X	1
Resuscitation	X	X					X	1
Arrange investigation (CT and contrast studies)	X	X					X	1
Nutritional support	X	X					X	1
TECHNICAL SKILLS AND PROCEDURES								
Central line insertion under US guidance			X					1
Laparotomy and division of adhesions				X				1
Small bowel resection				X				1
Large bowel resection/stoma				X				1

GASTROINTESTINAL BLEEDING	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Assessment of all cases of gastrointestinal bleeding, management and referral to subspecialists as needed								
KNOWLEDGE								
Blood loss and hypotension/physiology of hypovolaemia		X				X	X	1
Coagulopathy		X				X	X	1
Recognition of all causes of GI bleeding		X				X	X	1
Role of endoscopy and CT angiography		X				X	X	1
Indications for operation		X				X	X	1
Role of endoscopic procedures and therapeutic radiology		X				X	X	1
Postoperative care and fluid balance		X				X	X	1
CLINICAL SKILLS								
Resuscitation of hypotensive patient	X	X					X	1
HDU care		X					X	1
Clinical assessment of cause of bleeding	X	X					X	1
Organise appropriate endoscopy or other investigation	X						X	1
Advise appropriate surgery	X	X					X	1,2
Recognition of re-bleeding and postoperative problems	X	X					X	1
Treatment of complications	X	X					X	1
TECHNICAL SKILLS AND PROCEDURES								
Laparotomy for bleeding				X				1

ABDOMINAL INJURIES	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Identify and manage the majority of abdominal injuries								
KNOWLEDGE								
Anatomy of abdomen		X				X	X	1
Aetiology		X				X	X	1
Pathophysiology of shock		X				X	X	1
Differences in Children		X				X	X	1
Principles of management of severely injured patients		X				X	X	1,2
Importance of mechanism of injury (gun shot, stabbing, seat belt)		X				X	X	1
Indications for un-crossmatched blood		X				X	X	1
Coagulopathy		X				X	X	1
Pathophysiology of peritonitis and sepsis		X				X	X	1
Principles of damage control surgery		X				X	X	1
CLINICAL SKILLS								
History and examination	X						X	1
Resuscitation	X	X					X	1
Investigation	X	X					X	1
Appropriate use of CT and FAST scanning	X	X					X	1
Indications for intervention		X					X	1
Recognition of injuries requiring other specialties	X	X					X	1

Management of hollow organ injury		X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Central line insertion			X					1
Laparotomy				X				1
Laparoscopy				X				1
Liver trama - debridement / packing				X				1
Pancreatectomy - distal				X				1
Splenectomy				X				1
Splenic repair				X				1
Small bowel repair/resection				X				1
Large bowel resection/stoma				X				1
Nephrectomy				X				1

GASTRIC STASIS, PARALYTIC ILEUS AND CONSTIPATION	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Management of postoperative gastric stasis, pseudo-obstruction and constipation								
KNOWLEDGE								
Normal gastric, small bowel and colonic physiology (including gut hormones and peptides) and the process of defaecation		X				X	X	1
Classification of types and causes of postoperative gastric stasis, pseudo-obstruction and constipation		X				X	X	1
Prokinetic and anti-emetic agents		X				X	X	1
Different types of laxatives and describe the indications, contraindications, modes of action, and complications of each: stimulant, osmotic, bulk-forming, lubricant		X				X	X	1
CLINICAL SKILLS								
Take a history from a patient with postoperative vomiting, abdominal distension or constipation and perform an appropriate physical examination	X						X	1
Arrange appropriate investigations and management	X	X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Insertion of NG tube			X					1

ISCHAEMIC AND INFECTIOUS COLITIS	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Management of ischaemic colitis and clostridium difficile colitis								
KNOWLEDGE								
Vascular anatomy of the colon		X				X	X	1
Epidemiology, aetiology, pathogenesis, investigation, medical management and indications for surgery of ischaemic colitis		X				X	X	1
Epidemiology, aetiology, pathogenesis, investigation and treatment of clostridium difficile colitis		X				X	X	1
CLINICAL SKILLS								
Management of ischaemic and infective colitis		X					X	1,2
Manage ischaemic colitis after abdominal aortic aneurysm repair		X					X	1,2
Management of clostridium difficile		X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Sigmoid colectomy in conjunction with colorectal surgeons				X				1

RETICULO-ENDOTHELIAL SYSTEM	CEX	CBD	DOPS	PBA	MSF	FRCS Section 1	FRCS Section 2	GMP
OBJECTIVE								
Management of conditions affecting the reticulo-endothelial and haemopoetic systems								
KNOWLEDGE								
Causes of lymphadenopathy		X				X	X	1
Indications for elective splenectomy-haemolytic anaemia, ITP, thrombocytopenia, myeloproliferative disorders		X				X	X	1
Indications for emergency splenectomy		X				X	X	1
Sequelae of splenectomy		X				X	X	1
Role of splenic embolisation		X				X	X	1
CLINICAL SKILLS								
Planning appropriate diagnostic tests for lymphatic conditions		X					X	1
Planning appropriate treatment schedule for conditions involving the spleen in consultation with haematologist		X					X	1,2
TECHNICAL SKILLS AND PROCEDURES								
Lymph node FNA			X					1
Lymph node biopsy-groin, axilla			X					1
Block dissection lymph nodes				X				1
Emergency splenectomy				X				1