Guide to the Intercollegiate MRCS Examination

February 2012

The Intercollegiate Committee for Basic Surgical Examinations (ICBSE) has produced this guide to the Intercollegiate MRCS Examination. It contains the following sections:

Section 1 – Background and overview  Page 3
Section 2 – Recommended textbooks and other resources  Page 5
Section 3 – Topics and skills that may be examined in the MRCS  Page 7
Section 4 – The Intercollegiate MRCS Examination  Page 20
Section 5 – Part A information and sample questions  Page 22
Section 6 – Part B information and sample questions  Page 31

ICBSE gratefully acknowledges the contribution of the following to the production of this guide: the Intercollegiate Surgical Curriculum Programme contributors, the MCQ paper panel, the Question Quality group, the OSCE subgroup, the MRCS Syllabus group and the MRCS examination departments of the surgical Royal Colleges.

Note that this guide is a living document that will change over time. Please check the Intercollegiate MRCS website for updates: http://www.intercollegiatemrcs.org.uk

PLEASE NOTE:

Reference to the option of “nominated specialty choices” is only relevant to those candidates sitting the OSCE in the UK. It is not relevant to those candidates sitting the Part B (OSCE) in Singapore.
Section 1 – Background and overview

Background

The complete MRCS syllabus is contained within the General Medical Council (GMC)-approved curriculum for the Early Years of Surgical Training in the United Kingdom and reflects the Core Surgical Training Syllabus of the Intercollegiate Surgical Curriculum Project (http://www.iscp.ac.uk). The curriculum is competence-based, requiring the trainee to demonstrate both applied and theoretical knowledge and practical skills, together with the professional behaviours described in the Good Medical Practice document of the General Medical Council of the United Kingdom (http://www.gmc-uk.org/).

The MRCS examination is an integral part of this Early Years training programme and is a requirement for progression to higher surgical training in the United Kingdom together with a satisfactory progression of training evaluated using the workplace-based assessments in the trainee’s Annual Review of Competency Progression (ARCP).

A central aim of the MRCS examination is to test aspiring surgeons over a broad range of surgical conditions and not just the area of surgery they hope to train in. ICBSE believes that many aspects of the different surgical specialties require the same core areas of applied basic knowledge and skills and that these are essential both for successful higher training and to achieve a surgeon’s full clinical and academic potential.

This guide has been produced in order to indicate to candidates and their tutors the extent and level of knowledge that is required to pass the MRCS examination. Each examination will contain a range of questions that cover a representative sample of the syllabus but not every topic will be tested on each occasion.
**Overview**

The purpose of core training (CT1–CT2), and early years training in the run-through specialties (ST1–ST2), is to provide trainee surgeons with the essential knowledge and skills common to all surgical specialties. During the early years of training some additional specialty-specific experience and skills will inevitably be obtained. However, the MRCS examination will only test knowledge at the level expected of all trainees completing core training irrespective of their chosen specialty.

The syllabus is divided into 10 modules:

- **Module 1** Basic science knowledge relevant to surgical practice
- **Module 2** Common surgical conditions
- **Module 3** Basic surgical skills
- **Module 4** The assessment and management of the surgical patient
- **Module 5** Perioperative care of the surgical patient
- **Module 6** Assessment and early treatment of the patient with trauma
- **Module 7** Surgical care of the paediatric patient
- **Module 8** Management of the dying patient
- **Module 9** Organ and tissue transplantation
- **Module 10** Professional behaviour and leadership skills
Section 2 – Recommended textbooks and other resources

Basic science textbooks

Anatomy

Physiology

Pathology

Clinical textbooks

Courses and websites
ATLS course
CCrISP course
Intercollegiate basic surgical skills course


The knowledge required for the MRCS examination

As a guide, the level of knowledge required to pass the MRCS examination can be obtained by studying the recommended texts listed above. Trainees should have mastery of the subjects outlined in the syllabus to the depth covered within these texts and should be able to make use of that knowledge in the context of surgical practice.

The curriculum and MRCS examination require a professional approach from surgical trainees. It is expected that trainees will read beyond these recommended texts and, where appropriate, make critical use of original papers and review articles in the related scientific and clinical literature, so that they may aspire to achieve an excellent standard in their surgical practice.
The recommended texts provide a clear guide to the extent and depth of knowledge required but alternative text books and online publications may suffice. Over time, changes in the curriculum and syllabus will inevitably occur, and it is anticipated that those who manage this process will provide an up-to-date list of relevant recommended texts.
Section 3 – Topics and skills that may be examined in the MRCS

Module 1 Basic sciences

Objective
To acquire and demonstrate sufficient knowledge of the basic scientific principles within the six categories listed below to understand, investigate and manage the common surgical conditions specified in module 2:
1. applied surgical anatomy
2. applied surgical physiology
3. applied pharmacology (centred around the safe prescribing of common drugs)
4. surgical pathology (principles underlying system-specific pathology)
5. surgical microbiology
6. imaging (principles, advantages and disadvantages of various diagnostic and interventional imaging methods)

Knowledge

1. Anatomy
   • Regional anatomy of thorax, abdomen, pelvis, perineum, limbs, spine, head and neck.
   • Microscopic anatomy of tissues and organs of surgical relevance.
   • Surgically related embryology and development.
   • Surface anatomy.
   • Imaging anatomy.

2. Physiology
   • General physiological principles including:
     o homeostasis
     o thermoregulation
     o metabolic pathways and abnormalities
     o blood loss and hypovolaemic shock
     o sepsis and septic shock
     o fluid balance and fluid replacement therapy
     o acid–base balance
     o bleeding and coagulation
     o nutrition.
   • The physiology of specific organ systems relevant to surgical practice including the cardiovascular, respiratory, gastrointestinal, urinary, endocrine and neurological systems.

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

4. Pathology
   • General pathological principles including:
     o inflammation
     o wound healing
     o cellular injury
     o tissue death including necrosis and apoptosis
     o vascular disorders
     o disorders of growth, differentiation and morphogenesis.
   • Surgical immunology.
   • Surgical haematology.
• Surgical biochemistry.
• Principles of neoplasia and oncology including:
  o classification of tumours
  o tumour development and growth including metastasis
  o staging and grading of cancers
  o cancer therapy including surgery, radiotherapy, chemotherapy, immunotherapy and hormone therapy
  o cancer registration
  o cancer screening.
• The pathology of specific organ systems relevant to surgical care including the cardiovascular, respiratory, gastrointestinal, genitourinary, central and peripheral neurological, skin, lymphoreticular and musculoskeletal systems; and pathology of the breast, endocrine and exocrine glands.

5. Microbiology
• Surgically important micro-organisms including bloodborne viruses.
• Soft tissue infections including cellulitis, abscesses, necrotising fasciitis, gangrene.
• Sources of infection.
• Sepsis and septic shock.
• Asepsis and antisepsis.
• Principles of disinfection and sterilisation.
• Antibiotics including prophylaxis and resistance.
• Principles of high-risk patient management.
• Hospital-acquired infections.

6. Imaging
• Principles, advantages and disadvantages of diagnostic and interventional imaging methods including x-rays, ultrasound, CT, MRI, PET and radionucleotide scanning.

Module 2 Common surgical conditions

Objective
• To demonstrate understanding of the relevant basic scientific principles (described in Module 1) for each of these surgical conditions and to be able to provide the relevant clinical care as defined in Modules 4 and 5.

This module lists within nine topics the common surgical conditions for which trainees need to be able to demonstrate understanding of the relevant basic science specified in Module 1 in order to provide the clinical care described in Modules 4 and 5. These topics are: gastrointestinal disease; breast disease; vascular disease; cardiovascular and pulmonary disease; genitourinary disease; trauma and orthopaedics; diseases of the skin, head and neck; neurology and neurosurgery; and endocrine disease.

Gastrointestinal disease

Presenting symptoms or signs
• Dysphagia
• Vomiting
• Abdominal pain
• Dyspepsia
• Abdominal mass
• Abdominal distension
• Change in bowel habit
• Intestinal obstruction
• Gastrointestinal haemorrhage
• Rectal bleeding
• Jaundice
To *include the following conditions*
- Benign and malignant disease of oesophagus, stomach, small and large bowel and appendix
- Perianal and rectal disease
- Benign and malignant disease of the liver, gall bladder, pancreas and spleen
- Abdominal wall hernia and stomas
- Acute abdominal emergencies, including adhesions, peritonitis and perforation of a viscus.

**Breast disease**
*Presenting symptoms or signs*
- Pain and tenderness
- Breast lump
- Nipple discharge

*To include the following conditions*
- Benign and malignant breast disease
- Mastitis and breast abscess

**Vascular disease**
*Presenting symptoms or signs*
- Intermittent claudication
- Ischaemic rest pain
- Gangrene and ischaemic ulceration
- Acute limb ischaemia (embolism, thrombosis)
- Leg ulceration
- Varicose veins
- Swollen leg
- Pulsatile abdominal mass
- Transient ischaemic attacks and stroke

*To include the following conditions*
- Atherosclerotic arterial disease affecting the cerebral, mesenteric, renal and upper and lower limb arteries
- Embolic and thrombotic arterial occlusive disease
- Diseases of the veins and lymphatics
- Vascular and neuropathic consequences of diabetes
- Abdominal and peripheral arterial aneurysms

**Cardiovascular and pulmonary disease**
*Presenting symptoms or signs*
- Breathlessness and leg swelling
- Chest pain
- Cough and haemoptysis
- Cardiac arrhythmias and murmurs

*To include the following conditions*
- Coronary heart disease
- Diseases of the heart valves
- Cardiac failure
- Benign and malignant lung disease including:
  - obstructive airways disease
  - restrictive lung disease
  - acute and chronic respiratory infection
  - bronchial carcinoma
Genitourinary disease

Presenting symptoms or signs
- Loin pain
- Haematuria
- Lower urinary tract symptoms (painful micturition, frequency)
- Urinary retention
- Renal failure
- Scrotal swellings
- Testicular pain
- Penile discharge and ulcers

To include the following conditions
- Genitourinary malignancy
- Urinary calculus disease
- Urinary tract infection
- Benign prostatic hyperplasia
- Obstructive uropathy
- Testicular tumours and benign scrotal swelling
- Penile ulcers and carcinoma

Trauma and orthopaedics

Presenting symptoms or signs
- Traumatic limb and joint pain and deformity
- Chronic limb and joint pain and deformity
- Back pain

To include the following conditions
- Simple fractures and joint dislocations
- Fractures around the hip and ankle
- Degenerative and inflammatory joint disease
- Bone and joint infection
- Compartment syndrome
- Spinal nerve root entrapment and spinal cord compression
- Metastatic bone cancer
- Common peripheral neuropathies and nerve injuries

Diseases of the skin, head and neck

Presenting symptoms or signs
- Skin lesions
- Palpable neck lumps
- Lesions of the tongue
- Upper airway obstruction
- Ear pain and hearing loss

To include the following conditions
- Benign and malignant lesions of the skin, head and neck, including mouth, tongue and ear

Neurology and neurosurgery

Presenting symptoms or signs
- Headache
- Facial pain
- Visual impairment and cranial nerve palsies
- Confusion and memory loss
- Coma
To include the following conditions
- Space-occupying lesions from bleeding and tumour

Endocrine disease

Presenting symptoms or signs
- Thyroid nodules and goitre
- Acute endocrine crises
To include the following conditions
- Thyroid and parathyroid disease
- Adrenal gland disease
- Diabetes

Module 3 Basic surgical skills

Objectives
- Understanding the principles of safe surgery
- Preparation of the surgeon and patient for surgery
- Safe administration of appropriate local anaesthetic agents
- Acquisition of basic surgical skills in instrument and tissue handling including:
  o incision of superficial tissues accurately with suitable instruments
  o closure of superficial tissues accurately
  o tying secure knots
  o safe use of surgical diathermy
  o haemostasis of superficial vessels
  o methods of retraction
  o use and selection of drains
  o handling tissues gently with appropriate instruments
- Biopsy techniques
- Assisting helpfully
- Understanding the principles of anastomosis
- Understanding the principles of endoscopy
- Understanding the formation and healing of surgical wounds

Knowledge

Principles of safe surgery
- Preparations for surgery
- Hand washing, scrubbing and gowning
- Use of surgical checklists including WHO

Administration of local anaesthesia
- Choice of anaesthetic agent
- Safe practice

Surgical wounds
- Classification
- Principles of wound management
- Pathophysiology of wound healing
- Scars and contractures
- Incision of skin and subcutaneous tissue:
  o Langer’s lines
  o choice of instrument
  o safe practice
- Closure of skin and subcutaneous tissue:
  o options for closure
  o suture and needle choice
  o safe practice
- Knot tying:
  o range and choice of materials for suture and ligation
  o safe application of knots for surgical sutures and ligatures
• Haemostasis:
  o surgical techniques
  o principles of diathermy
• Tissue handling and retraction:
  o choice of instruments

• Use of drains:
  o indications
  o types
    o management/removal

Biopsy techniques
Principles of anastomosis
Principles of surgical endoscopy

Technical skills and procedures
Preparation of the surgeon for surgery
  • Effective and safe hand washing, gloving and gowning
Preparation of a patient for surgery
  • Creation of a sterile field
  • Antisepsis
  • Draping
Administration of local anaesthesia
  • Accurate and safe administration of local anaesthetic agent
Incision of skin and subcutaneous tissue
  • Ability to use scalpel, diathermy and scissors
Closure of skin and subcutaneous tissue
  • Accurate and tension-free apposition of wound edges
Knot tying
  • Single handed
  • Double handed
  • Instrument
  • Superficial
  • Deep
Haemostasis
  • Control of bleeding vessel (superficial)
  • Diathermy
  • Suture ligation
  • Tie ligation
  • Clip application
  • Transfixion suture
Tissue retraction
  • Use of tissue forceps
  • Placement of wound retractors
Use of drains
  • Insertion
  • Fixation
  • Removal
Tissue handling
  • Appropriate application of instruments and respect for tissues
  • Biopsy techniques
Skill as assistant
  • Anticipation of needs of surgeon when assisting
Module 4 The assessment and management of the surgical patient

Objective
To demonstrate the relevant knowledge, skills and attitudes in assessing, managing and proposing surgical or non-surgical management of the patient.

Clinical skills
- Surgical history and examination (elective and emergency)
- Constructing a differential diagnosis
- Planning investigations
- Clinical decision making
- Team working and planning
- Case work-up and evaluation; risk management
- Active participation in clinical audit events
- Appropriate prescribing
- Taking consent for intermediate-level intervention, emergency and elective
- Written clinical communication skills
- Interactive clinical communication skills: patients
- Interactive clinical communication skills: colleagues

Module 5 Perioperative care

Objectives
- Preoperative assessment and management.
- Intraoperative care, including managing patient care in the perioperative period and conducting safe surgery in the operating theatre environment.
- Postoperative care including the assessment of common complications.
- Assessment and management of bleeding including the use of blood products.
- Coagulation, deep venous thrombosis and embolism.
- Use of antibiotics.
- Assessment and planning of perioperative nutritional management.
- Metabolic and endocrine disorders in relation to perioperative management.

Knowledge
Preoperative assessment and management
- Cardiorespiratory physiology
- Diabetes mellitus and other relevant endocrine disorders
- Fluid balance and homeostasis
- Renal failure
- Pathophysiology of sepsis – prevention and prophylaxis
- Thromboprophylaxis
- Laboratory testing and imaging
- Risk factors for surgery and scoring systems
- Pre-medication and other preoperative prescribing
- Principles of day surgery
- Immunisation protocols for surgeons and patients

Intraoperative care
- Safety in theatre including patient positioning and avoidance of nerve injuries
- Sharps safety
- Diathermy, laser use
- Infection risks
- Radiation use and risks
- Tourniquet use including indications, effects and complications
- Principles of local, regional and general anaesthesia
• Principles of invasive and non-invasive monitoring
• Methods of prevention of venous thrombosis
• Surgery in hepatitis and HIV carriers
• Fluid balance and homeostasis

Postoperative care
• Postoperative monitoring
• Cardiorespiratory physiology
• Fluid balance and homeostasis
• Diabetes mellitus and other relevant endocrine disorders
• Renal failure
• Pathophysiology of blood loss
• Pathophysiology of sepsis including SIRS and shock
• Multiorgan dysfunction syndrome
• Postoperative complications in general
• Methods of postoperative analgesia

Nutritional management
• Methods of screening and assessment of nutritional status
• Perioperative nutrition
• Effects of malnutrition, both excess and depletion
• Metabolic response to injury
• Methods of enteral and parenteral nutrition

Haemostasis and blood products
• Components of blood
• Mechanism of haemostasis including the clotting cascade
• Pathology of impaired haemostasis e.g. haemophilia, liver disease, massive haemorrhage
• Principles of administration of blood products
• Alternatives to use of blood products
• Patient safety with respect to blood products

Coagulation, deep vein thrombosis and embolism
• Clotting mechanism (Virchow’s triad)
• Effect of surgery and trauma on coagulation
• Risk classification of DVT
• Tests for thrombophilia and other disorders of coagulation
• Methods of prevention of DVT, mechanical and pharmacological
• Methods of investigation for suspected thromboembolic disease
• Role of CT pulmonary angiography, D-dimers and thrombolysis
• Principles of treatment of venous thrombosis and pulmonary embolism including anticoagulation
• Place of pulmonary embolectomy

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

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

Preoperative assessment and management
- History and examination of a patient
- Interpretation of preoperative investigations
- Management of comorbidity
- Resuscitation
- Appropriate preoperative prescribing including premedication

Intraoperative care
- Safe conduct of surgery, including
- Correct patient positioning
- Avoidance of nerve injuries
- Management of sharps injuries
- Prevention of diathermy injury
- Prevention of venous thrombosis

Postoperative care
- Writing of operation records
- Assessment and monitoring of patient’s condition
- Postoperative analgesia
- Fluid and electrolyte management
- Detection of impending organ failure
- Initial management of organ failure
- Principles of and indications for dialysis
- Recognition, prevention and treatment of postoperative complications

Haemostasis and blood products
- Recognition of conditions likely to lead to bleeding diathesis
- Recognition of abnormal bleeding during surgery
- Appropriate use of blood products
- Management of the complications of blood product transfusion

Coagulation, deep vein thrombosis and embolism
- Recognition of patients at risk
- Awareness and diagnosis of DVT and pulmonary embolism
- Role of duplex scanning, venography and D-dimer measurement
- Initiation and monitoring of treatment of venous thrombosis and pulmonary embolism
- Initiation of prophylaxis

Antibiotics
- Appropriate prescription of antibiotics

Assessment and planning of preoperative nutritional management
- Arranging access to suitable artificial nutritional support, preferably via a nutrition team including dietary supplements, enteral nutrition and parenteral nutrition

Metabolic and endocrine disorders
- History and examination in patients with endocrine and electrolyte disorders
- Investigation and management of thyrotoxicosis and hypothyroidism
- Investigation and management of hypercalcaemia and hypocalcaemia
- Investigation and management of hypernatraemia and hyponatraemia
- Investigation and management of hyperkalaemia and hypokalaemia
- Perioperative management of patients on steroid therapy
- Perioperative management of diabetic patients
Technical skills and procedures
- Airway management
- Central venous line insertion
- Chest drain insertion
- Diagnostic peritoneal lavage
- Urethral catheterisation
- Suprapubic catheterisation

Module 6 Assessment and management of patients with trauma (including the multiply injured patient)

Objectives
- To assess and initiate management of patients:
  - with chest trauma
  - with a head injury
  - with a spinal cord injury
  - with abdominal and urogenital trauma
  - with vascular trauma
  - with fractures or dislocations
  - with traumatic skin and soft tissue injury
  - with burns.
- To assess the multiply injured patient.
- To prioritise management in such situations as defined by ATLS, APLS etc.

Knowledge

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

Shock
- Pathogenesis of shock
- Shock and cardiovascular physiology
- Metabolic response to injury
- Adult respiratory distress syndrome
- Indications for using uncrossmatched blood

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

Burns
- Classification of burns
- Principles of management of burns

Fractures and dislocations
- Classification
- Pathophysiology of fractures
- Principles of management
- Complications
- Joint injuries
Organ-specific trauma
- Pathophysiology of thoracic trauma
- Pneumothorax
- Head injuries including traumatic intracranial haemorrhage and brain injury
- Spinal cord injury
- Peripheral nerve injuries
- Blunt and penetrating abdominal trauma
- Hepatic and splenic trauma
- Vascular injury including iatrogenic injuries and intravascular drug abuse
- Crush injury
- Principles of management of skin loss including use of skin grafts and skin flaps

Clinical skills
General
- History and examination
- Investigation
- Referral to appropriate surgical subspecialties
- Resuscitation and early management of patient who has sustained thoracic, head, spinal, abdominal or limb injury according to ATLS and APLS guidelines
- Resuscitation and early management of the multiply injured patient

Specific problems
- Management of the unconscious patient
- Initial management of skin loss
- Initial management of burns
- Prevention and early management of the compartment syndrome

Technical skills and procedures
- Airway management
- Central venous line insertion
- Chest drain insertion
- Diagnostic peritoneal lavage
- Urethral catheterisation
- Suprapubic catheterisation

Module 7 Surgical care of the paediatric patient

Objectives
- To assess and manage children with surgical problems, understanding the similarities with and differences from adult surgical patients.
- To understand the issues of child protection and to take action as appropriate.

Knowledge
Assessment and management
- Physiological and metabolic response to injury and surgery
- Fluid and electrolyte balance
- Thermoregulation
- Safe prescribing in children
- Principles of vascular access in children

Child protection
- Awareness of trust and Local Safeguarding Children Boards (LSCBs) and child protection procedures
- Basic understanding of child protection law
- Understanding of children's rights
- Recognising the possibility of abuse or maltreatment
- Presentations, signs and other features of child maltreatment (primarily physical, emotional, sexual, neglect, professional)
- Responsibilities and appropriate referral patterns in child protection
Clinical skills
Assessment and management
- History and examination of the neonatal surgical patient
- History and examination of the paediatric surgical patient
- Assessment of respiratory and cardiovascular status
- Undertaking consent for surgical procedures (appropriate to the level of training) in paediatric patients

Child protection
- Appropriate referral to paediatricians
- Documentation relating to child protection matters
- Communicating effectively with those involved with child protection, including children and their families

Module 8 Management of the dying patient
Objectives
- To be able to manage the dying patient appropriately in consultation with the palliative care team.
- To understand consent and ethical issues in patients certified DNAR (do not attempt resuscitation).

Knowledge
Palliative care
- Care of the terminally ill
- Appropriate use of analgesia, anti-emetics and laxatives

Principles of organ donation
- Circumstances in which consideration of organ donation is appropriate
- Principles of brain death

The role of the coroner and the certification of death

Clinical skills
Palliative care
- Symptom control in the terminally ill patient

Principles of organ donation
- Assessment of brainstem death
- Certification of death

Module 9 Organ and tissue transplantation
Objective
- To understand the principles of organ and tissue transplantation.

Knowledge
- Principles of transplant immunology including tissue typing, and acute, hyperacute and chronic rejection
- Principles of immunosuppression
- Tissue donation and procurement
- Indications for whole organ transplantation
Module 10 Professional behaviour and leadership skills

Objectives

- To provide good clinical care.
- To be a good communicator.
- To teach and to train.
- To keep up to date and know how to analyse data.
- To understand and manage people and resources within the health environment.
- To promote good health.
- To understand the ethical and legal obligations of a surgeon.

The relevant knowledge and skills appropriate for core surgical training may be tested in all parts of the MRCS examination. For more details see [www.iscp.ac.uk](http://www.iscp.ac.uk)
Section 4 – The Intercollegiate MRCS Examination

There are three Surgical Royal Colleges in the United Kingdom: the Royal College of Surgeons of Edinburgh, the Royal College of Surgeons of England and the Royal College of Surgeons and Physicians of Glasgow. These colleges, together with the Royal College of Surgeons in Ireland, have worked together to produce the Intercollegiate MRCS Examination, which consists of two parts. Part A is a written paper using multiple choice questions (MCQs) and Part B is an objective structured clinical examination (OSCE). All four colleges use the Part A MCQ paper. The Part B OSCE is used by the three UK colleges, leading to the Intercollegiate Membership diploma, MRCS. Currently the Royal College of Surgeons in Ireland uses its own Part B examination, leading to Membership of the Royal College of Surgeons in Ireland. Although it is divided into two parts the MRCS is a single examination and passing Part A alone does not carry any diploma status.

The Part A examination uses both single best answer MCQs and extended matching MCQs designed to test knowledge of both applied basic science and principles of surgery in general to a level that a surgical trainee should have achieved two to three years after qualification.

The Part B OSCE tests:

- clinical knowledge and its application
- clinical and procedural skills
- professionalism, including decision-making, problem solving, situational awareness and judgement, organisation, planning and patient safety
- communication skills

Topics within the syllabus modules may be examined in either Part A or Part B or both parts of the examination.
Entry requirements

To meet the entry requirements for the Part A examination, candidates must hold a recognised medical qualification. Candidates may not sit the examination in the first 12 months following their date of graduation. There is no limit to the number of times a candidate can sit the Part A examination. Further details of entry requirements for both parts of the examination are given in the Regulations (see http://www.intercollegiatemrcs.org.uk/new/regulations_.html).
Section 5 – Part A information and sample questions

Part A of the MRCS is a four-hour examination consisting of two multiple choice question (MCQ) papers, each of 2 hours’ duration comprising 135 questions each. There is a short break between the two halves.

The papers cover generic surgical sciences and applied knowledge, including the core knowledge required in all nine specialties, as follows:

1. Paper 1  Applied Basic Science
2. Paper 2  Principles of Surgery in General

To achieve a pass in Part A the candidate will be required to demonstrate a minimum level of competence in each of the two papers, in addition to achieving or exceeding the pass mark set for the combined total mark for Part A. The mark for each paper will be combined to give a total mark for Part A. Both papers must be taken on the same day. The pass mark for a particular paper is determined by the process of standard setting.

Each paper is constructed to test across the syllabus. As a guide the numbers of questions covering each topic include:

Paper 1

**Applied Surgical Anatomy** - 45 questions. This includes *gross anatomy* as well as questions on *developmental and imaging anatomy*:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thorax</td>
<td>6</td>
</tr>
<tr>
<td>Abdomen, pelvis, perineum</td>
<td>12</td>
</tr>
<tr>
<td>Upper limb, breast</td>
<td>8</td>
</tr>
<tr>
<td>Lower limb</td>
<td>6</td>
</tr>
<tr>
<td>Head, neck and spine</td>
<td>9</td>
</tr>
<tr>
<td>Central, peripheral and autonomic nervous systems</td>
<td>4</td>
</tr>
</tbody>
</table>

**Physiology** - 45 questions. This includes 12 questions on *general physiological principles* covering thermoregulation, metabolic pathways, sepsis and septic shock, fluid balance, metabolic acidosis/alkalosis, and colloid and crystalloid solutions

**System specific physiology** :-

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory system</td>
<td>6</td>
</tr>
<tr>
<td>Cardiovascular system</td>
<td>6</td>
</tr>
<tr>
<td>Gastrointestinal system</td>
<td>4</td>
</tr>
<tr>
<td>Renal system</td>
<td>6</td>
</tr>
<tr>
<td>Endocrine system (including glucose homeostasis)</td>
<td>4</td>
</tr>
<tr>
<td>Nervous system</td>
<td>3</td>
</tr>
<tr>
<td>Thyroid and parathyroid</td>
<td>4</td>
</tr>
</tbody>
</table>
Pathology - 45 questions. This includes 20–22 questions on general principles of pathology:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammation</td>
<td>3</td>
</tr>
<tr>
<td>Wound healing and cellular healing</td>
<td>1-2</td>
</tr>
<tr>
<td>Vascular disorders</td>
<td>3</td>
</tr>
<tr>
<td>Disorders of growth</td>
<td>3</td>
</tr>
<tr>
<td>Tumours</td>
<td>6</td>
</tr>
<tr>
<td>Surgical immunology</td>
<td>3</td>
</tr>
<tr>
<td>Surgical haematology</td>
<td>1-2</td>
</tr>
</tbody>
</table>

System specific pathology (22–26 questions):

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nervous system</td>
<td>1-2</td>
</tr>
<tr>
<td>Musculoskeletal system</td>
<td>3</td>
</tr>
<tr>
<td>Respiratory system</td>
<td>1-2</td>
</tr>
<tr>
<td>Breast disorders</td>
<td>4</td>
</tr>
<tr>
<td>Endocrine systems</td>
<td>1-2</td>
</tr>
<tr>
<td>Genitourinary system</td>
<td>3</td>
</tr>
<tr>
<td>Gastrointestinal system</td>
<td>5</td>
</tr>
<tr>
<td>Lymphoreticular system</td>
<td>1-2</td>
</tr>
<tr>
<td>Cardiovascular system</td>
<td>3</td>
</tr>
</tbody>
</table>

Paper 2

Clinical Problem Solving - 135 questions. This includes 45 questions on Principles of Surgery in General and 90 questions on Surgical Specialties:

Principles of Surgery in General

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perioperative care</td>
<td>8</td>
</tr>
<tr>
<td>Post-operative care</td>
<td>4</td>
</tr>
<tr>
<td>Surgical techniques</td>
<td>6</td>
</tr>
<tr>
<td>Management/legal topics</td>
<td>4</td>
</tr>
<tr>
<td>Microbiology</td>
<td>6</td>
</tr>
<tr>
<td>Emergency medicine</td>
<td>9</td>
</tr>
<tr>
<td>Oncology</td>
<td>8</td>
</tr>
</tbody>
</table>

Surgical Specialties

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiothoracic</td>
<td>6</td>
</tr>
<tr>
<td>Abdominal</td>
<td>9</td>
</tr>
<tr>
<td>Upper gastrointestinal</td>
<td>4-5</td>
</tr>
<tr>
<td>Hepatobiliary and pancreatic</td>
<td>5</td>
</tr>
<tr>
<td>Colorectal</td>
<td>6</td>
</tr>
<tr>
<td>Breast</td>
<td>4-5</td>
</tr>
<tr>
<td>Endocrine</td>
<td>6</td>
</tr>
<tr>
<td>Vascular</td>
<td>7</td>
</tr>
<tr>
<td>Transplant</td>
<td>3</td>
</tr>
<tr>
<td>ENT</td>
<td>6</td>
</tr>
<tr>
<td>Oro-maxillo-facial</td>
<td>2</td>
</tr>
</tbody>
</table>
Quality of the examination

Each newly written multiple choice question is assessed for accuracy, clarity and relevance. Each question used in an examination paper is analysed for its ability to discriminate high-performing from low-performing candidates and statistical coefficients are derived for every question allowing an analysis of the reliability of the examination.

Statistics relating to various groupings of candidates are analysed by an internal quality assurance group to ensure that the overall fairness and quality of the examination is maintained.

Guidance to Candidates

- There are equal marks for each question.
- Marks will not be deducted for a wrong answer. However, you will not gain a mark if you mark more than one box for the same item or question.
- The answer sheets are scanned by machine. If you do not enter your answer to each question correctly and clearly on the answer sheet the machine which scores your paper may reject it.
- Only answers that are clearly struck horizontally across the correct response will guarantee a mark. Faint marking may be misread, resulting in no mark for that question.
- Many candidates find it easier to mark their answers on the question booklet first and transfer them to the answer sheet later. If you do this, you should allow time to transfer your answers to the answer sheet before the end of the examination. No extra time will be given for the transfer of answers.
- You should check that each page of your question booklet has been correctly printed and that the coloured flash on the top of the front page of your question booklet and answer sheet match.

Instructions to Candidates

- Do not make any marks on your answer sheet other than inserting your candidate number and indicating your answer with a bold horizontal line in the boxes provided.
- Use only the pencil provided. Do not use pen or ballpoint.
- If you need to change an answer, you should make sure that you rub it out completely so that the computer can accept your final answer.
- Do not fold or crease the sheet.
Intercollegiate MRCS Part A: Sample Questions

Paper 1 Applied Basic Sciences
Single best answer (SBA) format

- This two-hour paper will consist of 135 single best answer questions.
- Each question contains five possible answers of which there is only one single best answer.
- You should decide which option from the list is the single best answer.
- When you are satisfied with your decision, record your answer on the answer sheet.
- In the example below, the answer is D; you would record your answer by making a heavy black mark, in pencil, in the box labelled D on line 76 (as shown).

Example single best answer question

76. A 67-year-old woman is brought to the Emergency department having fallen on her left arm. There is an obvious clinical deformity and X-ray demonstrates a mid-shaft fracture of the humerus. She has lost the ability to extend the left wrist joint. Which nerve has most likely been damaged with the fracture?

A Axillary nerve  
B Median nerve  
C Musculocutaneous nerve  
D Radial nerve  
E Ulnar nerve

Further examples of single best answer questions

1. A 67-year-old man is admitted to hospital for investigation of an irregular heart beat. The 'conducting system' of the heart includes which one of the following anatomical structures?

A Atrioventricular node  
B Chordae tendineae  
C Fibrous skeleton of the heart  
D Interatrial septum  
E Phrenic nerve

2. A 75-year-old woman who has a carcinoma of the distal rectum undergoes an anterior resection. The blood supply of the tumour arises from which of the following?

A Coeliac artery  
B Ileocolic artery  
C Inferior mesenteric artery  
D Internal iliac artery  
E Superior mesenteric artery
3. A 63-year-old woman presents to her General Practitioner with a three-week history of back pain. She has lost 8 cm in height over the last four years. Investigations reveal:

<table>
<thead>
<tr>
<th></th>
<th>Result</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted (corrected) calcium</td>
<td>2.05 mmol/L</td>
<td>2.15-2.55</td>
</tr>
<tr>
<td>Phosphate</td>
<td>0.89 mmol/L</td>
<td>0.6-1.25</td>
</tr>
<tr>
<td>Estimated glomerular filtration rate (eGFR)</td>
<td>92 ml/minute</td>
<td>&gt;90</td>
</tr>
<tr>
<td>Parathyroid hormone (PTH)</td>
<td>9.8 pmol/L</td>
<td>1.0-6.5</td>
</tr>
</tbody>
</table>

Which of the following is the most likely cause?

A  Hypoparathyroidism  
B  Primary hyperparathyroidism  
C  Pseudohypoparathyroidism  
D  Secondary hyperparathyroidism  
E  Tertiary hyperparathyroidism

4. A 50-year-old woman presents with a swelling in the left side of the neck that is shown to be of thyroid origin. Hemithyroidectomy shows Hashimoto’s thyroiditis complicated by a lymphoma. What is the most likely cell type of the lymphoma?

A  B cell  
B  Macrophage  
C  NK cell  
D  Plasma cell  
E  T cell

Example Answer Sheet
Paper 2 Principles of Surgery-in-General
Extended matching (EM) and single best answer (SBA) format

- It is intended that from September 2012 this two-hour paper will consist of 135 questions that will be a combination of single best answer and extended matching questions.
- The two types of questions will be in separate sections within the paper.
- Each **single best answer** question contains five possible answers of which there is only one single best answer.
- You should decide which option from the list is the single best answer.
- Each **extended matching** theme contains a variable number of options and clinical situations. Only one option will be the most appropriate response to each clinical situation.
- You should select the most appropriate option. It is possible for one option to be the answer to more than one of the clinical situations in an extended matching question.
- When you are satisfied with your decision, mark it on your answer sheet, following the example given, by making a heavy black mark in pencil in the box containing the letter corresponding to the option you have chosen.
- You should only mark the option that you believe to be correct.

**Example Extended matching questions**

**Theme: Chest injuries**

**Options**

A  Tension pneumothorax
B  Aortic rupture
C  Haemothorax
D  Aortic dissection
E  Ruptured spleen
F  Cardiac tamponade

For each of the situations below, select the **single** most likely diagnosis from the options listed above. Each option may be used once, more than once or not at all.

61. A 24-year-old man is brought into the Emergency department having been stabbed with a screwdriver. He is conscious. On examination he is tachypnoeic and has a tachycardia of 120 beats/minute. His blood pressure is 90/50 mmHg. He has a small puncture wound below his right costal margin. A central venous line is inserted with ease, and his central venous pressure is 17 cm. A chest X-ray shows a small pleural effusion with a small pneumothorax. He has received two units of plasma expander, which has failed to improve his blood pressure.

62. A 42-year-old man is admitted following a road traffic accident complaining of pains throughout his chest. He was fit and well prior to the incident. He is tachypnoeic and in considerable pain. His brachial blood pressure is 110/70 mmHg and his pulse rate is 90 beats/minute. Both femoral pulses are present though greatly diminished. A chest X-ray shows multiple rib fractures and an appreciably widened upper mediastinum. Lateral views confirm a fractured sternum. An ECG shows ischaemic changes in the V-leads.

If you decide that the answer to the first situation is option F, you would record this by making a heavy black mark in the box labelled F on line 61. If you decide that the
answer to the second description is option B you would record this by making a heavy black mark in the box labelled B on line 62.

For an example of how to fill out your responses to single best answer questions, please see above in the Applied Basic Sciences section.

Further examples of Principles of Surgery in General questions

Single Best Answer questions

1. A 32-year-old man with multiple left sided rib fractures has been intubated and is being ventilated. An hour after commencing intermittent positive pressure ventilation he is found to be hypotensive, with a falling arterial oxygen saturation. What is the most likely cause for this change in his condition?
   A. Blocked tracheal tube
   B. Cardiac tamponade
   C. Endobronchial intubation
   D. Haemothorax
   E. Tension pneumothorax

2. A 45-year-old woman presented to the surgical clinic with a two-week history of a lump in her left breast. On examination the lump is a hard, irregular swelling measuring 3 cm × 2.5 cm in the upper outer quadrant. No lymph nodes are palpable in the axilla. Which is the most appropriate first investigation in this patient?
   A. Core biopsy
   B. Excision biopsy
   C. Mammography
   D. Magnetic resonance imaging (MRI)
   E. Ultrasound scan
Extended Matching questions

Theme: Pathological fracture

Options
A Giant cell tumour
B Metastatic carcinoma
C Osteoblastoma
D Osteomalacia
E Osteoporosis

For each of the patients described below, select the **single** most likely diagnosis from the options listed above. Each option may be used once, more than once or not at all.

3. A 68-year-old woman has suffered with back pain for four years and developed slight kyphosis in the last year. She underwent a hysterectomy and bilateral salpingo-oophorectomy at the age of 35. She presents with a fracture of the left neck of femur after slipping at home.

4. A 32-year-old woman presents with pain and swelling in the right shoulder. X-ray shows a large radiolucent swelling in the head of the right humerus extending to the subchondral plate.

Theme: Conditions of the parotid gland

Options
A Abscess
B Carcinoma
C Mikulicz’s syndrome
D Mumps
E Pleomorphic adenoma
F Sialectasis
G Sjögren’s syndrome

For each of the patients described below, select the **single** most likely pathological condition from the options listed above. Each option may be used once, more than once or not at all.

5. An emaciated 80-year-old homeless man is admitted with a hot tender swelling in the left parotid region. He is pyrexial.

6. An 18-year-old is admitted with bilateral testicular swelling, upper abdominal pain, fever, malaise and bilateral parotid swelling.

7. A 34-year-old woman presents with discomfort and swelling of the left parotid salivary gland after meals.
Theme: Lower leg ulceration

Options
A  Chronic obliterative arterial disease  
B  Deep venous dysfunction  
C  Rheumatoid arthritis  
D  Squamous cell carcinoma  
E  Superficial venous dysfunction

For each of the clinical situations listed below, select the single most likely diagnosis from the options listed above. Each option may be used once, more than once or not at all.

8. A 72-year-old man presents with a painful lower calf ulcer, marked pitting oedema and an ankle/brachial systolic pressure index of 0.2.

9. An 80-year-old retired chef has noticed that the edge of an ulcer situated above the medial malleolus for 17 years has recently become ‘heaped up’ and bleeds easily on contact.

Example Answer Sheet
Section 6 – Part B information and sample questions

The MRCS Part B examination takes the form of an objective structured clinical examination (OSCE). A major advantage of the OSCE is that it allows wide sampling of the knowledge and skills identified in the curriculum that are relevant to the learning outcomes (knowledge and competencies) at this level of surgical training (CT/ST2). Furthermore, all trainees undergo a similar examination; this increases reliability and therefore trainees generally feel that these examinations are fair.

It is important to recognise that an OSCE is not a rigidly defined method of assessment, but represents a structure or framework, which is used to develop a systematic assessment of skills, relevant knowledge. OSCEs are valuable in the direct observation of clinical skills and for the assessment of knowledge which is not readily assessed in written exams (such as anatomy). OSCEs are therefore combined with written examinations such as the MRCS Part A multiple choice examination to test factual knowledge. An appropriate balance is achieved between the assessment of clinical skills and the underlying knowledge on which clinical practice is based.

How is the OSCE constructed?

OSCEs comprise a series of stations in a circuit around which the candidates rotate. At each station the candidate is required to undertake a clearly defined task. In the MRCS OSCE these may include taking a focused history or clinical examination, interpreting an x-ray or performing a practical procedure in simulation. One minute is allowed between stations for circulation from one station to the next. This also allows the examiners to complete the mark sheet for each candidate and for the patient or simulated patient to prepare for the next candidate. At each station there are clearly defined instructions for the candidate, which briefly outline the scenario and describe the task that the candidate is required to undertake.
For instance:

**Instructions to Candidate**

At this station you are required to take a focused history from a patient who presents to the Accident and Emergency Department with severe abdominal pain.

You have up to 6 minutes to complete the task, at which stage the examiners will stop you and ask you to summarise your findings and answer some questions.

It is important that candidates follow the instructions precisely as marks will only be awarded in relation to the task required at that station. For instance at a physical examination station with the following instructions, the task clearly relates to performing a physical examination of the knee only. Candidates should not take a history or undertake a general examination.

**Instructions to Candidate**

At this station you will meet a patient who presents with pain in the right knee. You are required to undertake the appropriate examination. You have up to 6 minutes for this task, at which stage the examiners will stop you and ask you to summarise your findings and answer some questions.

However, at all stations candidates will be expected to introduce themselves, outline the purpose of the task, confirm the patient’s identity and check that they consent to the required task. Candidates should always clean their hands before and after patient contacts with the alcohol-based hand gel provided.

Some stations will clarify whether the candidate should describe what they are doing as they proceed with physical examination, but typically a dialogue with the examiner is not required, as the purpose of the examination of these stations is for the examiner to observe the candidate perform the task and for the candidate to report their findings at the appropriate time.
For more complex tasks such as stations requiring the candidate to communicate more complex issues with the patient, a preparation station may precede the station where the candidate is examined. Again it is essential that candidates read the information carefully and comply closely with the instructions.

A major advantage of OSCEs is their flexibility in allowing a wide range of tasks to be assessed. This is greatly extended by the use of simulated patients (actors or volunteers) who are trained to perform a specific role at any station. This increases the number of areas of the syllabus that can be included in terms of both history taking and physical examination. The use of mannequins and simulators extends the range of scenarios even further to include a range of practical skills. Real patients with positive clinical signs are still included in the OSCE in the same manner as they were in previous short-case examinations, but with the advantage of the interaction being observed and the task structured. In addition the MRCS OSCE includes stations focusing on anatomy, pathology and critical care scenarios, which permit the use of prosections and in-depth testing of the candidate’s knowledge and decision-making.

The structure of the MRCS OSCE

The MRCS OSCE comprises 18 examined stations. At the beginning of each station 1 minute is given to the candidate to read the instructions and the station is completed after 9 minutes, allowing sufficient time for the candidate to rotate to the next station. All the stations in the examination (apart from preparation stations) are manned. Most have a single examiner but some stations (e.g. stations assessing communication skills) are double manned. Normally each examiner in a double-manned station will be assessing different aspects of the candidate’s performance (e.g. communication and clinical skill).

The individual stations are grouped into four broad content areas. These are:

- **Anatomy and surgical pathology** (4 stations)
  - 2 generic and one specialty choice in surgical anatomy
  - 1 generic surgical pathology
• **Applied surgical science and critical care** (3 stations)
  o 1 generic critical care
  o 1 generic interpretation of written data
  o 1 generic interpretation of visual information

• **Communication skills** (5 stations)
  o History taking
    ▪ 1 generic
    ▪ 2 specialty choice
  o 1 generic giving information to a patient/relative
  o 1 generic giving information to another health professional

• **Clinical and procedural skills** (6 stations)
  o Physical examination:
    ▪ 1 generic and 3 specialty choice stations
  o Procedural skills:
    ▪ 2 generic skills stations

When applying for the OSCE, candidates are asked to nominate specialty choices for a number of stations: one in anatomy; two in history taking; and three in physical examination stations. The available choices are head and neck, neuroscience, trunk and thorax, and limbs and spine.

The purpose of including some flexibility in the selection of stations is to reflect the differences in training, surgical experience and to some degree, career intentions of trainees entering for the MRCS, but the major emphasis of the MRCS is on the basic generic components of knowledge and skills required for all surgical trainees.

For the purposes of designing the stations domains are used to help construct questions ensuring that the important areas as identified by the GMC’s “Good Medical Practice” are adequately covered by the examination.
These domains are:

- clinical knowledge and its application
- clinical and technical skills
- professionalism including decision making, problem solving, situational awareness and judgement, organisation, planning and patient safety
- communication.

Each station is marked out of a total of 20. Rather than an itemised check list approach the marking scheme allocates a proportion of the marks at each station to two or more of the above domains which can be evaluated within the context of each scenario.

The diagram below illustrates the assessment grid and marking matrix for the stations of the OSCE, illustrating broad content areas and the examined domains. The weighting of marks for each component is provided.
| MRCS OSCE assessment grid and matrix (shading indicates specialty context) |
|-----------------------------|-----------------------------|-----------------------------|
| Anatomy and surgical pathology | Applied surgical science and critical care | Communication skills |
| | | Clinical and procedural skills |
| | | Giving and receiving information | History taking | Physical examination | Procedural skills |
| | | | | | |
| Anatomy generic | Anatomy generic | Anatomy specialty choice 1 | Anatomy pathology generic | Surgical pathology generic | Interpretation of data – visual and lab | Interpretation of clinical data | Critical care management | PREPARATION STATION | PREPARATION STATION | Talking with relatives and carers | Communicating with colleagues | Generic | Specialty choice 1 | Specialty choice 2 | Specialty choice 3 | Procedural skills | Optional – any station as required |
| Examiners required | one | one | one | one | one | one | two | – | surgeon + lay | – | one | two | two | two | one | one | one | one | one + assistant | one + assistant |
| Domains tested | Clinical knowledge and its application | 16 | 16 | 16 | 16 | 8 | 12 | 8 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Clinical and technical skill | 4 | 4 | 4 | 4 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| | Communication | 4 | 4 | 4 | 12 | 8 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Professionalism | Decision making | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Problem solving | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Situational awareness and judgement | | | | | | | | | | | | | | | | | | | | |
| | Organisation and planning | | | | | | | | | | | | | | | | | | | | |
| | Patient safety | | | | | | | | | | | | | | | | | | | | |
| Total mark | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
The OSCE structure and the distribution of marks for each station are shown above. This approach ensures an appropriate distribution of marks across the broad content areas. Note that although communication skills is a separate broad content area it is also a domain assessed in the majority of the other stations.

Each individual station is assessed in two ways. Using a structured mark sheet a mark is awarded for each domain using generic descriptors to identify and guide examiners in allocation of the marks. In addition, an overall judgement is made on the candidate’s performance at the station as a whole (Pass, Borderline Pass, Borderline Fail or Fail). Thus for each station the candidates will have a mark out of 20 and an overall judgement of their performance. The marks and global ratings are then employed in order to construct the overall pass mark for each station using a recognised approach known as contrasting groups methodology. In addition to achieving a mark greater than the overall pass mark for the examination candidates must also achieve a pass in each of the four broad content areas. A standard setting group reviews all the marks from the different exam centres to assure scenario and examiner performance before computing pass marks.
Example Questions and Guidance Notes for Candidates

1. Anatomy and surgical pathology (4 stations)

These stations all follow a similar format. There will normally be a short clinical vignette given to read before commencing the bay. For instance:

**Instructions to Candidate**

A letter from a general practitioner has asked you to see a 57-year-old woman with a soft tissue mass in the posterior part of her right thigh. The letter also indicates that the patient has an abnormal gait but the cause is not clear. You consider possible explanations for these observations. First you think about the course of the sciatic nerve and then about disease processes that could result in a mass in the thigh and which may interfere with walking.

This will introduce the candidate to the area of the body that will form the core of the station. The examiner will then take the candidate through a series of questions. These will normally include looking at some or all of: prosections, live surface anatomy, bones, radiological images, specimen photographs and copies of pathology reports. In these bays 16 of the 20 marks are awarded for clinical knowledge and 4 marks for professionalism. In all parts of the examination if the candidate gets a question wrong and this may affect their performance in subsequent questions then they will be given the correct answer.
2. Applied surgical science and critical care (3 stations)

A complete example of all the documentation for a typical OSCE station in this broad content area is shown below. This example scenario involves interpretation of visual material: in this case, a chest X-ray, which shows a misplaced nasogastric tube, and an abdominal CT scan showing gallstone cholecystitis. Images will be displayed either on a computer screen or as a high-definition photograph. The questions and suggested suitable answers are shown on the examiner mark sheets below.

<table>
<thead>
<tr>
<th>Code</th>
<th>SSC G V 03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td>NG tube and gallstones</td>
</tr>
<tr>
<td>Syllabus area:</td>
<td>to be defined</td>
</tr>
<tr>
<td>Content area:</td>
<td>Applied surgical science and critical care</td>
</tr>
<tr>
<td>Station type</td>
<td>Generic</td>
</tr>
<tr>
<td></td>
<td>Interpretation of visual information</td>
</tr>
<tr>
<td>Domains assessed</td>
<td>Clinical knowledge and its application 2 \times 4 marks</td>
</tr>
<tr>
<td></td>
<td>Clinical and technical skill 4 marks</td>
</tr>
<tr>
<td></td>
<td>Communication 4 marks</td>
</tr>
<tr>
<td></td>
<td>Professionalism 4 marks</td>
</tr>
</tbody>
</table>

Source:  
Last updated:  
Used:  

Props and equipment  
Prop bank  
Chest X-ray. Abdominal CT scan.

Candidate instructions

Scenario 1

You are called to the high-dependency unit to review a chest X-ray shortly after starting your night shift. The nurse informs you that the patient was admitted from the intensive care unit 2 days ago. The patient underwent a laparotomy for a perforated sigmoid volvulus and had a 3-week stay on the intensive care unit. Nutrition has been difficult. Earlier today the patient’s nasogastric tube ‘fell out’. The F2 doctor who was covering HDU replaced it, but has now gone home. Look at the chest
Scenario 2

A 47-year-old woman is admitted via her general practitioner with acute, right upper quadrant, abdominal pain. Her pulse is 100 beats/min and blood pressure 100/55 mmHg. She is pyrexial with a temperature of 38.5°C. The pain fails to settle and a decision is taken to image her abdomen.

Look at the CT scan.

In this station you will be asked a series of questions in relation to these scenarios.
Scenario 1
You are called to the high-dependency unit to review a chest X-ray shortly after starting your night shift. The nurse informs you that the patient was admitted from the intensive care unit 2 days ago. The patient underwent a laparotomy for a perforated sigmoid volvulus and had a 3-week stay on the intensive care unit. Nutrition has been difficult. Earlier today the patient’s nasogastric tube ‘fell out’. The FY2 doctor who was covering HDU replaced it, but has now gone home. Look at the chest X-ray.

Professionalism domain
Demonstrates effective judgement and decision-making skills.
Considers all appropriate facts before making decision.
Is able to think beyond the obvious and maximises information efficiently.
Anticipates and plans in advance.
Aware of patient safety.

1. Describe the checks you would perform before assessing the clinical aspects of this film.
   Name. Date of birth or hospital number (cannot rely on name alone).

2. How do you assess the projection?
   Look at the label on the film (AP/PA) or check whether the scapulae are in or clear of the lung fields.

3. How do you assess whether the film is rotated?
   Look at heads of the clavicles relative to the midline.

4. How could the management have been improved?
   A structured handover should have taken place from clinician to clinician.

Mark for professionalism domain (1–4) P

Clinical knowledge domain 1
Possesses the clinical knowledge specified in the syllabus.
Able to understand, synthesise and apply knowledge in a clinical context.

5. Outline the system you use to assess the clinical aspects of the film.
   Can describe any reasonable system. Bones/soft tissues, etc. ATLS ABC system.

6. Look at the chest X-ray. Where is the nasogastric tube? Be specific in your answer.
   In the right bronchial tree (the tube passes through the trachea and right main bronchus into one of the lobar bronchi). ['right lung' is an acceptable answer.]

7. What clinical condition may develop as a result of feeding using this tube?
   Aspiration pneumonia.

8. What else can you identify on this film?
   ECG electrodes, tracheostomy tube, gas in colon and stomach.
### Clinical skill domain
Capable of applying sound clinical knowledge, skill and awareness to a full investigation of problems to reach a provisional diagnosis.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9</strong> What three immediate actions should you take regarding the tube?</td>
<td>Remove the tube; replace the tube; recheck its position.</td>
</tr>
<tr>
<td><strong>10</strong> Other than by X-ray, how can you check that a (non-fine-bore) nasogastric tube is in the correct position?</td>
<td>Check the pH of the aspirate. [The ‘whoosh’ test – blowing air down the tube and listening over the stomach is NOT an acceptable answer.]</td>
</tr>
</tbody>
</table>

### Scenario 2
A 47-year-old woman is admitted via her general practitioner with acute, right upper quadrant, abdominal pain. Her pulse is 100 beats/min and blood pressure 100/55 mmHg. She is pyrexial with a temperature of 38.5°C. The pain fails to settle and a decision is taken to image her abdomen. Look at the CT scan.

### Clinical knowledge domain 2
Possesses the clinical knowledge specified in the syllabus. Able to understand, synthesise and apply knowledge in a clinical context.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11</strong> Look at the CT scan. What abnormality does it show?</td>
<td>Thick-walled gall bladder with multiple stones.</td>
</tr>
<tr>
<td><strong>12</strong> What blood investigations should be performed in addition to FBC, U&amp;E, LFT, group and save and amylase?</td>
<td>Blood cultures, coagulation screen.</td>
</tr>
<tr>
<td><strong>13</strong> What treatment should be instituted on admission once bloods have been taken?</td>
<td>Analgesia, antibiotics, intravenous fluids.</td>
</tr>
<tr>
<td><strong>14</strong> What surgical intervention will this patient require?</td>
<td>Cholecystectomy.</td>
</tr>
</tbody>
</table>

### Communication domain
Able to assimilate information, identify what is important and convey it to others clearly using a variety of methods. Actively and clearly engages colleague in open dialogue.

**Award a mark for the extent to which the candidate has:**
- used technical language appropriately and correctly
- demonstrated clarity and focus in communication
- expressed ideas clearly.

### Examiner’s overall assessment (circle one):
- Fail
- Borderline fail
- Borderline pass
- Pass
The second station in this broad content area covers interpretation of clinical data and the third comprises a critical care scenario which is examined by a physiologist and a surgeon examiner. Domain mark distributions are shown in the matrix above.

3. Communication skills (5 stations)
A full example of a typical history-taking station is shown.

**MRCS OSCE**
Scenario summary sheet

<table>
<thead>
<tr>
<th>Code</th>
<th>CSH T 03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Obstructive jaundice</td>
</tr>
<tr>
<td>Syllabus area</td>
<td>Communication – history taking</td>
</tr>
<tr>
<td>Content area</td>
<td>Communication – history taking</td>
</tr>
<tr>
<td>Station type</td>
<td>Specialty – trunk and thorax</td>
</tr>
<tr>
<td></td>
<td>Double manned</td>
</tr>
<tr>
<td>Domains assessed</td>
<td>Clinical knowledge and its application 4 marks</td>
</tr>
<tr>
<td></td>
<td>Clinical skill 2 x 4 marks</td>
</tr>
<tr>
<td></td>
<td>Communication 4 marks</td>
</tr>
<tr>
<td></td>
<td>Professionalism 4 marks</td>
</tr>
</tbody>
</table>

**Source**

**Last updated**

**Used:**

**Props and equipment**

**Actor**
Male, 50–70.

**College**
Desk/table.
Pencil and paper for candidate’s notes.
Chairs for candidate and two examiners.
Couch for actor

**Candidate instructions**
This patient has been referred as an emergency to the surgical assessment unit. The GP has said that the patient has jaundice.

You are to take an appropriate history in 6 minutes (you may make notes). If you complete your history within the 6 minutes you should indicate to the examiners that you are ready.

In the remaining 3 minutes the examiners will ask you to present a summary of the history. They may also ask you to discuss any particular physical signs you would look for on examination, the likely differential diagnosis, appropriate investigations and a management plan.
Information for the actor

**Patient details**  
**Name:** Mr. Jack Rose  
**Age:** 65  
**Sex:** Male  
**Job:** Retired policeman  
**Hospital number:** A236572

<table>
<thead>
<tr>
<th>Patient's address:</th>
<th>GP address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 Princes street</td>
<td>Dr PR Smith</td>
</tr>
<tr>
<td>Anytown</td>
<td>High Street Surgery</td>
</tr>
<tr>
<td>Anyshire</td>
<td>High Street</td>
</tr>
<tr>
<td>AY67 7GH</td>
<td>Anytown, AB12 3XY</td>
</tr>
</tbody>
</table>

**Character:** Patient  
**Age range for actor from:** 50 to 70  
**Costume:** Dressing gown  
**Personal props:** Yellow make-up to simulate jaundice would be helpful.  
**Time and place** This scenario takes place in the surgical assessment unit on a weekday morning

**The scenario**
You have seen your own GP who has arranged for you to come to the SAU with a view to emergency admission to the hospital. No special clothing or props are required but appropriate yellow make-up on your face to simulate jaundice would add some authenticity. The candidate will take a history from you and will not be required to do any physical examination. Apart from your presenting complaint do not volunteer other information until asked specifically by the candidate.

**YOU DO NOT FEEL AT ALL WELL.**

You are a 65-year-old retired policeman.

**Presenting complaint**

Not felt well for past month and for the last 3 days you have noted that your skin and eyes have become yellow and your skin itchy.

**Associated history**

Your appetite is poor and you have noticed your clothes are becoming loose (you haven’t weighed yourself). You feel rather tired and run-down. You have been trying to eat but feel quickly full up and have had episodes of nausea. Having had a regular once per day bowel action you now have to open your bowels after most meals, passing loose stools. For 3 days they have been a white clay colour, very smelly and not the usual brown. You have not noted any blood in the stools but get occasional bright blood on the toilet paper when you wipe yourself which you think is due to piles. You have not had any significant pain in your abdomen, but have noted a dull ache in the middle of your lower back which you think is due to an old injury sustained when you were in the police.

**Other systems**

Respiratory: Smoker’s cough.

Cardiac: No problems.

Urinary: Get up once per night, reasonable stream, noted urine very dark brown colour for 3 days. No pain/burning or stinging not aware of any blood.

Musculoskeletal: No problems.

Nervous system: No problems.

**Past surgical history**

Tonsillectomy as a child.

Appendicectomy age 15.
Haemorrhoids (piles) injected age 50.
Laparoscopic cholecystectomy (keyhole surgery to remove your gallbladder and gallstones) age 55.

**Medical history**

Hypertension from age 54.
Type 2 diabetes from age 58.
Three months ago episode of tender inflammation in varicose vein in left leg. GP diagnosed phlebitis and prescribed antibiotics.

**Drug history** (you may wish to note these on a piece of paper)
Metformin (500 mg, three times a day) and glicazide (100 mg once a day) for diabetes
Bendroflumethiazide (2.5 mg daily) for hypertension
Simvastatin (40 mg at night) – your GP put you on this 2 years ago ‘to stop you having a heart attack’

You don’t have any allergies.

**Social history**

You were a policeman for 35 years and retired at the age of 55 having been a sergeant for 15 years. You then worked for 5 years with a security company organising guards for factory premises. For the last 3 years you have been caring for your 68-year-old wife who is becoming increasingly disabled by motor-neurone disease. You know this can’t be cured and her doctors have indicated that she will probably not survive more than a few years. You have one married daughter who lives in Australia.

You smoke 20 cigarettes a day and have done so since you were a teenager. You have always enjoyed drinking beer and whisky (not wine). When you were in the police you often indulged in heavy drinking sessions (when not on duty) and since retirement you have had 2–3 pints of beer and 2 whiskies most days. You eat a normal diet.

**Family history**

Your father was killed while serving in the army during the Korean war in 1952 and your mother died of a heart attack at the age of 73. You have a younger brother and sister who are well as far as you are aware. They live in Scotland and you have only occasional contact with them.

**Anxieties**

You are very worried by the symptoms that you have and are concerned about what will happen to your wife if you have to come into hospital for treatment. (You have a good next door neighbour who is helping.)

If asked about any other personal or social details rely on your own experience and make your answers consistent throughout the circuit.

**Background**

This patient’s jaundice is due to a blockage of the bile duct which means that bile is dammed up and spills over into the bloodstream, making him yellow. The most likely cause of the jaundice is a tumour, but gallstones are also a possibility even though he has had his gallbladder removed.

---

**Examiner instructions**

In this scenario, the candidate has 6 minutes to take an appropriate, focused and relevant clinical history from a simulated patient. They will then have 3 minutes to produce a sensible summary of relevant positive and negative points from the history and a differential diagnosis. They should be able to suggest appropriate investigations and management.

Both examiners should listen to and observe the candidate (who may make notes) taking the history without interruption. If the candidate does not appear to be performing the required task properly, invite them to re-read the candidate instructions.
After 6 minutes (or sooner if the candidate is ready), Examiner 1 uses the remaining time to ask the candidate the following.

1. To summarise the history.
2. To give the differential diagnosis and explain how they would justify their answer.
3. To explain how the diagnosis would be confirmed (see below).
4. To specify what management they would recommend (see below).

Examiner 1 marks the domains *clinical skill* and *clinical knowledge*.
Examiner 2 marks the domains *communication* and *professionalism*.

The examiners should not swap roles between candidates during the circuit.
Both examiners will assess the overall performance of the candidate.
Examiner 1 looks at whether the candidate has gathered accurate information relevant to the specific scenario along with important systemic effects of the condition under consideration through the use of proper closed questions and systematic enquiry.
Examiner 2 assesses the candidate's general approach to the taking of the history as instructed on the mark sheet. They examine the candidate–patient interaction and check for shared understanding between candidate and patient. During the discussion with Examiner 1 after the history-taking, they should consider whether the information is being fed back with synthesis and prioritisation.

If the candidate finishes early they must remain in the bay and wait for the indication to move on.

**Scenario-specific guidance**

1. **What are the essential points in the history?**

   1-month history of feeling unwell:
   • anorexia
   • weight loss (implied)
   • nausea and vague backache
   • increasing diarrhoea, loose smelly stools.

3 days of worsening jaundice, skin itching, dark urine and pale stools.

Past history of cholecystectomy for gallstones, type 2 diabetes, hypertension and recent episode of thrombophlebitis.

Lifelong smoker (risk factor for pancreatic cancer) and heavy alcohol intake (can cause chronic liver disease).

Disabled wife at home.

Concerns about diagnosis and care of wife.

2. **Based on the history you have obtained what is the differential diagnosis of the most likely causes of this patient's symptoms?** (You may need to prompt)

   Obstructive jaundice due to:
   • carcinoma of head of pancreas, ampulla or bile duct
   • bile duct stricture
   • bile duct stone (NB previous cholecystectomy)
   • chronic pancreatitis
   • liver cancer secondary or primary
   • other rare pancreatic tumours.
3. Physical examination reveals a jaundiced patient with scratch marks on his arms, scars from previous surgery and evidence of recent weight loss. There are no other abnormal findings. What special investigations would you request from the SAU?

- Full blood count, clotting studies, urea and electrolytes, liver function tests, amylase, possibly tumour markers (CA19-9), hepatitis screen.
- Urine dip (may also request separate test for urobilinogen – not present in obstructive jaundice).
- Urgent abdominal ultrasound and CT (if available).

4. What would you expect the liver function tests to show?

- Raised bilirubin (conjugated), alkaline phosphatase and gamma GT, relatively normal other liver enzymes suggesting bile duct obstruction.

Critical points
- Realises patient is jaundiced.
- Might be cancer but other differentials.
- Initial investigations.
- More complex later investigations.
- Admit for investigations and possible ERCP.

Generic domain descriptors

Clinical knowledge
- Possesses the clinical knowledge specified in the syllabus.
- Able to understand, synthesise and apply knowledge in a clinical context.

Clinical skill
- Capable of applying sound clinical knowledge, skill and awareness to a full investigation of problems to reach a provisional diagnosis.

Communication
- Able to assimilate information, identify what is important and convey it to others clearly using a variety of methods.
- Capable of adjusting behaviour and language as appropriate to needs of differing situations.
- Actively and clearly engages patient/carer/colleague(s) in open dialogue.

Professionalism
- Able to accommodate new or changing information and use it to manage a clinical problem.
- Anticipates and plans in advance.
- Prioritises conflicting demands and builds contingencies.
- Demonstrates effective management of time and resources.


**EXAMINER 1 MARK SHEET**

Candidate number: 

Examiner number: 

Date: 

Signature: 

<table>
<thead>
<tr>
<th>Scenario code and title</th>
<th>CSH T 03 Obstructive jaundice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domains assessed</strong></td>
<td>Clinical skill 2 x 4 mark</td>
</tr>
<tr>
<td></td>
<td>Clinical knowledge and its application 4 mark</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical skill 1</strong></td>
<td>1–4</td>
</tr>
<tr>
<td>Elicits necessary detail/information from patient/colleague.</td>
<td></td>
</tr>
<tr>
<td>Accurately identifies key clinical symptoms.</td>
<td></td>
</tr>
<tr>
<td>Accurately interprets key clinical symptoms.</td>
<td></td>
</tr>
<tr>
<td>Has a systematic, complete and organised approach.</td>
<td></td>
</tr>
<tr>
<td>General assessment of patient is satisfactory.</td>
<td></td>
</tr>
<tr>
<td>Can take a detailed history from a poorly patient who is frightened about his diagnosis and the impact this will have on his family.</td>
<td></td>
</tr>
<tr>
<td><strong>Clinical skill 2</strong></td>
<td>1–4</td>
</tr>
<tr>
<td>Presents a well organised history.</td>
<td></td>
</tr>
<tr>
<td>Accurately describes key clinical symptoms.</td>
<td></td>
</tr>
<tr>
<td>Understands key clinical signs.</td>
<td></td>
</tr>
<tr>
<td>Overall assessment of patient is satisfactory.</td>
<td></td>
</tr>
<tr>
<td>Able to use history to suggest a sensible management plan.</td>
<td></td>
</tr>
<tr>
<td>Aware of the seriousness of this history.</td>
<td></td>
</tr>
<tr>
<td>Appreciates need to organise care for patient's wife.</td>
<td></td>
</tr>
<tr>
<td><strong>Clinical knowledge</strong></td>
<td>1–4</td>
</tr>
<tr>
<td>Demonstrates knowledge in the essential areas tested.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates knowledge in the majority of areas examined.</td>
<td></td>
</tr>
<tr>
<td>Knowledge of the likely differential diagnosis based on the patient's symptoms (listed in the patient's notes and examiner's guidance).</td>
<td></td>
</tr>
</tbody>
</table>

**Examiner 1 overall assessment (circle one):**

<table>
<thead>
<tr>
<th></th>
<th>Fail</th>
<th>Borderline fail</th>
<th>Borderline pass</th>
<th>Pass</th>
</tr>
</thead>
</table>

Page 48
<table>
<thead>
<tr>
<th>Domain assessed</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>Uses appropriate opening/introductions and establishes purpose of the interview.</td>
<td>1–4</td>
</tr>
<tr>
<td>Uses technical/non-technical language appropriately, accurately and with fluency.</td>
<td></td>
</tr>
<tr>
<td>Confirms that there is common understanding.</td>
<td></td>
</tr>
<tr>
<td>Establishes relationship of respect with others.</td>
<td></td>
</tr>
<tr>
<td>Adapts language/behaviour as needed and adjusts style of questioning (open/closed) as appropriate.</td>
<td></td>
</tr>
<tr>
<td>Establishes rapport with others.</td>
<td></td>
</tr>
<tr>
<td>Uses appropriate body language and eye contact.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates clarity and focus in communication.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates active listening towards others.</td>
<td></td>
</tr>
<tr>
<td>Demonstrates empathy and responds appropriately to patient’s concerns and questions.</td>
<td></td>
</tr>
<tr>
<td>Adequate closure of interview.</td>
<td></td>
</tr>
<tr>
<td>Takes a comprehensive history from a patient who does not feel at all well.</td>
<td></td>
</tr>
<tr>
<td>Does not alarm patient excessively with possible diagnosis at this stage – need to await results of investigations.</td>
<td></td>
</tr>
<tr>
<td>Aware of issues surrounding the wife.</td>
<td></td>
</tr>
<tr>
<td>Professionalism</td>
<td></td>
</tr>
<tr>
<td>Plans ahead, identifies requirements and prioritises accordingly.</td>
<td>1–4</td>
</tr>
<tr>
<td>Demonstrates strategic and tactical planning ability.</td>
<td></td>
</tr>
<tr>
<td>Able to recognise and manage complex and competing needs.</td>
<td></td>
</tr>
<tr>
<td>Manages time and resources effectively.</td>
<td></td>
</tr>
<tr>
<td>Appreciates need to involve other agencies for care of the wife.</td>
<td></td>
</tr>
<tr>
<td>Aware that patient must be admitted for investigation and probable ERCP in the first instance.</td>
<td></td>
</tr>
<tr>
<td>Does not criticise patient’s smoking and drinking habits at this stage.</td>
<td></td>
</tr>
<tr>
<td>Is sympathetic to this patient's considerable problems.</td>
<td></td>
</tr>
</tbody>
</table>
Note that the actor playing the simulated patient is given a detailed brief so that they can provide a full history when questioned. These histories normally go beyond the immediate problem and will often introduce other anxieties which the candidates should be able to pick up. These scenarios have two examiners who examine different domains but will agree an overall global judgement.

The other stations within this broad content area are:

- Talking with relatives and carers. For this the candidate will typically have a preparation bay which will involve extracting information from a set of hospital notes and then having an interview with a patient, their relative or a carer. Two examiners are used for this assessment, one of which will be a fully trained lay examiner who will have been a patient and will be able to assess the non-scientific communication skill of the candidate.

- Communicating with colleagues. Again a preparation bay is used in which the candidate is asked to extract information from a set of case notes. They then have a telephone conversation with an examiner who will be playing the role of a colleague. Typical scenarios might involve any situation where a surgical trainee needs to discuss a patient with a senior colleague such as planning management of a deteriorating patient or organising a transfer to a regional centre. These stations are marked by a single examiner.
4. Clinical and Procedural Skills

Physical examination

The four physical examination stations each have a single examiner who will normally observe the candidate’s interaction with the patient for up to 6 minutes and then ask the questions indicated. Wherever possible real patients are used but in some instances when an acute condition forms the basis of the scenario a fully briefed actor will be used to simulate the clinical signs.

A full example of a typical physical examination scenario is shown below,

<table>
<thead>
<tr>
<th>Code</th>
<th>CPE T 04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Breast mass</td>
</tr>
<tr>
<td>Syllabus area</td>
<td>to be defined</td>
</tr>
<tr>
<td>Content area</td>
<td>Clinical and procedural skills – physical examination</td>
</tr>
<tr>
<td>Station type</td>
<td>Specialty context – trunk and thorax</td>
</tr>
<tr>
<td>Domains assessed</td>
<td>Clinical and technical skill 8 marks, Communication 4 marks, Clinical knowledge and its application 4 marks, Professionalism 4 marks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last updated</td>
</tr>
<tr>
<td>Used</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Props and equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
</tr>
<tr>
<td>Female patient with breast lump/mass</td>
</tr>
<tr>
<td>College</td>
</tr>
<tr>
<td>Examination couch, table and chairs</td>
</tr>
<tr>
<td>Hand gel and tissues</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Candidate instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>You are a basic surgical trainee in the outpatient clinic and are asked to see a patient referred by her GP on account of a breast lump.</td>
</tr>
<tr>
<td>After 6 minutes (or sooner if you are ready) you will be asked to present your findings and have a discussion with the examiner. The examiner will not prompt you unless they feel the patient is being made uncomfortable or embarrassed.</td>
</tr>
</tbody>
</table>
This station tests physical examination skills and not history-taking. You should restrict communication with the patient to issues relevant to your physical examination. Let the examiner know if you are ready to summarise your findings before 6 minutes.

**Patient instructions**

The examiner will explain what is required before the start of the circuit.

**Examiner instructions**

This station evaluates the candidate’s ability to examine a patient with a breast lump. The candidate is not required to report their findings as they go along. Please do not interact with the candidate whilst they are performing the examination unless the patient is made to feel uncomfortable or embarrassed. If the candidate appears to have misunderstood the task invite them to re-read the instructions.

After 6 minutes, or sooner if the candidate indicates they are ready:
- invite them to summarise their findings
- ask if there are any other examinations they would wish to perform
- ask what they consider the possible underlying cause to be
- ask whether any special investigations may be required
- ask what the options for management are.

The role of the examiner is to ensure the candidate conducts a technically proficient and knowledgeable examination of the relevant part. They should do so sensitively and with all due consideration for the patient.

**Generic domain descriptors**

**Clinical knowledge**
Possesses the clinical knowledge specified in the syllabus.
Able to understand, synthesise and apply knowledge in a clinical context.

**Clinical and technical skill**
Capable of applying sound clinical knowledge, skill and awareness to a full investigation of problems to reach a provisional diagnosis.
Able to perform manual tasks related to surgery that demand manual dexterity, hand/eye coordination and visual/spatial awareness.

**Communication**
Able to assimilate information, identify what is important and convey it to others clearly using a variety of methods.
Capable of adjusting behaviour and language as appropriate to needs of differing situations.
Actively and clearly engages patient/carer/colleague in open dialogue.

**Professionalism**
Demonstrates effective judgment and decision-making skills.
Considers all appropriate facts before reaching decision.
Makes the best use of information and is able to think beyond the obvious.
Alert to symptoms and signs suggesting conditions that might progress or destabilise.
Aware of own strengths/limitations and knows when to ask for help.
Able to accommodate new or changing information and use it to manage a clinical problem.
Anticipates and plans in advance.
Prioritises conflicting demands and builds contingencies.
Demonstrates effective management of time and resources.
Aware of need to put patient safety first.
## EXAMINER MARK SHEET

<table>
<thead>
<tr>
<th>Candidate number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examiner number:</td>
</tr>
<tr>
<td>Date:</td>
</tr>
<tr>
<td>Signature:</td>
</tr>
</tbody>
</table>

### Scenario code and title

| CPE T 04 Breast mass |

### Domains assessed

<table>
<thead>
<tr>
<th>Clinical and technical skill (8 marks)</th>
<th>Communication (4 marks)</th>
<th>Clinical knowledge and its application (4 marks)</th>
<th>Professionalism (4 marks)</th>
</tr>
</thead>
</table>

### Domain and station-specific positive indicators for marking

#### Clinical and technical skill (8 marks)
- Elicits necessary detail/information from patient/colleague.
- Accurately identifies and interprets key clinical signs.
- System-specific inspection and palpation are satisfactory.
- Has a systematic, complete and organised approach.
- Handles the patient gently and with consideration and respect.
- General assessment of patient is satisfactory.
- Completes tasks in a timely manner.
- Shows clear dexterity in completing tasks.
- Shows good hand/eye coordination.
- Able to conduct a technically proficient examination in an organised and timely fashion.

The candidate should:
- Confirm which breast the patient has noticed the lump in and check if tender/painful
- Inspect lying down, sitting up and with hands raised above the head
- Palpate the contralateral breast initially
- Accurately define the size and location of the palpable abnormality
- Check for skin involvement and muscle fixity
- Examine the axillae.

#### Communication (4 marks)
- Uses technical language appropriately and correctly.
- Establishes relationship of respect with others without being patronising or domineering.
- Demonstrates clarity and focus in communication.
- Demonstrates active listening towards others.
- Able to express ideas clearly to others.
- Introduction and establishment of rapport with patient.
- Responds appropriately to the patient if causing pain/distress.
- Observes eye contact, body language.
- Summarises patient examination.
- Discussion of possible management.
Clinical knowledge (4 marks)
- Demonstrates knowledge in the essential areas tested.
- Demonstrates knowledge in the majority of areas examined.
- Demonstrates the ability to synthesise knowledge and apply it in a clinical context.
- Knowledge is well organised.
- Knows how to perform a competent well structured assessment of a patient with a breast lump.
- Differential diagnosis:
  - malignant lesion
  - fibroadenoma
  - breast cyst.
- Investigations:
  - FNA and core biopsy
  - mammography
  - ultrasound

Professionalism (4 marks)
- Considers all the facts before reaching a decision.
- Responds flexibly, redirecting thinking when the situation demands.
- Shows awareness of wider needs of situation. Attempts to think 'around' issue.
- Able to explain and justify decisions.
- Alert to symptoms and signs suggesting conditions that might progress or destabilise.
- Able to accommodate new or changing information.
- Demonstrates strategic and tactical planning ability.
- Able to recognise and manage complex and competing needs.
- Manages time and resources effectively.
- Puts patient safety foremost when planning.

Examiner’s overall assessment (circle one):

<table>
<thead>
<tr>
<th>Fail</th>
<th>Borderline fail</th>
<th>Borderline pass</th>
<th>Pass</th>
</tr>
</thead>
</table>

Procedural skills

The two procedural skills stations will typically involve use of simulated patients with an appropriate prosthetic attachment in order to test basic surgical and resuscitation skills such as may be found within the CCrISP or Basic Surgical Skills courses. They may also include patient safety-related issues such as correct ordering of theatre lists or discussing the dangers of diathermy.