

Vascular Surgery curriculum
July 2014 mapped to March 2016

VASCULAR PHYSIOLOGY

Areas in which simulation should be used to develop relevant skills

ST4 ST6 ST8

OBJECTIVE

Knowledge of the physiology of the circulation

KNOWLEDGE

Detailed knowledge of the control of blood pressure and factors affecting it

Detailed knowledge of blood flow, haemostasis and the effects of haemorrhage

Detailed knowledge of the effects of ischaemia and reperfusion

Detailed knowledge of microcirculatory and lymphatic physiology

4	4	4	
4	4	4	
4	4	4	
4	4	4	

CLINICAL SKILLS

Able to safely manage a patient in the early post-operative phase after major vascular interventions e.g. cardiac, respiratory and renal monitoring and support

Able to correct clotting abnormalities in patients undergoing vascular interventions

Able to undertake prophylactic and therapeutic anticoagulation

Can explain vascular physiology to patients and colleagues

			Strongly recommended
3	4	4	
3	4	4	
4	4	4	
3	4	4	

TECHNICAL SKILLS

N/A

VASCULAR PATHOLOGY

**Areas in which
simulation should be
used to develop
relevant skills**

OBJECTIVE

Knowledge of the diseases (congenital and acquired) of the circulation

KNOWLEDGE

Is aware of the congenital and pathological conditions that affect the circulation

A detailed knowledge of atherosclerosis and its associated risk factors, venous disease, lymphatic disease, thrombo-embolic disease, vasospastic and vasculitic disease

A detailed understanding of the mechanisms of vascular trauma

Causes of peripheral neuropathy

Alternative causes for limb pain (neurological and musculoskeletal)

ST4	ST6	ST8	
4	4	4	
3	4	4	
3	4	4	
3	4	4	
3	4	4	

CLINICAL SKILLS

Able to take detailed history from patient with arterial or venous disease

Examination of ischaemia and aneurysmal disease

Examination of varicose veins and swollen leg

Can detect pathological arterial and venous abnormalities

Able to prioritise - recognises patients who need to be seen or treated urgently

Selects appropriate investigations tailored to the individual patient

Can explain vascular disease to patients and colleagues

ST4	ST6	ST8	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
3	4	4	Desirable
3	4	4	Desirable
4	4	4	Desirable
4	4	4	Desirable
2	3	3	Desirable

TECHNICAL SKILLS

Hand-held Doppler assessment of varicose veins

Ankle Brachial Pressure Indices and waveform interpretation

Duplex ultrasound assessment of varicose veins

VASCULAR EPIDEMIOLOGY

OBJECTIVE

Knowledge of the epidemiology of vascular disease

KNOWLEDGE

Principles of epidemiology, including basic study design and relevant terms.

Epidemiology of peripheral arterial disease.

Epidemiology of venous disorders including varicose veins and venous thromboembolism.

Epidemiology and interactions of major vascular risk factors including smoking demographics

CLINICAL SKILLS

Explanation of risk factors to a patient with vascular disease

TECHNICAL SKILLS

N/A

ST4 ST6 ST8 Areas in which simulation should be used to develop relevant skills

4	4	4	
4	4	4	
4	4	4	
4	4	4	
3	4	3	Strongly recommended

SCREENING AND SURVEILLANCE

**Areas in which simulation
should be used to develop
relevant skills**

OBJECTIVE

Knowledge of the principles of screening

KNOWLEDGE

Key elements of design and delivery of screening tests in general

AAA screening and surveillance programme

Governance and quality control of AAA screening

EVAR/TEVAR and vein graft surveillance

ST4	ST6	ST8	
4	4	4	
3	4	4	
3	4	4	
3	4	4	Desirable

CLINICAL SKILLS

Counselling a patient undergoing screening or who has a positive screening test

3	4	4	Strongly recommended
2	3	4	Desirable

TECHNICAL SKILLS

Measure AAA diameter in US scan

VASCULAR SURGERY Generic Topics

RISK FACTOR MODIFICATION

				Areas in which simulation should be used to develop relevant skills
OBJECTIVE	ST4	ST6	ST8	

Knowledge of vascular risk factors and risk-factor modification

KNOWLEDGE

Blood pressure control

Lipid lowering therapy

Management of diabetes

Smoking cessation

Antiplatelet and anticoagulant therapy

Exercise and exercise therapy

Dietary factors and weight control

Guidelines for hypertension and hyperlipidaemia management (BHS, NICE, RCP, SIGN)

3	4	4	
3	4	4	
3	3	3	
3	4	4	
3	4	4	
3	4	4	
3	4	4	
2	3	4	

CLINICAL SKILLS

Explanation of risk factor modification to a patient

Ability to assess and prescribe blood pressure and other risk factor medication

Understanding of main drug interactions and side effects of key risk reduction drugs (e.g. statins, antiplatelet agents & anti-hypertensives)

Smoking cessation counselling

Dietary and exercise advice to PAD patients

Interpretation of a lipid screen and other relevant biochemical screens

3	4	4	Strongly recommended
3	3	3	
4	4	4	
3	4	4	
3	4	4	
3	4	4	
4	4	4	

TECHNICAL SKILLS

Set up an insulin sliding scale

VASCULAR CONDITIONS OF CHILDHOOD

				Areas in which simulation should be used to develop relevant skills
OBJECTIVE	ST4	ST6	ST8	

VASCULAR SURGERY Generic Topics

Assessment and management of children with developmental and traumatic conditions of their circulatory system

KNOWLEDGE

Principles of surgery in children			Strongly recommended: Critical Care Child protection		
Vascular conditions of childhood (including trauma and vascular anomalies)	Haemangiomas, venous malformations, AV malformations and lymphatic malformations	2	3	3	Desirable Team-working
Treatment options	Medical	1	3	3	
	Endovascular	1	2	3	
	Surgical	2	3	3	

CLINICAL SKILLS

History and examination of children		2	3	3	
Communication with parents and /or carers		2	3	3	Desirable
Examination of vascular anomalies		1	2	3	
Investigation of vascular anomalies	Hand-held Doppler	1	3	4	Desirable
	Duplex ultrasound	1	2	3	Strongly Recommended IP
	Arteriography	1	2	2	
Management strategy	Medical (including compression)	1	3	4	
	Endovascular	1	2	3	
	Surgical	2	3	3	

TECHNICAL SKILLS

Arterial repair (e.g. following supracondylar fracture)		1	2	3	
Vascular access		1	2	2	

NUTRITION

**Areas in which simulation
should be used to develop
relevant skills**

OBJECTIVE

Recognise the need for artificial nutritional support,
assess whether this is appropriate and arrange treatment

ST4 ST6 ST8

KNOWLEDGE

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

3	3	4	
2	3	4	

CLINICAL SKILLS

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

2	3	4	
2	3	4	
2	3	4	
2	3	4	

TECHNICAL SKILLS

Placement of nasojejunal feeding tube at operation
Insertion of feeding jejunostomy at operation
Insertion of un-tunnelled central venous catheter
Insertion of tunnelled central venous catheter (Hickman
or port)

2	3	4	
2	3	4	
1	3	4	Desirable
1	2	3	

CARDIO-RESPIRATORY DISEASE

**Areas in which
simulation should be
used to develop
relevant skills**

OBJECTIVES

Assessment and management of patients with co-existent cardiac and/or respiratory disease

ST4 ST6 ST8

KNOWLEDGE

Anatomy of the heart and lungs
 Cardio-respiratory physiology
 Cardio-respiratory pathology (IHD, MI, heart failure, COPD, ARDS)
 Prognosis and impact upon patients undergoing major vascular surgery
 Therapeutic options including pharmacology and drug interactions
 Current guidelines on resuscitation
 Define indications for and haemo-dynamic consequences of positive pressure ventilation

3	4	4	
3	4	4	
3	4	4	
3	4	4	
3	3	3	
4	4	4	
3	3	3	

CLINICAL SKILLS

Examination of the heart and lungs
 Select patients who require pre-operative investigations (ECG, echo, MUGA, 24hr tape, CXR, CT, respiratory function, CPX testing)
 Interpretation of results
 Identify patients unsuitable for vascular intervention

4	4	4	
3	4	4	
2	3	4	
2	3	4	

TECHNICAL SKILLS

Arterial blood gas sampling and interpretation of the results
 Basic management of acute MI/heart failure

 Cardiopulmonary resuscitation (ALS)
 Insertion of chest drain and management
 Mini-tracheostomy

4	4	4	Desirable
3	4	4	
4	4	4	Strongly recommended: Life support Critical care ALS/ATLS
4	4	4	
4	4	4	

HAEMATOLOGY

Areas in which
simulation should be
used to develop
relevant skills

OBJECTIVES

Competent in relevant aspects of blood transfusion, bleeding disorders and drugs that affect clotting

KNOWLEDGE

Coagulation and fibrinolysis pathways
Epidemiology, natural history, and molecular basis of haemophilia and thrombophilia
Pharmacology of unfractionated heparin, LMWH, warfarin and antiplatelet agents
Principles of donor selection and preparation of blood components including donor selection, preparation of blood products and viral safety
Coagulation factors and their side effects
Principles of clinical blood transfusion including hazards of blood transfusion, SHOT report and the role of the hospital transfusion committee
Methods of blood conservation including pre-donation and intra-operative cell salvage
Mechanism of DIC, effect of massive, transfusion, renal and hepatic disease

ST4	ST6	ST8	
4	4	4	
3	4	4	
4	4	4	
3	3	3	
4	4	4	
4	4	4	
4	4	4	
3	4	4	

CLINICAL SKILLS

Interpretation of laboratory results
Methods and complications of reversing anti-coagulation in patients with and without haemorrhage
Management of haemophilia and thrombophilia in terms of treatment and prophylaxis before vascular surgery
Initiation and monitoring of anticoagulation
Initiation of antiplatelet therapy in various situations
Appropriate use of blood and blood products
Management of complications from blood transfusion

4	4	4	
3	4	4	
3	3	3	
4	4	4	
3	4	4	
4	4	4	
3	3	3	

TECHNICAL SKILLS

Intra-operative use of heparin, monitoring techniques (TEG) and reversal using protamine

3	4	4	
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CLINICAL AUDIT, RESEARCH & HEALTH ECONOMICS

**Areas in which
simulation should be
used to develop
relevant skills**

OBJECTIVE

An understanding of the relevance of clinical audit, research and health economics to the practice of vascular surgery

KNOWLEDGE

National Vascular Database

Principles of audit and quality control

Principles of clinical research and systematic review

Evidence-based vascular practice

Knowledge of key health economic terms

Important generic QoL tools for venous and arterial disease

Relevance of QALYS and calculation of incremental cost effectiveness ratios

Types of health economic analyses

Planning and budgeting vascular services

ST4	ST6	ST8	
3	4	4	
3	4	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	

CLINICAL SKILLS

Participation in local and national audit of outcomes

Conducting a morbidity and mortality meeting

Conducting a journal club

Participation in clinical research

Presentations at vascular meetings (e.g. VSGBI and ESVS)

Publications in vascular journals (e.g. EJVES and JVS)

Can explain the principles of health economics to patients, colleagues and managers

3	4	4	
3	4	4	
3	4	4	
3	4	4	
3	4	4	
3	4	4	
2	3	4	

TECHNICAL SKILLS

N/A

OUTPATIENT, WARD and MDT MEETINGS

					Areas in which simulation should be used to develop relevant skills
OBJECTIVE					
Assess individual vascular outpatients and inpatients					
Manage an outpatient clinic, ward round and MDT meeting					

KNOWLEDGE					
Individual patient assessment	Relevant vascular anatomy, physiology and clinical knowledge	3	4	4	
Outpatient and inpatient service	Understanding of hospital organisation	2	3	4	
	Understanding of multi-disciplinary team and meetings	3	4	4	
	Relevant guidelines for vascular disease management	2	3	4	

CLINICAL SKILLS					
Individual patient assessment:	Focused history taking and examination	3	4	4	Desirable
	Organise appropriate investigations	3	4	4	
Management of an outpatient clinic, ward round and MDT meeting	Presentation of patients on ward round and at MDT	2	3	4	
	Ability to allocate management of patients to appropriate team members	2	3	4	
	Appropriate referral to other specialists when indicated	2	3	4	
	Liaison with critical care and other support services (e.g. pain team, physiotherapy, rehab)	2	3	4	
	Ability to prioritise urgent patient appointments, investigations and interventions	2	3	4	
	Prompt and clear clinic letters and discharge summaries	3	4	4	

TECHNICAL SKILLS
N/A

PRINCIPLES OF VASCULAR IMAGING

Areas in which simulation should be used to develop relevant skills

ST4 ST6 ST8

OBJECTIVE

Radiation safety, principles and indications for vascular imaging

KNOWLEDGE

Principles of ultrasound, CT and MR imaging and catheter angiography

Dangers of ionizing radiation and safe practice
Monitoring of ionizing radiation and how exposure can be reduced

Regulations and requirements in use of ionizing radiation
Indications and factors determining appropriate investigation for a patient with vascular disease

Vascular contrast agents and associated hazards

3	4	4	Required Component of Specialty Induction)
3	4	4	
3	4	4	
3	4	4	
3	4	4	
3	4	4	

CLINICAL SKILLS

Explanation of various imaging modalities to a patient

Selection of appropriate investigation

Evaluate patient for procedure

Identify factors that increase risk for patient

3	4	4	Strongly recommended
3	4	4	
3	4	4	
3	4	4	

VASCULAR ULTRASOUND

**Areas in which
simulation should be
used to develop
relevant skills**

OBJECTIVE

To understand and be able to perform basic vascular ultrasound

ST4 ST6 ST8

KNOWLEDGE

- Understand the principles of Doppler ultrasound
- Understand limitations of US scanning
- Understand ultrasound spatial resolution in relation to scan plane
- Understand the requirements for imaging different vascular territories
- Ultrasound image interpretation

3	4	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	Required Component of Specialty Induction

CLINICAL SKILLS

Explanation of ultrasound to a patient

3	4	4	Strongly recommended
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TECHNICAL SKILLS

- Able to choose the appropriate ultrasound probe
- Able to optimize grey scale imaging
- Able to optimize colour flow imaging
- Able to optimize pulsed wave settings
- Able to perform superficial venous ultrasound studies
- Able to perform arterial ultrasound studies for intra-operative quality control
- Able to screen for AAA and measure the AP diameter
- Percutaneous puncture of saphenous vein under US control
- Percutaneous puncture of femoral artery under US control

2	3	4	Required Component of Specialty Induction
2	3	4	Required Component of Specialty Induction
2	3	4	Required Component of Specialty Induction
2	3	4	Required Component of Specialty Induction
2	3	4	Required Component of Specialty Induction
2	3	4	
2	3	4	Required Component of Specialty Induction
2	3	4	Required Component of Specialty Induction
2	3	4	Strongly recommended

COMPUTED TOMOGRAPHIC IMAGING

**Areas in which simulation
should be used to develop
relevant skills**

OBJECTIVE

To understand, interpret and manipulate CT imaging and CT angiography

ST4 ST6 ST8

KNOWLEDGE

- Understand how CT images are generated
- Understand concepts of helical and multi-slice scanning
- Understand that scans are performed in the axial plane
- Understand CT spatial resolution
- Recognise X-ray dose and risks associated with study
- Recognise the need to tailor individual scan to clinical problem e.g. AAA elective vs. emergency, mesenteric/renal, carotid, peripheral, venous
- Understand basic principles of image reformatting in various planes
- Understand the principle behind image reconstruction and MIP images
- Understand the use of intravascular and oral contrast agents
- Recognise risks of intravascular contrast and how to avoid them
- Understand common artifacts

2	3	3	
2	3	4	
3	4	4	
2	3	4	
3	3	4	
2	3	4	
2	3	4	
2	2	2	
2	3	4	
3	4	4	
2	4	4	

CLINICAL SKILLS

- Explanation of CT and the risks to a patient
- Able to manage contrast reactions
- Able to recognise normal cross-sectional anatomy
- Able to recognise vascular pathology on scans

3	4	4	Strongly recommended
3	4	4	
3	3	3	Desirable
3	4	4	Desirable

TECHNICAL SKILLS

- Able to manipulate images on the console
- Able to obtain appropriate measurements of blood vessels

1	2	3	Desirable
1	3	4	Strongly recommended

MAGNETIC RESONANCE IMAGING

	ST4	ST6	ST8	Areas in which simulation should be used to develop relevant skills
OBJECTIVE				
To understand, interpret and manipulate MR imaging and MR angiography				
KNOWLEDGE				
Understand how MR images generated	2	2	2	
Recognise the risks of MRI	3	4	4	
Understand that scans are performed in any plane	3	4	4	
Understand MR spatial resolution in relation to scan plane	2	2	4	
Recognise the need to tailor individual scan to clinical problem e.g. AAA elective vs. emergency, mesenteric/renal, carotid, peripheral, venous	2	3	4	
Understand the principles of non contrast MR angiographic techniques	2	2	2	
Understand the principles of contrast enhanced MR angiographic techniques	2	3	3	
Understand basic principles of image reformatting in various planes	2	3	3	
Understand the principle behind image reconstruction and MIP images	2	3	3	
Understands the different types of MR angiographic contrast	2	2	3	
Recognise common MR artifacts	2	3	3	
CLINICAL SKILLS				
Explanation of MRA and the risks to a patient	3	4	4	Strongly recommended
Able to recognize normal cross sectional anatomy	2	2	2	Strongly recommended
Able to recognise vascular pathology on scans	2	3	4	Strongly recommended
TECHNICAL SKILLS				
Able to manipulate images on the console	1	2	3	Desirable
Able to obtain appropriate measurements of blood vessels	1	2	3	Desirable

CATHETER ANGIOGRAPHY

**Areas in which simulation
should be used to develop
relevant skills**

OBJECTIVE

To understand and perform intra-operative catheter angiography

ST4 ST6 ST8

KNOWLEDGE

Commonly used arterial and venous access sites
Commonly used contrast agents, including CO2
Road-mapping, parallax, measurement techniques, hand and power injection
Measures to improve angiographic imaging e.g. breath holding, multi-masking, centering, collimation, frame rate, antegrade etc
Risks of angiography

Guidewire and catheter types, characteristics and indications
Introducer, dilator and sheath types, characteristics and indications

3	4	4	
3	4	4	
2	3	4	
2	3	4	
3	4	4	
2	3	4	Required Component of Specialty Induction
2	3	4	Required Component of Specialty Induction

CLINICAL SKILLS

Explanation of catheter angiography and the risks to a patient

3	4	4	Required Component of Specialty Induction)
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TECHNICAL SKILLS

Retrograde femoral artery puncture

Antegrade femoral artery puncture

Ultrasound guided arterial and venous puncture
Obtains secure vascular access with sheath, flushes catheters and sheaths appropriately
Pressure measurement
Positions guidewire using fluoroscopy and places non selective catheter in aorta
Keep radiation dose to minimum by use of appropriate e.g. fluoroscopy, collimation, runs

Obtain satisfactory intra-operative angiograms
Recognize inadequate study and need for alternative angiographic views

2	3	4	Required Component of Specialty Induction I
2	3	4	Required Component of Specialty Induction
3	3	4	Required Component of Specialty Induction
3	3	4	Required Component of Specialty Induction
2	3	4	
2	3	4	Required Component of Specialty Induction
2	3	4	
2	3	4	Required Component of Specialty Induction
2	3	4	

ENDOVASCULAR PROCEDURES

**Areas in which
simulation should be
used to develop relevant
skills**

OBJECTIVE

To gain endovascular knowledge and skills

KNOWLEDGE

Indications and outcomes for endovascular intervention
The complementary role of endovascular therapy to medical and surgical therapy
Balloon and stent types, characteristics and indications
Stent-graft types, characteristics and indications
Materials used for embolisation, characteristics and indications
Closure devices, characteristics and indications

ST4	ST6	ST8	
2	3	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	

CLINICAL SKILLS

Explanation of endovascular intervention and the risks to a patient
Undertakes preoperative checks and team briefing
Demonstrates good patient, personal and team safety
Ensures good asepsis, especially when prosthetic materials are involved
Good communication with patient and all members of the angio team
Accurate procedural record and post-procedural instructions
Recognizes complications e.g. dissection, embolisation
Uses drugs appropriately e.g. vasodilators, anticoagulants, analgesics, sedatives, anti-peristaltics

ST4	ST6	ST8	
2	3	4	Strongly recommended
3	4	4	
3	4	4	
3	4	4	
3	4	4	Desirable
3	4	4	
2	3	4	
2	3	4	

TECHNICAL SKILLS

Chooses appropriate equipment e.g. catheter , sheath, guidewire, balloon, stent
Perform selective catheterization
Manipulate catheter and wire across stenosis
Performs balloon angioplasty in various vascular territories
Performs primary stenting in various vascular territories
Performs selective embolisation
Use of closure devices

ST4	ST6	ST8	
2	3	4	Required Component of Specialty Induction
2	3	4	Required Component of Specialty Induction
2	3	4	Required Component of Specialty Induction
2	3	4	Required Component of Specialty Induction
2	3	3	Desirable
2	2	3	
2	3	4	Desirable

OPEN VASCULAR SURGERY

	ST4	ST6	ST8	Areas in which simulation should be used to develop relevant skills
OBJECTIVE				
To gain open vascular surgical knowledge and skills				
KNOWLEDGE				
Knows the importance of preoperative checks and team briefing for patient safety	4	4	4	
Antibiotic prophylaxis and anticoagulation	4	4	4	
Blood transfusion and the management of transfusion-related complications	4	4	4	
Intra-operative cell salvage and the use of other blood products	3	4	4	
Principles of local anaesthesia and local blocks e.g. metatarsal	3	4	4	
Common vascular skin incisions and exposures	3	4	4	
Methods of vascular control	3	4	4	
Principles of vascular reconstruction	3	4	4	
Intervention for VVs	3	4	4	
Selection of amputation level	3	4	4	
Types and characteristics of bypass grafts, anastomoses and vascular sutures	3	4	4	
Types and characteristics of vascular instruments	3	4	4	
CLINICAL SKILLS				
Explanation of open vascular surgery and the risks to a patient	3	4	4	Strongly recommended
Demonstrates good patient, personal and team safety	3	4	4	Desirable
Ensures good asepsis, especially when prosthetic materials are involved	3	4	4	
Good communication with patient and all members of the theatre team	3	4	4	Desirable
Accurate procedural record and post-procedural instructions	3	4	4	
TECHNICAL SKILLS				
Wound debridement	3	4	4	Desirable
Local amputation (e.g. toes)	3	4	4	Desirable
Major amputation (e.g. BKA)	2	3	4	Desirable
Harvesting of long saphenous (or other) vein	3	4	4	
Exposure and control of veins (e.g. SFJ)	3	4	4	Desirable
Exposure and control of arteries (e.g. common femoral)	3	4	4	Desirable
Arteriotomy and direct or patch repair	2	3	4	Required Component of Specialty Induction
End-to-end and end-to-side anastomosis	2	3	4	Required Component of Specialty Induction
Embolectomy + on-table arteriogram/thrombolysis	2	3	4	

ACUTE LOWER LIMB ISCHAEMIA

Areas in which
simulation should be
used to develop relevant
skills

OBJECTIVE

Ability to recognise acute lower limb ischaemia and institute emergency management

KNOWLEDGE

Anatomy of arterial system

Lower limb neurology

Pathophysiology of acute limb ischaemia

Embolism

Thrombosis

Trauma (blunt penetrating)

Fractures & dislocations

Iatrogenic injury

Pathophysiology of compartment syndrome

Investigations

Doppler/Duplex

Angiography

Compartment pressures

Intra-operative angiogram

ECG & echocardiogram

Management

Conservative

Embolectomy

Thrombolysis

Primary amputation

ST4	ST6	ST8	
3	4	4	
3	4	4	
3	4	4	
3	4	4	
3	4	4	
2	3	3	
3	4	4	
1	3	4	
3	4	4	
3	4	4	
3	4	4	
2	3	4	
3	4	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	

CLINICAL SKILLS

History

Examination

Co-ordination with trauma team

4	4	4	
4	4	4	
3	4	4	Desirable

TECHNICAL SKILLS

Hand-held Doppler assessment

Duplex ultrasound assessment

Measurement of compartment pressures

Surgical approaches to the arterial tree

Surgical control of lower limb blood vessels

Embolectomy (blind & directed, femoral/popliteal)

On table angiography and thrombolysis

Emergency arterial reconstruction

Vascular shunts

Lower leg fasciotomy

Emergency venous reconstruction

Percutaneous thrombolysis

3	4	4	Desirable
1	2	3	Desirable
3	4	4	
2	3	4	Desirable
2	3	4	Desirable
2	3	4	
1	3	4	Desirable
1	2	4	
2	3	4	
2	3	4	Desirable
1	2	3	
1	2	2	

VASCULAR SURGERY Disease Specific Topics

Percutaneous clot aspiration

1	2	2	
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VASCULAR TRAUMA

**Areas in which
simulation should be
used to develop
relevant skills**

OBJECTIVE

Identification, assessment and management of injuries to blood vessels and associated injuries

ST4 ST6 ST8

KNOWLEDGE

Surgical anatomy relative to fractures, nerves and associated structures

Mechanisms of vascular injury (penetrating, blunt and iatrogenic)

Low energy and high energy transfer injury

Pathophysiology of trauma, muscle ischaemia and shock lung

Pathophysiology of A-V fistula

Investigations for bleeding/ischaemia (Duplex, CTA, on-table arteriography)

Operative approach to specific injuries

Cervical, thoracic, abdominal, limb
Combined arterial and venous
Combined fractures and nerve injury

3	4	4	
3	4	4	
3	4	4	
3	4	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	

CLINICAL SKILLS

Symptoms and signs of acute arterial / venous injury

Investigation (ABPI, Duplex, angiography)

Assessment of multiply injured patient

Manage systemic effects of arterial trauma (e.g. rhabdomyolysis)

3	4	4	Desirable
2	3	4	Desirable
3	4	4	Strongly recommended
2	3	4	

TECHNICAL SKILLS

Arrest haemorrhage by pressure, pack, tourniquet

Recognise and treat sucking chest wound

Chest drain

Proximal vascular control

Emergency thoracotomy

Ligation

Lateral suture repair

End to end anastomosis

Interposition graft

Panel / spiral grafts

Fasciotomy

3	4	4	Desirable
3	3	4	
3	4	4	Strongly Recommended
2	3	4	Desirable
1	2	3	Desirable
2	3	4	Desirable
2	3	4	Desirable
2	3	4	Required Component of Specialty Induction)
1	2	4	Desirable
1	2	3	Desirable
2	3	4	Desirable

VASCULAR SURGERY Disease Specific Topics

Shunts

On-table arteriography

Endovascular balloon control

Embolisation

Insertion of covered stent

2	3	4	Desirable
1	2	2	
1	2	3	
1	1	1	
1	1	2	

CHRONIC LOWER LIMB ISCHAEMIA

**Areas in which
simulation should be
used to develop
relevant skills**

ST4 ST6 ST8

OBJECTIVE

Management of the chronically ischaemic lower limb, including intervention

KNOWLEDGE

Anatomy and embryological development of arteries supplying the lower limb.

Pathology of atherosclerosis, thrombosis and complications.

Pathology of non –atherosclerotic arterial conditions (e.g. fibromuscular dysplasia, Buerger’s disease, vasculitis and pyoderma gangrenosum)

Vascular anomalies (e.g. persistent sciatic artery, cystic adventitial disease and popliteal entrapment)

Role of medical treatment/exercise therapy

Wound dressings & VAC

3	4	4	
3	4	4	
2	4	4	
2	4	4	
3	4	4	
3	4	4	Desirable

CLINICAL SKILLS

Selection for revascularisation or amputation

Management of postoperative wound infection and graft complications

Graft surveillance

Amputation level selection

Rehabilitation after amputation

Lower limb prostheses

2	3	4	
2	3	4	
2	3	4	Desirable
2	3	3	
2	3	3	

TECHNICAL SKILLS

Exposure of infrarenal aorta, iliac, femoral, popliteal, tibial and pedal vessels

Aorto-iliac & aorto-femoral bypass

Axillo-femoral bypass

Femoral and profunda endarterectomy and patch

Ilio-fem and fem-fem bypass

Above and below-knee fem-popliteal bypass

Distal bypass (AT, PT, peroneal & pedal)

Vein preparation in-situ/reversed/arm vein/SSV

Vein cuff / patch

Intra-operative assessment with Doppler and angiography

1	3	4	Strongly recommended
1	2	4	Strongly Recommended
1	2	4	Strongly Recommended
1	3	4	Strongly Recommended
1	3	4	Strongly Recommended
1	3	4	Strongly Recommended
1	2	4	Strongly Recommended
2	4	4	Strongly Recommended
2	4	4	Strongly Recommended
1	3	4	Strongly Recommended

VASCULAR SURGERY Disease Specific Topics

Wound debridement
 Angioplasty/stenting aorta/iliac/SFA/popliteal/tibial
 Sartorius muscle flap
 Digital/ray amputation
 Transmetatarsal/transtibial (Burgess, skew)/through
 knee/above knee amputation
 Hindquarter amputation

3	4	4	Strongly Recommended
1	1	2	Desirable
1	3	4	Desirable
2	4	4	Strongly recommended
			Strongly recommended
1	3	4	
1	2	3	

VASCULAR COMPLICATIONS OF DIABETES

**Areas in which
simulation should be
used to develop
relevant skills**

ST4 ST6 ST8

OBJECTIVE

Assessment and management of patients with complications of diabetes affecting the leg/foot

KNOWLEDGE

Anatomy of the foot
 Complications of diabetes affecting the foot including neuropathy, ulceration, osteomyelitis and Charcot
 Investigations (XRay, ultrasound & MR of foot, arteriography)
 Prevention of complications
 Orthotic devices and principles of offloading
 Interpretation of microbiology data and selection of antibiotics
 Emergency treatment for infection
 Revascularisation procedures

3	4	4	Strongly recommended
3	4	4	
3	4	4	
3	4	4	
3	4	4	
3	4	4	
3	4	4	
2	4	4	

CLINICAL SKILLS

Explanation of principles of foot care to diabetic patients
 Examination of diabetic foot/ulceration
 ABPI, pole test, 10g monofilament test
 Setting up a sliding scale

3	4	4	Strongly recommended
3	4	4	
3	4	4	
4	4	4	
2	3	4	Strongly Recommended
3	4	4	Strongly Recommended

TECHNICAL SKILLS

Surgical debridement of foot
 Wound care

VASCULAR DISEASE OF THE UPPER LIMB

Areas in which
simulation should be
used to develop
relevant skills

OBJECTIVE

Ability to recognise and manage: (i) acute upper limb ischaemia, (ii) chronic upper limb ischaemia and (iii) thoracic outlet syndrome

KNOWLEDGE

		ST4	ST6	ST8	
Anatomy	Upper limb vasculature	3	4	4	
	Upper limb neurology	3	4	4	
Pathology	Thoracic outlet	2	3	4	
	Thromboembolic disease	3	4	4	
	Atherosclerotic disease	3	4	4	
	Thoracic outlet syndrome	2	3	4	
	Subclavian steal syndrome	2	3	4	
	Vasospastic disease	2	3	4	
	Trauma	2	3	4	
Management	Conservative (physiotherapy)	2	3	4	
	Pharmacological (anticoagulant/prostacyclin)	2	3	4	
	Endovascular (angioplasty/stent)	2	3	4	
	Surgical (rib resection, embolectomy, bypass)	2	3	4	

CLINICAL SKILLS

Take a relevant history and examine the upper limb vessels and nerves including provocation tests
Role of Doppler, duplex ultrasound, CT, MRA and conventional angiography.
Selection for surgical/endovascular intervention

3	4	4	
3	4	4	
2	3	4	

TECHNICAL SKILLS

Exposure of subclavian, vertebral, axillary, brachial and radial arteries
Brachial embolectomy
Subclavian aneurysm repair
Subclavian to brachial bypass
Subclavian transposition
Subclavian to carotid bypass
Excision of cervical rib
Thoracic outlet decompression (supraclavicular, infraclavicular and transaxillary approaches)
Intra-operative arteriography and thrombolysis

1	3	4	Desirable
2	3	4	Desirable
1	2	3	
1	2	3	Desirable
1	2	3	Desirable
1	2	3	Desirable
1	2	3	Desirable
1	3	4	
1	1	2	

Subclavian artery angioplasty/ stenting

HYPERHYDROSIS

**Areas in which
simulation should be
used to develop relevant
skills**

OBJECTIVE

Assessment and management of patients with hyperhidrosis (palmar and axillary)

ST4 ST6 ST8

KNOWLEDGE

Anatomy and physiology of sympathetic nervous system

Pathophysiology of hyperhidrosis

Treatment options (antiperspirants, iontophoresis, thoracoscopic sympathectomy, botox, curettage)

3	4	4	
3	4	4	
3	4	4	

CLINICAL SKILLS

History and examination

Management strategy

3	4	4	
2	3	4	

TECHNICAL SKILLS

Axillary Botox therapy

Thoracoscopic sympathectomy

Axillary curettage

1	2	3	
1	2	3	
1	2	3	

VASOSPASTIC DISORDERS AND VASCULITIS

Areas in which
simulation should be
used to develop relevant
skills

OBJECTIVE

Assessment and management of patients with vasospastic disorders (primary and secondary) and vasculitis

ST4 ST6 ST8

KNOWLEDGE

Anatomy and physiology of sympathetic nervous system
Pathophysiology of primary and secondary vasospastic disorders (e.g. Raynaud’s disease, thoracic outlet compression, Vibration White Finger)
Connective tissue disease (systemic sclerosis, SLE, rheumatoid arthritis)
Vasculitis (Buerger’s disease, Takayasu’s, giant cell arteritis, PAN, HIV, TB)
Investigations (Cold provocation, blood tests, nail-fold capillaroscopy)
Treatment options (Cold avoidance, smoking cessation, vasodilators (e.g. calcium channel blockers), digital sympathectomy, chemotherapy, retroviral therapy)

3	4	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	

CLINICAL SKILLS

History and examination
Management strategy

3	4	4	
2	3	4	

TECHNICAL SKILLS

Skin biopsy
Digital sympathectomy
Thoracic outlet decompression

2	4	4	Strongly Recommended
1	1	1	
1	2	3	Desirable

CAROTID ARTERY DISEASE

**Areas in which
simulation should be
used to develop
relevant skills**

OBJECTIVE

Assessment and management of patients with cerebrovascular disease. Surgical management of patients with carotid artery territory symptoms

KNOWLEDGE

Anatomy and pathophysiology of stroke
 Classification of stroke
 Stroke severity score
 Definition of TIA and differential diagnosis
 Aetiology and epidemiology of stroke
 Guidelines for management of hypertension and hyperlipidaemia (BHS, NICE, RCP, SIGN)
 Indications and use of investigations (CT/A, MRI/A, carotid duplex, echocardiogram)
 Indications for medical or interventional treatment
 Acute intervention including thrombolysis
 Stroke prevention (antiplatelets, anticoagulants)
 Selection for carotid endarterectomy and stenting
 Carotid body tumours
 Carotid dissection
 Carotid trauma

ST4	ST6	ST8	
3	4	4	
2	4	4	
2	4	4	
3	4	4	
2	4	4	
2	4	4	
2	4	4	
2	4	4	
2	4	4	
1	4	4	
1	4	4	
1	2	3	
1	2	3	
1	2	4	

CLINICAL SKILLS

Medical management (antiplatelet agents, hypertension, hyperlipidaemia)
 Communication of risks and benefits of intervention
 Assess post-op complications (stroke, bleeding, airway obstruction, cranial nerve injury)

3	4	4	
3	4	4	Strongly recommended
3	4	4	

TECHNICAL SKILLS

Cervical block
 Standard and retrojugular approach
 Standard and eversion endarterectomy
 Use of carotid shunts
 Distal intimal tacking sutures
 Primary and patch closure
 Use and interpretation of intra-operative quality control: (angioscopy, duplex ultrasound or completion arteriography)
 Re-do carotid endarterectomy
 Placement of guidewire and catheter
 Placement of cerebral protection device
 Endovascular stent

1	2	3	
1	3	4	Desirable
1	3	4	Desirable
1	3	4	Desirable
1	3	4	Desirable
1	3	4	Desirable
1	3	4	Desirable
1	2	3	
1	1	2	
1	1	2	
1	1	2	

VASCULAR SURGERY Disease Specific Topics

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ANEURYSM - ELECTIVE

**Areas in which
simulation should be
used to develop
relevant skills**

OBJECTIVE

Assessment and management of elective aneurysms

ST4 ST6 ST8

KNOWLEDGE

Anatomy of aorta and main branches
 Pathology of aortic aneurysms (atherosclerotic inflammatory, mycotic, collagen disorders, post-dissection, vasculitic)
 Aortic dissection
 Thoracoabdominal aneurysms
 Pathology of other aneurysms (popliteal, visceral, carotid, subclavian, false aneurysms)
 Investigation – US, CT A, MRA and PET
 Treatment options (medical, open, EVAR, hybrid)

4	4	4	
3	4	4	
2	3	4	
2	3	4	
2	3	4	
3	4	4	
2	3	4	

CLINICAL SKILLS

History and examination, palpation of aorta
 Assessment of comorbidity, cardiorespiratory/renal
 Endovascular planning

 Ability to recognise/manage postop. complications: bleeding, thrombosis, embolism, organ failure, endoleak, infection

3	4	4	
3	4	4	
2	3	4	Strongly recommended
2	3	4	

TECHNICAL SKILLS

Open repair infrarenal AAA

 Inflammatory AAA repair
 Internal iliac aneurysm repair
 Juxta-renal AAA repair
 Supra-renal AAA repair
 Thoraco-abdominal aneurysm open repair
 Thoraco-abdominal aneurysm hybrid repair
 Popliteal aneurysm repair
 Visceral aneurysm repair
 Carotid aneurysm repair
 Subclavian aneurysm repair
 Repair femoral false aneurysm
 Re-operation for infected graft

 Endovascular repair infrarenal AAA
 Internal iliac artery/aneurysm coiling
 Aorto-uniliac stent-graft, iliac occluder & crossover graft
 Juxta-renal or suprarenal AAA – fenestrated /branched stent

1	3	4	Strongly Recommended
1	2	3	
1	2	3	
1	2	3	Desirable
1	2	3	Desirable
1	2	2	
1	2	2	
1	3	4	
1	2	3	
1	2	3	
1	2	3	
2	3	4	
1	2	3	
2	3	4	Required Component of Specialty Induction
2	2	3	
2	3	4	Desirable
2	2	3	Desirable

VASCULAR SURGERY
Disease Specific Topics

Thoracic aneurysm/dissection stentgraft
Correction of endoleak
Stenting of peripheral/visceral aneurysm

2	3	3	Desirable
2	2	3	
2	2	3	

ANEURYSM - EMERGENCY

**Areas in which
simulation should be
used to develop relevant
skills**

OBJECTIVE

Assessment and management of emergency aneurysms

ST4 ST6 ST8

KNOWLEDGE

- Risk factors for aneurysm rupture
- Appropriate/timely investigation of an emergency aneurysm (acute/ruptured)
- Open and endovascular treatment options
- Surgical methods of immediate aortic control - supra- coeliac and infrarenal
- Intra-abdominal compartment syndrome

4	4	4	
3	4	4	Desirable
3	4	4	Desirable
3	4	4	
3	4	4	

CLINICAL SKILLS

- History and examination
- Assessment of co-morbidity
- Selection of patients for conservative management, open or endovascular repair
- Recognise/manage complications

4	4	4	
3	4	4	
2	3	4	Desirable
2	3	4	

TECHNICAL SKILLS

- Open repair ruptured infrarenal AAA
- Suprarenal/supracoeliac clamp
- Femoral thrombectomy and or additional lower limb revascularisation.
- Balloon control of aorta
- Endovascular repair ruptured infrarenal AAA
- Endovascular stenting of acute aortic dissection
- Endovascular stenting of acute aortic transection
- Aorto-uniliac stent-graft, iliac occluder and crossover graft

1	2	4	
1	3	4	Desirable
1	2	4	
1	2	4	
1	2	3	Desirable
1	1	2	Desirable
1	1	2	Desirable
1	2	2	

VASCULAR ACCESS (VA)

**Areas in which
simulation should be
used to develop
relevant skills**

OBJECTIVE

To describe need for VA, common methods of VA, establish VA and manage complications of VA

ST4 ST6 ST8

KNOWLEDGE

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

3	4	4	
3	4	4	
3	4	4	
2	3	4	
2	3	4	
3	4	4	
2	3	4	

CLINICAL SKILLS

Pre-operative assessment and choice of VA
Arrange appropriate investigations
Ultrasound assessment of patient needing vascular access

1	2	4	
1	2	4	
1	1	3	

TECHNICAL SKILLS

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

1	2	4	Desirable
1	2	4	Desirable
1	2	4	Desirable
1	2	3	Desirable
1	2	3	Desirable
1	2	3	
1	2	3	
1	2	3	
1	2	4	
1	2	3	
1	1	3	
1	1	2	
1	2	3	Desirable
1	2	3	Strongly Recommended
2	3	4	Strongly Recommended

RENOVASCULAR DISEASE AND TRANSPLANTATION

**Areas in which
simulation should be
used to develop
relevant skills**

OBJECTIVE

Knowledge and management of vascular problems related to renal disease and vascular surgical problems in patients with renal disease and renal transplantation

ST4 ST6 ST8

KNOWLEDGE

- Renal & reno-vascular anatomy
- Role of kidney in control of blood pressure
- Role of kidney in calcium homeostasis
- Pathophysiology of chronic kidney disease
- Pathophysiology of acute kidney injury
- Pre-renal: shock, trauma, sepsis, atherosclerosis
- Renal: intrinsic renal disease, toxins
- Post renal: obstruction, stone, tumour

2	3	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	
2	3	4	

CLINICAL SKILLS

- Pre-operative assessment
- Arrange appropriate investigations
- Role of CT angiography in assessing renal disease
- Indications for renal angiography/angioplasty
- Indications for retrograde Ureteric imaging
- Indications for isotope renography
- Indications for selective renal vein sampling
- Indications for renal biopsy

2	3	4	
1	2	4	
2	3	4	
2	3	4	
1	2	3	
2	3	3	
2	3	3	
2	3	3	

TECHNICAL SKILLS

- Open approach to kidney
- Laparoscopic approach to kidney
- Exposure of renal vessels
- Renal artery Endarterectomy/bypass
- Open surgical nephrectomy
- Radiological access to renal arteries
- Renal artery embolisation
- Renal artery angioplasty

2	3	4	Desirable
1	2	2	
2	3	4	Desirable
2	3	3	
1	2	3	
1	2	3	Desirable
1	2	2	
1	2	2	

VASCULAR SURGERY
Disease Specific Topics

Living kidney donor nephrectomy open/laparoscopic
Renal autotransplant
Renal allotransplant
Transplant nephrectomy

1	2	2	
1	2	3	
1	2	3	
1	1	2	

MESENTERIC VASCULAR DISEASE

**Areas in which
simulation should be
used to develop
relevant skills**

OBJECTIVE

Assessment and management of patients with acute and chronic mesenteric ischaemia

ST4 ST6 ST8

KNOWLEDGE

- Anatomy of mesenteric arterial and venous system
- Physiology of mesenteric vasculature
- Pathophysiology of mesenteric ischaemia
- Presentation of mesenteric vascular disease - acute and chronic
- Investigation - Mesenteric angiography, CT
- Treatment - Medical, surgical, endovascular
- Complications

3	4	4	
3	4	4	
3	4	4	
3	4	4	
2	3	4	Desirable
1	2	3	
2	3	4	

CLINICAL SKILLS

- History and examination of acute and chronic presentation
- Resuscitation
- Interpretation of investigations
- General management

2	3	4	
3	4	4	
2	3	4	
2	3	4	

TECHNICAL SKILLS

- Radiological intervention
(lysis, angioplasty, stenting)
- Mesenteric thromboembolectomy
- Mesenteric bypass

1	1	1	
1	2	3	
1	2	3	

DEEP VENOUS THROMBOSIS

Areas in which simulation should be used to develop relevant skills

OBJECTIVE

Assessment and management of patient with deep venous thrombosis

ST4 ST6 ST8

KNOWLEDGE

Anatomy of deep veins lower limb / pelvis
 Pathophysiology of thrombosis and DVT
 Management of uncomplicated DVT
 Early / late complications of DVT
 Thrombophilia
 Thromboprophylaxis
 Investigations (Ultrasound, duplex, V/Q scans, CTPA)
 Indications for intervention (caval filters, thrombolysis, surgical thrombectomy)

3	4	4	
2	3	4	
3	4	4	
2	3	4	
2	3	4	
4	4	4	
3	4	4	
2	3	4	

CLINICAL SKILLS

History and examination
 Investigation (Duplex, interpretation MRV and CTPA)

4	4	4	
2	3	4	Desirable
2	4	4	

TECHNICAL SKILLS

Endovenous therapy (thrombolysis)
 Venous thrombectomy
 Insertion and removal of caval filter

1	2	3	
1	2	3	
1	2	2	

DEEP VENOUS INSUFFICIENCY

**Areas in which simulation should
be used to develop relevant
skills**

OBJECTIVE

Assessment and management of patient with deep venous insufficiency

ST4 ST6 ST8

KNOWLEDGE

Pathology of deep venous insufficiency (DVT, valvular dysfunction, valvular agenesis)

Management options (compression systems, valvuloplasty, valve transplant, bypass, amputation)

2	3	4	
2	3	4	

CLINICAL SKILLS

History - identify risk factors

Examination - diagnose complications

Investigation – Duplex, venography, plethysmography)

2	4	4	
2	4	4	
2	3	4	

TECHNICAL SKILLS

Apply compression bandage

Biopsy of leg ulcer

Perforator ligation

Deep venous reconstruction

Venous bypass (e.g. Palma)

Iliac venous stent

2	3	4	
2	4	4	
1	3	4	
1	2	3	
1	2	3	
1	1	1	

LYMPHOEDEMA

**Areas in which simulation
should be used to develop
relevant skills**

ST4 ST6 ST8

OBJECTIVE

Assessment and management of patients with lymphoedema

KNOWLEDGE

Anatomy of lymphatic system

Physiology

Pathophysiology

Classification of lymphoedema (primary and secondary)

Clinical features

Complications - chronic effects

Investigation – lymphoscintigraphy, lymphangiogram,
CT/ MRI

Management – manual compression, compression bandaging,
compression hosiery, surgical options

2	3	4	
2	3	4	
2	3	4	
1	3	4	
2	3	4	
1	3	4	
1	3	4	
1	3	4	

CLINICAL SKILLS

History and examination

Interpretation of investigations

Management plan

2	3	4	
1	3	4	
1	2	4	

TECHNICAL SKILLS

Application of compression bandage

Treatment of lymphocoeles and lymphatic leaks

1	2	3	Desirable
2	3	4	

VASCULAR SURGERY

Abdominal and General Surgery Topics

SUPERFICIAL SEPSIS INCLUDING NECROTISING INFECTIONS

Areas in which simulation
should be used to develop
relevant skills

OBJECTIVE

Diagnosis and basic management of gas gangrene and other necrotising infections.

KNOWLEDGE

Superficial abscess

Aetiology
Bacteriology
Treatment (aspiration or incision and drainage)

ST4	ST6	ST8	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	

Cellulitis

Aetiology
Bacteriology
Antibiotic therapy

Gas gangrene and other necrotising Infections

Aetiology
Bacteriology
Risk factors (diabetes, atherosclerosis, steroids and immunocompromised)
Antibiotic therapy and debridement

Mechanisms of septic shock

Appropriate antibiotic therapy

Necrotising fasciitis

CLINICAL SKILLS

Superficial abscess

History, examination and management

Cellulitis

History, examination and management

Necrotising fasciitis

History, examination and management

4	4	4	
4	4	4	
4	4	4	

TECHNICAL SKILLS

Superficial abscess

Abscess drainage or aspiration under ultrasound control

Necrotising fasciitis

Debridement or radical excisional surgery

2	3	3	Desirable
2	3	4	Desirable

VASCULAR SURGERY
Abdominal and General Surgery Topics

ABDOMINAL WALL

	ST4	ST6	ST8	Areas in which simulation should be used to develop relevant skills
OBJECTIVE Management of abnormalities of the abdominal wall, excluding hernia				
KNOWLEDGE Anatomy of the abdominal wall	4	4	4	
Pathology of acute and chronic conditions (haematoma, sarcoma, desmoid tumours)	4	4	4	
CLINICAL SKILLS Ability to determine that a swelling is in the abdominal wall	3	4	4	
Initiate appropriate investigation (e.g. ultrasound, biopsy)	3	4	4	
TECHNICAL SKILLS Conservative management of haematoma	3	4	4	

VASCULAR SURGERY

Abdominal and General Surgery Topics

LAPAROSCOPIC SURGERY

**Areas in which simulation
should be used to develop
relevant skills**

ST4 ST6 ST8

OBJECTIVE

To understand the principles of laparoscopic surgery including technical aspects and common complications

KNOWLEDGE

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

4	4	4	
4	4	4	
4	4	4	
4	4	4	
3	3	3	
3	3	3	
4	4	4	
3	3	3	

CLINICAL SKILLS

Pre and postoperative management of laparoscopic cases

4	4	4	
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TECHNICAL SKILLS

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

4	4	4	Desirable
3	3	3	Strongly recommended
3	3	3	
3	3	3	

VASCULAR SURGERY

Abdominal and General Surgery Topics

ELECTIVE HERNIA

Areas in which
simulation should be
used to develop relevant
skills

ST4 ST6 ST8

OBJECTIVE

Diagnosis and management, including operative management of primary and most recurrent abdominal wall hernia

KNOWLEDGE

Anatomy of inguinal region including inguinal canal, femoral canal, abdominal wall and related structures e.g. adjacent retro-peritoneum and soft tissues.

Relationship of structure to function of anatomical structures.

Natural history of abdominal wall hernia including presentation, course and possible complications

Treatment options

Current methods of operative repair including open mesh, laparoscopic mesh and posterior wall plication, to include the underlying principles, operative steps, risks, benefits, complications and process of each

4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	

CLINICAL SKILLS

Diagnose and assess a patient presenting with common abdominal wall hernias, including inguinal, femoral, epigastric, umbilical and paraumbilical.

Supervise the postoperative course

4	4	4	
4	4	4	

TECHNICAL SKILLS

Hernia repair-femoral

Hernia repair-inguinal

Hernia repair-incisional

Hernia repair- TEPS

Hernia repair- TAPS

3	3	3	
3	3	3	Strongly Recommended
3	3	3	
3	3	3	
3	3	3	

ACUTE ABDOMEN

ST 4 ST 6 ST 8 **Areas in which simulation should be used to develop relevant skills**

OBJECTIVE

Assessment, resuscitation and management of patients with acute abdomen

KNOWLEDGE

Abdominal anatomy
Causes of the acute abdomen
Pathophysiology of shock
Pathophysiology of peritonitis and sepsis

4	4	4	
4	4	4	
4	4	4	
4	4	4	

CLINICAL SKILLS

History and examination
Resuscitation
Arrange Investigation (ultrasound, CT)
Indication for surgery

4	4	4	Desirable
4	4	4	Desirable
4	4	4	
4	4	4	

TECHNICAL SKILLS

Central line insertion under US guidance
Diagnostic laparotomy
Diagnostic laparoscopy
Abdominal lavage

3	3	3	Strongly Recommended
4	4	4	Desirable
3	3	3	Strongly Recommended
4	4	4	

ACUTE INTESTINAL OBSTRUCTION

	ST4	ST6	ST8	Areas in which simulation should be used to develop relevant skills
OBJECTIVE				
Recognise and manage most cases of postoperative intestinal obstruction in conjunction with abdominal surgeons				
KNOWLEDGE				
Abdominal anatomy	4	4	4	
Aetiology of intestinal obstruction	4	4	4	
Pathophysiology of shock / sepsis	4	4	4	
Differential diagnosis	4	4	4	
Treatment options	4	4	4	
CLINICAL SKILLS				
History and examination	4	4	4	
Resuscitation	4	4	4	
Arrange investigation (CT and contrast studies)	4	4	4	
Nutritional support	4	4	4	
TECHNICAL SKILLS				
Central line insertion under US guidance	3	3	3	Strongly Recommended
Laparotomy and division of adhesions	4	4	4	
Small bowel resection	4	4	4	Strongly Recommended
Large bowel resection/stoma	3	3	3	

GASTROINTESTINAL BLEEDING

	ST4	ST6	ST8	Areas in which simulation should be used to develop relevant skills
OBJECTIVE				
Assessment of all cases of gastrointestinal bleeding, management and referral to subspecialists as needed				
KNOWLEDGE				
Blood loss and hypotension/physiology of hypovolaemia	4	4	4	
Coagulopathy	4	4	4	
Recognition of all causes of GI bleeding	4	4	4	
Role of endoscopy and CT angiography	3	3	3	
Indications for operation	3	3	3	
Role of endoscopic procedures and therapeutic radiology	3	3	3	
Postoperative care and fluid balance	4	4	4	
CLINICAL SKILLS				
Resuscitation of hypotensive patient	4	4	4	Desirable
HDU care	3	3	3	
Clinical assessment of cause of bleeding	4	4	4	
Organise appropriate endoscopy or other investigation	4	4	4	
Advise appropriate surgery	3	3	3	
Recognition of re-bleeding and postoperative problems	3	3	3	
Treatment of complications	3	3	3	
TECHNICAL SKILLS				
Laparotomy for bleeding	3	3	3	

ABDOMINAL INJURIES

	ST 4	ST6	ST 8	Areas in which simulation should be used to develop relevant skills
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OBJECTIVE

Identify and manage the majority of abdominal injuries

KNOWLEDGE

Anatomy of abdomen
 Aetiology
 Pathophysiology of shock
 Differences in Children
 Principles of management of severely injured patients
 Importance of mechanism of injury (gun shot, stabbing, seat belt)
 Indications for un-crossmatched blood
 Coagulopathy
 Pathophysiology of peritonitis and sepsis
 Principles of damage control surgery

4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	
4	4	4	

CLINICAL SKILLS

History and examination
 Resuscitation
 Investigation
 Appropriate use of CT and FAST scanning
 Indications for intervention
 Recognition of injuries requiring other specialties
 Management of hollow organ injury

4	4	4	Strongly Recommended
4	4	4	Strongly Recommended
4	4	4	Strongly Recommended
4	4	4	Strongly Recommended
4	4	4	Strongly Recommended
4	4	4	Strongly Recommended
3	3	3	Strongly Recommended

TECHNICAL SKILLS

Central line insertion
 Laparotomy
 Laparoscopy
 Liver trauma - debridement / packing
 Pancreatectomy - distal

3	3	3	Strongly Recommended
4	4	4	Desirable
3	3	3	Desirable
2	2	2	Desirable
2	2	2	

Splenectomy
 Splenic repair

Small bowel repair/resection
 Large bowel resection/stoma
 Nephrectomy

3	3	3	Desirable
2	2	2	
4	4	4	Strongly Recommended
3	3	3	
2	2	2	

GASTRIC STASIS, PARALYTIC ILEUS AND CONSTIPATION

Areas in which simulation should be used to develop relevant skills

ST4 ST6 ST8

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
 Classification of types and causes of postoperative gastric stasis, pseudo-obstruction and constipation
 Prokinetic and anti-emetic agents
 Different types of laxatives and describe the indications, contraindications, modes of action, and complications of each: stimulant, osmotic, bulk-forming, lubricant

4	4	4	
4	4	4	
4	4	4	
4	4	4	

CLINICAL SKILLS

Take a history from a patient with postoperative vomiting, abdominal distension or constipation and perform an appropriate physical examination
 Arrange appropriate investigations and management

4	4	4	
4	4	4	

TECHNICAL SKILLS

Insertion of NG tube

4	4	4	
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ISCHAEMIC AND INFECTIOUS COLITIS

	ST4	ST6	ST8	Areas in which simulation should be used to develop relevant skills
OBJECTIVES				
Management of ischaemic colitis and clostridium difficile colitis.				
KNOWLEDGE				
Vascular anatomy of the colon	4	4	4	
Epidemiology, aetiology, pathogenesis, investigation, medical management and indications for surgery of ischaemic colitis	4	4	4	
Epidemiology, aetiology, pathogenesis, investigation and treatment of clostridium difficile colitis	4	4	4	
CLINICAL SKILLS				
Management of ischaemic and infective colitis	4	4	4	
Manage ischaemic colitis after abdominal aortic aneurysm repair	3	3	4	
Management of clostridium difficile	4	4	4	
TECHNICAL SKILLS				
Sigmoid colectomy in conjunction with colorectal surgeons	3	3	3	

RETICULO-ENDOTHELIAL SYSTEM

Areas in which
simulation
should be
used to
develop
relevant skills

ST4 ST6 ST8

OBJECTIVE

Management of conditions affecting the reticulo-endothelial and haemopoetic systems.

KNOWLEDGE

Causes of lymphadenopathy

Indications for elective splenectomy-haemolytic anaemia, ITP, thrombocytopenia, myeloproliferative disorders

Indications for emergency splenectomy

Sequelae of splenectomy

Role of splenic embolisation

3	3	4	
3	3	3	
4	4	4	
4	4	4	
3	3	3	

CLINICAL SKILLS

Planning appropriate diagnostic tests for lymphatic conditions

Planning appropriate treatment schedule for conditions involving the spleen in consultation with haematologist

3	3	3	
2	3	3	

TECHNICAL SKILLS

Lymph node FNA

Lymph node biopsy-groin, axilla

Block dissection lymph nodes

Emergency splenectomy

4	4	4	Desirable
4	4	4	Desirable
1	2	3	
3	3	3	