The Intercollegiate Surgical Curriculum

Educating the surgeons of the future

Urology Surgery

From August 2015
(Updated 2016)

ISCP INTERCOLLEGIATE SURGICAL CURRICULUM PROGRAMME

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Syllabus contents

Introduction

The intercollegiate surgical curriculum provides the approved UK framework for surgical training from completion of the foundation years through to consultant level. In the Republic of Ireland it applies from the completion of Core Surgical Training through to consultant level. It achieves this through a syllabus that lays down the standards of specialty-based knowledge, clinical judgement, technical and operative skills and professional skills and behaviour, which must be acquired at each stage in order to progress. The curriculum is web based and is accessed through www.iscp.ac.uk.

The website contains the most up to date version of the curriculum for each of the ten surgical specialties, namely: Cardiothoracic Surgery; General Surgery; Neurosurgery; Oral and Maxillofacial Surgery (OMFS); Otolaryngology (ENT); Paediatric Surgery; Plastic Surgery; Trauma and Orthopaedic Surgery (T&O); Urology and Vascular Surgery. They all share many aspects of the early years of surgical training, but naturally diverge further as training in each discipline becomes more advanced. Each syllabus will emphasise the commonalities and elucidate in detail the discrete requirements for training in the different specialties.

Doctors who will become surgical trainees

After graduating from medical school doctors move onto a mandatory two-year foundation programme in clinical practice (in the UK) or a one year Internship (in the Republic of Ireland). During their final year of medical school students are encouraged to identify the area of medicine they wish to pursue into specialty training. During the Foundation programme or Internship, recently qualified doctors are under close supervision whilst gaining a wide range of clinical experience and attaining a range of defined competences. Entry into surgery is by open competition and requires applicants to understand, and provide evidence for their suitability to become members of the surgical profession.

Selection into a surgical discipline

The responsibility for setting the curriculum standards for surgery rests with the Royal Colleges of Surgeons which operate through the Joint Committee on Surgical Training (JCST) and its ten Specialty Advisory Committees (SACs) and Core Surgical Training Committee (CSTC). In the UK, each SAC has developed the person specifications for selection into its specialty and the person specification for entry to ST1/CT1 in any discipline. Postgraduate Medical Deaneries and/or Local Education and Training Boards (LETBs) and their Schools of Surgery are responsible for running training programmes, which are approved by the UK's General Medical Council (GMC), and for aiding the SACs in the recruitment and selection to all levels of pre-Certification training. In the Republic of Ireland, these roles are undertaken by the Royal College of Surgeons in Ireland (RCSI) and by Ireland's Medical Council of Ireland (MCoI).

The critical selection points for surgical training are at initial entry either directly into specialty training in the chosen discipline (ST1) or into a generic training period referred to as core training (CT1). Those who enter core training are then selected into the discipline of their choice after two core years and join the specialty programme at a key competency point (ST3) after which transfer from one discipline to another would be relatively unusual. Selection at both core and higher surgical training takes place via a national selection process overseen by the Deaneries/LETBs and JCST and, in the Republic of Ireland, by the RCSI.

Those who are selected into training programmes will then have to achieve agreed milestones in terms of College examinations and the Annual Review of Competence Progression (ARCP) requirements.

Guidance about the UK recruitment process, application dates and deadlines and links to national person specifications by specialty are available from the Specialty Training website here. The RCSI provides this information for Ireland.

Educational Principles of the Curriculum

The provision of excellent care for the surgical patient, delivered safely, is at the heart of the curriculum.

The aims of the curriculum are to ensure the highest standards of surgical practice in the UK and the Republic of Ireland by delivering high quality surgical training and to provide a programme of training from the completion of the foundation years through to the completion of specialty surgical training, culminating in the award of a CCT/CESR-CP[1]/CCST. The curriculum was founded on the following key principles which support the achievement of these aims:

- A common format and similar framework across all the specialties within surgery.
- Systematic progression from the end of the foundation years through to completion of surgical specialty training.
- Curriculum standards that are underpinned by robust assessment processes, both of which conform to the standards specified by the GMC/RCSI.
- Regulation of progression through training by the achievement of outcomes that are specified within the specialty curricula. These outcomes are competence-based rather than time-based.
- Delivery of the curriculum by surgeons who are appropriately qualified to deliver surgical training.
- Formulation and delivery of surgical care by surgeons working in a multidisciplinary environment.
- Collaboration with those charged with delivering health services and training at all levels.

The curriculum is broad based and blueprinted to the GMC's Good Medical Practice and RCS England's (on behalf of all four Royal Colleges in the UK and the Republic of Ireland) Good Surgical Practice frameworks to ensure that surgeons completing the training programme are more than just technical experts.

Equality and diversity are integral to the rationale of the curriculum and underpin the professional behaviour and leadership skills syllabus. The ISCP encourages a diverse surgical workforce and therefore encourages policies and practices that:

- ensure that every individual is treated with dignity and respect irrespective of their age, disability, race, religion, sex, sexual orientation or marital status, or whether they have undergone gender reassignment or are pregnant.
- promote equal opportunities and diversity in training and the development of a workplace environment in which colleagues, patients and their carers are treated fairly and are free from harassment and discrimination.

It is expected that these values will be realised through each individual hospital trust's equality and diversity management policies and procedures. This principle also underlies the Professional Behaviour and Leadership syllabus.

Who should use the curriculum?

The ISCP comprises the curricula for the ten surgical specialties which are GMC-approved in the UK and MCoI-approved in the Republic of Ireland. It reflects the most up to date requirements for trainees who are working towards a UK Certificate of Completion of Training (CCT), a UK Certificate of Eligibility for Specialist Registration via the Combined Programme (CESR-CP) or, in the Republic of Ireland, a Certificate of Completion of Specialist Training (CCST). Where an older version of the curriculum is superseded, trainees will be expected to transfer to the most recent version in the interests of patient safety and educational quality.

The GMC's position statement on moving to the most up to date curriculum is here.

The curriculum is appropriate for trainees preparing to practice as consultant surgeons in the UK and the Republic of Ireland. It guides and supports training for a UK Certificate of Completion of Training (CCT), a UK Certificate of Eligibility for Specialist Registration via the Combined Programme (CESR-CP) or, in the Republic of Ireland, Certificate of Completion of Specialist Training (CCST) in a surgical specialty. The curriculum enables trainees to develop as generalists within their chosen surgical specialty, to be able to deliver an on-call emergency service and to deliver more specialised services to a defined level.

A CCT/CESR-CP/CCST can only be awarded to trainees who have completed a fully- or part-approved specialty training programme. Doctors applying for a full Certificate of Eligibility for Specialist Registration (CESR) will be required to demonstrate that they meet the standards required for a CCT/CESR-CP/CCST as set out in the most up to date curriculum at the time of application.

Components of the curriculum

The surgical curriculum has been designed around four broad areas, which are common to all the surgical specialties:

- **Syllabus** - what trainees are expected to know, and be able to do, in the various stages of their training
- **Teaching and learning** - how the content is communicated and developed, including the methods by which trainees are supervised
- **Assessment and feedback** - how the attainment of outcomes are measured/judged with formative feedback to support learning
- **Training systems and resources** - how the educational programme is organised, recorded and quality assured

In order to promote high quality and safe care of surgical patients, the curriculum specifies the parameters of knowledge, clinical skills, technical skills, professional behaviour and leadership skills that are considered necessary to ensure patient safety throughout the training process and specifically at the end of training. The curriculum therefore provides the framework for surgeons to develop their skills and judgement and a commitment to lifelong learning in line with the service they provide.

Length of training

A similar framework of stages and levels is used by all the specialties. Trainees progress through the curriculum by demonstrating competence to the required standard for the stage of training. Within this framework each specialty has defined its structure and indicative length of training. Each individual specialty syllabus provides details of how the curriculum is shaped to the stages of training.

In general terms, by the end of training, surgeons have to demonstrate:

- Theoretical and practical knowledge related to surgery in general and to their specialty practice;
- Technical and operative skills;
- Clinical skills and judgement;
- Generic professional and leadership skills;
- An understanding of the values that underpin the profession of surgery and the responsibilities that come with being a member of the profession;
- The special attributes needed to be a surgeon;
- A commitment to their on-going personal and professional development and practice using reflective practice and other educational processes;
- An understanding and respect for the multi-professional nature of healthcare and their role in it; and
- An understanding of the responsibilities of being an employee in the UK and/or Republic of Ireland health systems and/or a private practitioner.

In the final stage of training, when the trainee has attained the knowledge and skills required for the essential aspects of the curriculum in their chosen specialty, there will be the opportunity to extend his/her skills and competences in one or two specific fields. The final stage of the syllabus covers the major areas of specialised practice. The syllabuses are intended to allow the future CCT/CESR-CP/CCST holder to develop a particular area of clinical interest and expertise prior to appointment to a consultant post. Some will require further post-certification training in order to achieve the competences necessary for some of the rarer complex procedures. In some specialties, interface posts provide this training in complex areas pre-certification.

Acting up as a consultant (AUC)

'Acting up' under supervision provides final year trainees with experience to help them make the transition from trainee to consultant. A period of acting up offers trainees an opportunity to get a feel for the consultant role while still being under a level of supervision.

The post must be defined as acting up for an absent consultant, and cannot be used to fill a new locum consultant post or to fill service needs.

The trainee acting up will be carrying out a consultant's tasks but with the understanding that they will have a named supervisor at the hosting hospital and that the designated supervisor will always be available for support, including out of hours or during on-call work.

Specialty Advisory Committee (SAC) support is required and must be sought prospectively through an application to the JCST. Further GMC prospective approval is not required unless the acting up post is outside the home Deanery/LETB. If accepted the AUC will be able to count towards the award of a CCT/CESR-CP/CSD. Trainees will need to follow the JCST guidance which can be found on the JCST website.

Educational framework

The educational framework is built on three key foundations that are interlinked:

- Stages in the development of competent practice
- Standards in the areas of specialty-based knowledge, clinical judgement, technical and operative skills, and professional behaviour and leadership
- Framework for Appraisal, Feedback and Assessment

Stages of training

The modular surgical curriculum framework has been designed to define stages in the development of competent surgical practice, with each stage underpinned by explicit outcome standards. This provides a means of charting progress through the various stages of surgical training in the domains of specialty-based knowledge, clinical and technical skills and professional behaviour and leadership (including judgement).

Each surgical specialty has adapted this approach to reflect their training pathway. Therefore, although the educational concept is the same for all specialties the composition of the stages will differ.

UK Only

The core (or initial stage for run-through training) reflects the early years of surgical training and the need for surgeons to gain competence in a range of knowledge and skills many of which will not be specialty-specific. A syllabus, which is common to all the surgical specialties (the common component of the syllabus, which is founded in the applied surgical sciences) has been written for this stage. This is supplemented by the topics from the appropriate surgical specialty syllabus as defined in each training programme (the specialty-specific component of the syllabus).

UK and Republic of Ireland

During the intermediate and final stages the scope of specialty practice increases with the expansion in case mix and case load and this is accompanied by the need for greater depth of knowledge and increasing skills and judgement. The content is therefore based on progression, increasing in both depth and complexity through to the completion of training.

Standards of training

Surgeons need to be able to perform in differing conditions and circumstances, respond to the unpredictable, and make decisions under pressure, frequently in the absence of all the desirable data. They use professional judgement, insight and leadership in everyday practice, working within multi-professional teams. Their conduct is guided by professional values and standards against which they are judged. These values and standards are laid down in the General Medical Council's Good Medical Practice in the UK and the Republic of Ireland Medical Council's Guide to Professional Conduct and Ethics.

The Professional Behaviour and Leadership Skills syllabus is mapped to the Leadership framework as laid out by the Academy of Medical Royal Colleges and derived from Good Medical Practice. The Professional Behaviour and Leadership skills section of the syllabus is common to all surgical specialties and is based on Good Medical Practice.

The syllabus lays down the standards of specialty-based knowledge, clinical judgement, technical and operative skills and professional skills and behaviour that must be acquired at each stage in order to progress. The syllabus comprises the following components:

- A specialty overview which describes the following:
    - Details of the specialty as it practised in the UK and the Republic of Ireland
    - The scope of practice within the specialty
    - The key topics that a trainee will cover by the end of training
    - An overview of how, in general terms, training is shaped
- Key topics that all trainees will cover by certification and will be able to manage independently, including complications. These are also referred to as essential topics.
- Index procedures that refer to some of the more commonly performed clinical interventions and operations in the specialty. They represent evidence of technical competence across the whole range of specialty procedures in supervised settings, ensuring that the required elements of specialty practice are acquired and adequately assessed. Direct Observations of Procedural Skills (DOPS) and Procedure-based Assessments (PBAs) assess trainees carrying out index procedures (whole procedures or specific sections) to evidence learning.
- The stages of training, which comprise a number of topics to be completed during a notional period of training. Within each stage there is the syllabus content which contains the specialty topics that must be covered. Each of these topics includes one or more learning objectives and the level of performance / competence to be achieved at completion in the domains of:
    - Specialty-based knowledge
    - Clinical skills and judgement
    - Technical and operative skills

Standards for depth of knowledge during early years surgical training (UK only)

In the early years of training, the appropriate depth and level of knowledge required can be found in exemplar texts tabulated below. We expect trainees to gain knowledge from these texts in the context of surgical practice defined in the core surgical component of the curriculum above.

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

The texts are not recommended as the sole source within their subject matter and there are alternative textbooks and web information that may better suit an individual's learning style. Over time it will be important for associated curriculum management systems to provide an expanded and critically reviewed list of supporting educational material.

Topic	Possible textbooks or other educational sources
Anatomy	Last's Anatomy: Regional and Applied (MRCS Study Guides) by R.J. Last and Chummy Sinnatamby Netter's Atlas of Human Anatomy 4th Edition Saunders-Elsevier ISBN-13-978-1-4160-3385-1
Physiology	Ganong's Review of Medical Physiology, 23rd Edition (Lange Basic Science)
Pathology	Robbins Basic Pathology by Vinay Kumar MBBS MD FRCPath, Abul K. Abbas MBBS, Nelson Fausto MD, and Richard Mitchell MD PhD
Pharmacology	Principles and Practice of Surgery by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon)

	FRCSC(Hon) Professor, Andrew W. Bradbury BSc MBChB MD MBA FRCSEd Professor, John L. R. Forsythe MD FRCS(Ed) FRCS, and Rowan W Parks Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O'Connell (Editor)
Microbiology	Principles and Practice of Surgery by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O'Connell (Editor)
Radiology	Principles and Practice of Surgery by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor, Andrew W. Bradbury BSc MBChB MD MBA FRCSEd Professor, John L. R. Forsythe MD FRCS(Ed) FRCS, and Rowan W Parks Grainger & Allison's Diagnostic Radiology, 5th Edition. Andy Adam (Editor), Adrian Dixon (Editor), Ronald Grainger (Editor), David Allison (Editor) Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O'Connell (Editor)
Common surgical conditions	Principles and Practice of Surgery by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor, Andrew W. Bradbury BSc MBChB MD MBA FRCSEd Professor, John L. R. Forsythe MD FRCS(Ed) FRCS, and Rowan W Parks Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O'Connell (Editor)
Surgical skills	Basic surgical skills course and curriculum
Peri-operative care including critical care	ATLS® course CCrISP course Principles and Practice of Surgery by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor, Andrew W. Bradbury BSc MBChB MD MBA FRCSEd Professor, John L. R. Forsythe MD FRCS(Ed) FRCS, and Rowan W Parks Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O'Connell (Editor)
Surgical care of children	Principles and Practice of Surgery by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor, Andrew W. Bradbury BSc MBChB MD MBA FRCSEd Professor, John L. R. Forsythe MD FRCS(Ed) FRCS, and Rowan W Parks Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O'Connell (Editor) Jones Clinical Paediatric Surgery Diagnosis and Management Editors JM

	Hutson, M O'Brien, AA Woodward, SW Beasley 6th Edition 2008 Melbourne Blackwell Paediatric Surgery: Essentials of Paediatric urology by D Thomas, A Rickwood, P Duffy
Care of the dying	Principles and Practice of Surgery by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor, Andrew W. Bradbury BSc MBChB MD MBA FRCSEd Professor, John L. R. Forsythe MD FRCS(Ed) FRCS, and Rowan W Parks Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O'Connell (Editor)
Organ transplantation	Principles and Practice of Surgery by O. James Garden MB ChB MD FRCS(Glasgow) FRCS(Edinburgh) FRCP (Edinburgh) FRACS(Hon) FRCSC(Hon) Professor, Andrew W. Bradbury BSc MBChB MD MBA FRCSEd Professor, John L. R. Forsythe MD FRCS(Ed) FRCS, and Rowan W Parks Bailey and Love's Short Practice of Surgery 25th Edition by Norman S. Williams (Editor), Christopher J.K. Bulstrode (Editor), P. Ronan O'Connell (Editor)

In addition to these standard texts, sample MRCS MCQ examination questions are also available at www.intercollegiatemrcs.org.uk, which will demonstrate the level of knowledge required to be able to successfully pass the MRCS examination.

Standards for depth of knowledge during intermediate and final years surgical training

In the intermediate and final stages of surgical training the following methodology is used to define the relevant depth of knowledge required of the surgical trainee. Each topic within a stage has a competence level ascribed to it for knowledge ranging from 1 to 4 which indicates the depth of knowledge required:

1. knows of
2. knows basic concepts
3. knows generally
4. knows specifically and broadly

Standards for clinical and technical skills

The practical application of knowledge is evidenced through clinical and technical skills. Each topic within a stage has a competence level ascribed to it in the areas of clinical and technical skills ranging from 1 to 4:

1. Has observed

Exit descriptor; at this level the trainee:

- Has adequate knowledge of the steps through direct observation.
- Demonstrates that he/she can handle instruments relevant to the procedure appropriately and safely.
- Can perform some parts of the procedure with reasonable fluency.

2. Can do with assistance

Exit descriptor; at this level the trainee:

- Knows all the steps - and the reasons that lie behind the methodology.

- Can carry out a straightforward procedure fluently from start to finish.
- Knows and demonstrates when to call for assistance/advice from the supervisor (knows personal limitations).

3. Can do whole but may need assistance

Exit descriptor; at this level the trainee:

- Can adapt to well- known variations in the procedure encountered, without direct input from the trainer.
- Recognises and makes a correct assessment of common problems that are encountered.
- Is able to deal with most of the common problems.
- Knows and demonstrates when he/she needs help.
- Requires advice rather than help that requires the trainer to scrub.

4. Competent to do without assistance, including complications

Exit descriptor, at this level the trainee:

- With regard to the common clinical situations in the specialty, can deal with straightforward and difficult cases to a satisfactory level and without the requirement for external input.
- Is at the level at which one would expect a UK consultant surgeon to function.
- Is capable of supervising trainees.

The explicit standards form the basis for:

- Specifying the syllabus content;
- Organising workplace (on-the-job) training in terms of appropriate case mix and case load;
- Providing the basis for identifying relevant teaching and learning opportunities that are needed to support trainees' development at each particular stage of progress; and
- Informing competence-based assessment to provide evidence of what trainees know and can do.

Standards for the professional skills and leadership syllabus

The methodology used to define the standards for this component of the syllabus is through a series of descriptors that indicate the sorts of activities that trainees should be able to successfully undertake at two specific time points, namely the end of "early years" training (i.e. entry into ST3, or ST4 in Neurosurgery) and the end of surgical training (i.e. certification).

The Framework for Appraisal, Feedback and Assessment

The curriculum is consistent with the four domains of Good Medical Practice:

- Knowledge, skills and performance
- Safety and quality
- Communication, partnership and team-working
- Maintaining trust

The knowledge, skills and performance aspects are primarily found within the specialty-specific syllabus. All domains are reflected within the professional behaviour and leadership syllabus, which also reflect the Academy's common competence and leadership competence frameworks.

The purpose and structure of the training programme

The curriculum is competence-based. It focuses on the trainee's ability to demonstrate the knowledge, skills and professional behaviours that they have acquired in their training (specified in the syllabus) through observable behaviours. Since it is competence-based, it is not time-defined and accordingly it allows these

competences to be acquired in different time frames according to variables such as the structure of the programme and the ability of the trainee. Any time points used are therefore merely indicative.

There are certain milestones or competence points which allow trainees to benchmark their progress:

- Entry to surgical training - CT1 (or ST1 for those specialties or localities with run-through programmes)
- Entry to entirely specialised training - ST3*
- Exit at certification

*** A critical competence point is ST3 at which point, in practice, trainees will make a clear commitment to one of the ten SAC-defined disciplines of surgery.**

UK Only

Within the early years of training (defined as the period prior to entry into ST3), much of the content is common across all the surgical specialties. During this period, trainees will acquire the competences that are common to all surgical trainees (defined as common competences) together with a limited range of competences that are relevant to their chosen surgical specialty (defined as specialty-specific competences).

- Those who have made a definitive choice of their desired surgical specialty, and who have been able to enter a “run-through” training programme, will be able to focus upon achieving the common competences and the specialty-specific competences for their chosen specialty.
- Those who have not yet made a definitive choice of their desired surgical specialty will obtain a range of extra competences in a variety of surgical specialties, while at the same time sampling those specialties, before focussing on the chosen specialty prior to entry into ST3.

For those not in run-through programmes, within the early years, training is not committed to a specific surgical specialty and trainees can enter any of the relevant specialties at ST3 level provided they a) meet their educational milestones in the common surgical component of the curriculum and b) satisfy all the specialty requirements for entry in the specialty of their choice. The different training schemes offered by the Postgraduate Deaneries and Local Education and Training Boards (LETBs) meet different educational needs and permit trainees to make earlier or later final career choices based on ability and preference.

It is essential that trainees achieve both common and specialty-specific competence to be eligible to compete at the ST3 specialty entry competence level. In the early years (initial stage), the common core component reflects the level of competence that all surgeons must demonstrate, while specialty-specific competence reflects the early competences relevant to an individual specialty.

From August 2013, the MRCS examination became a formal exit requirement from Core Surgical Training. It is also a mandatory requirement to enter higher specialty training in any discipline, irrespective of candidates reaching all other educational requirements. Otolaryngology trainees are required to pass the MRCS(ENT) examination or the MRCS and the DO-HNS examination.

UK and Republic of Ireland

Following entry into higher specialty training (which for those who have undergone training in core programmes will follow on from a second selection process), the trainee will typically undergo a period of training in the broad specialty and at the higher levels begin to develop an area of special interest, to allow some degree of specialisation in his or her subsequent career.

Early Years Surgical Training – UK Only

The purposes of early years (i.e. the initial stage) training are:-

1. To provide a broad based initial training in surgery with attainment of knowledge, skills and professional behaviours relevant to the practice of surgery in any specialist surgical discipline. This is defined within the common component of the syllabus (which is also the syllabus of the MRCS).

2. In addition it will provide early specialty training such that trainees can demonstrate that they have the knowledge, skills and professional behaviours to enter higher specialty training in a surgical specialty. The specialty element in the early years is not tested in the MRCS but through workplace-based assessments (WBAs) in the first instance.

Additionally trainees will be continuously assessed on the contents of the common component and their specialty specific slots through WBAs and structured reports from Assigned Educational Supervisors (AES) which in turn contribute to the Annual Review of Competence Progression (ARCP); this includes the level of competence expected of all doctors including surgeons to meet their obligations under Good Medical Practice (GMP) in order to remain licensed to practise.

Trainees who gain entry to higher specialty training despite some remediable and identified gaps in their specialty specific curriculum competences must ensure that these are dealt with expeditiously during ST3. All these gaps must be addressed by the time of a ST3 ARCP as part of their overall permission to progress to ST4. They must be specifically addressed through local learning agreements with educational supervisors. Trainees with identified gaps must be accountable to the Training Programme Directors (TPDs) whom in turn must address this as part of their report to the ARCP process.

Intermediate and Final Years Specialty Training – UK and Republic of Ireland

The purposes of the intermediate and final years training are:

1. To provide higher specialty training in the specialty with attainment of knowledge, skills and professional behaviours relevant to the practice in the specialty. This is defined within the specialty-specific component of the early years syllabus and the intermediate and final stages of the syllabus (and is also the syllabus of the FRCS).
2. To develop competence to manage patients presenting either acutely or electively with a range of symptoms and conditions as specified in the syllabus (and the syllabus of the FRCS).
3. To develop competence to manage an additional range of elective and emergency conditions by virtue of appropriate training and assessment opportunities obtained during training as specified by special interest or sub-specialty components of the final stage syllabus. This is tested either by the FRCS and/or by WBAs.
4. To acquire professional competences as specified in the syllabus and in the General Medical Council's Guide to Professional Conduct and Ethics.

The Training Pathway

From the trainee's perspective, he or she will be able to undertake surgical training via differing routes depending on which training scheme they choose or are selected for.

1. Run-through training (UK only)

For those trainees who are certain of their specialty choice, and who choose to enter "run-through" training, competitive entry into ST1 will be possible in their chosen specialty to certification, where this is offered by the specialty. As well as specialty-specific competences, those on this route will still need to attain the level of competence common to all surgeons before entering ST3 (ST4 in Neurosurgery) and this will be assessed through the MRCS, WBAs and the ARCP. This route is currently available in Neurosurgery (and in some Deaneries/LETBs Cardiothoracic Surgery, Oral and Maxillofacial Surgery and Trauma and Orthopaedic Surgery).

2. Uncoupled training

This route is currently available in General Surgery, Cardiothoracic Surgery, Oral and Maxillofacial Surgery, Otolaryngology, Paediatric Surgery, Plastic Surgery, Trauma and Orthopaedic Surgery, Urology and Vascular Surgery.

For those trainees who are either uncertain of their chosen specialty, who are unable to gain entry to run-through training, or who choose a specialty that does not offer the run-through route, a period of "Core" surgical training will be necessary. This period of training is designated CT1 and CT2 in the UK. During this

period trainees will attain the common surgical knowledge and skills and generic professional behaviours, while sampling a number of surgical specialties. In addition to attaining common competences, trainees will need to complete their speciality specific competences to be eligible to enter ST3 in their chosen specialty. They will then seek to enter specialty training at the ST3 level by competitive entry. Open competition will test trainees against SAC defined competences for ST3 entry.

This model has a number of possible variants. Core training might sample several specialties, without any particular specialty focus. In such cases some specialty top up training may be needed later on in order to reach specialty entry at ST3 level. Another variant would organise core training along a theme that supports progression to a specific specialty. In these situations many trainees may pass straight from CT2 to ST3 in their chosen discipline if selected. In practice, core surgical training will run over an indicative timescale of 2 years (CT1-2).

3. Academic training

In the UK some early years' trainees may wish to pursue an academic surgical career and will devote a significant proportion of their time to additional academic pursuits including research and teaching. For the majority this will lead (later in specialised training) to a period of time in dedicated research, resulting in the award of a higher degree in a scientific area related to their chosen specialty. For others who wish to revert to full time clinical training, this will also be possible, providing that the relevant clinical competences are achieved.

General information on UK academic pathways can be found using the following link:
http://specialtytraining.hee.nhs.uk/news/the-gold-guide/

The JCST is keen to support academic careers within surgery and has ensured that the surgical curriculum is flexible enough to accommodate an academic pathway. The curriculum specifies that each individual trainee's training is planned and recorded through the learning agreement.

In England, Academic Clinical Fellows (ACFs) are generally expected to achieve the same level of clinical competence as other surgical trainees within the same timeframe. In order to progress through training pathways the ACF, in addition to demonstrating competence in clinical aspects, will generally be required to have obtained a funded Research Training Fellowship in order to undertake a PhD or MD, which they will complete during an out of programme period. Some trainees during their period of full-time research may want to carry out some clinics or on call, if they and their academic supervisor feel that it is in their best interests. On successful completion of a PhD or MD the ACF will either return to their clinical programme, apply for an Academic Clinical Lecturer (ACL) or Clinician Scientist post.

Arrangements for academic training differ in detail in the devolved nations of the UK and in the Republic of Ireland. For Wales, further information can be obtained from http://www.walesdeanery.org/index.php/en/wcat.html. For Scotland, information can be obtained at http://www.nes.scot.nhs.uk/, and for Northern Ireland at http://www.nimdta.gov.uk/.

In the Republic of Ireland trainees with an interest in academic surgery may choose to spend time out of training in a dedicated research post.

Academic trainees will need to complete all the essential elements of their specialty syllabus satisfactorily in order to be awarded a CCT, CESR-CP or CCST. It is acknowledged that Clinical Academics may take somewhat longer in training to achieve competence at CCT/CESR-CP level than trainees taking a clinical pathway; however they will be supported fully and treated as individuals with their personal progress being matched to their learning agreement.

Moving from one discipline of surgery to another

In the early years it is possible that a trainee who has started to develop a portfolio consistent with a particular specialist discipline might wish to move to another. One of the strengths of the flexible early years programme is that it will be possible, depending on the local circumstances, to make such changes with an identification of suitable educational competences that may be transferred. This is strictly conditional on a trainee achieving the educational milestones so far agreed for them. Moving from one discipline to another because of the need to remediate in the original discipline would not normally be permitted. All common

requirements, for example, possession of the MRCS, would be transferable. Those leaving ENT however could not use the DO-HNS examination as equivalent to the MRCS examination and those wishing to enter ENT (and already having the MRCS) would be required to sit the Part 2 DO-HNS examination.

In order to be eligible to move from one discipline to another the following conditions therefore apply:

1. Achieve a satisfactory outcome in ARCPs up to that point including all relevant WBAs.
2. Fulfil the minimum period in the new specialty of choice in order to progress to ST3 in that discipline (ST4 in Neurosurgery).
3. Obtain the new position through open competition in the annual selection round.
4. Pass the MRCS, MRCS(ENT) (or DO-HNS in addition to the MRCS) examination

The process in practice would be subject to local negotiations between the Postgraduate Dean or appointed nominee in the Republic of Ireland, designated training supervisors and the trainee making the request. If the decision to change theme in core programmes occurs early the effective increase in training time may be minimal. If the decision occurs later or during run-through, more time spent in the early years is almost inevitable. The progression to ST3 is in essence competence rather than time dependent. Those spending longer having made a change may be subject to limitations on any subsequent period required for remediation, although this ultimately would be a Deanery/LETB decision.

Completion of training

Successful completion of the programme in the UK will result in a Certificate of Completion of Training (CCT) or a Certificate of Eligibility for Specialist Registration via the Combined Programme (CESR-CP) and, in Ireland, a Certificate of Completion of Specialist Training (CCST), and placement on the Specialist Register of the GMC or the Medical Council of Ireland (MCoI). This will indicate that the surgeon has reached the curriculum standards of competence to practice as a consultant surgeon in the UK or the Republic of Ireland. These requirements are set by the SACs and the Royal Colleges of Surgeons, are approved by the GMC in the UK or MCol in Ireland, and translate into the ability to manage a significant proportion of the elective work within the specialty and to undertake the primary management of emergencies. It is anticipated that where additional, well-recognised specialist skills are required by the service, these will be gained by the completion of additional modules before the completion of training and the award of the specialty certificate.

Doctors who wish to join the GMC's Specialist Register and have not followed a full or part of a training programme approved by the GMC in the UK leading to a CCT/CESR-CP but who may have gained the same level of skills and knowledge as CCT/CESR-CP holders can apply for a Certificate of Eligibility for Specialist Registration (CESR).

Once on the Specialist Register, all surgeons will be expected to maintain their professional development in line with Good Medical Practice for the purpose of revalidation in the UK, and in accordance with the Professional Competence Scheme (PCS) in the Republic of Ireland.

The Syllabus for Urology

Overview and objectives of the Urology curriculum

Trainees in urology will undergo core training (CT1-2/3) followed by a period of 5 indicative years of specialty training (ST3- ST7). The purpose of the curriculum is to train urologists who will be able to work independently and to the standard of a consultant with a general urological practice practice . As such, most of their skills will relate to the management of “everyday” general elective and emergency urology and this forms the basis of the main part of the curriculum, with the competences, both non-operative and operative being completed by the final year of training. This curriculum also allows a degree of flexibility to respond to the changing needs of our patients and the development of new models of healthcare delivery, and to incorporate technological advances. As such training years ST6 & ST7 offer modules in various urological special interest areas, once the final stages for all trainees are completed . However , it is acknowledged that such training will need to be complemented by additional exposure post-CCT possibly in the form of a ‘ Fellowship ‘ or under mentorship in the early years of a new consultant appointment.

The specialty of Urology

Adult urological surgery is that branch of medicine that deals with the diseases, trauma and malformations of the urogenital system from young adulthood onwards.

During recent years and in common with many other disciplines there has been a trend towards further specialisation within the specialty. These are referred to as 'Areas of Special Interest' within urology as they do not have separate specialty advisory committees (SACs) within the Surgical Royal Colleges' structure.

A shared syllabus and the ability at the completion of training to manage a range of elective and emergency conditions, provide a common purpose across the specialty of urology at the time of writing (2008).

The major areas of special interest associated with the specialty of urology are:

- Urological oncology: the assessment and treatment of patients with urological malignancy. The major urological malignancies are prostate, bladder, renal, testicular and penile cancer.

- Endourology: the use of endourological techniques to treat urinary tract disease. This primarily includes the treatment of urinary tract stone disease, but also includes the endourological treatment of other benign diseases of the upper urinary tract.

- Female and Reconstructive urology: the assessment and treatment of patients with urinary incontinence, patients with neurological disease and patients undergoing reconstruction of the urinary tract. The subdivisions of this area include female urology, pelvic reconstruction and neurourology.

- Andrology: the assessment and treatment of patients with conditions affecting sexual and reproductive function. Including male factor infertility, urethral reconstruction and other benign disorders of penile function. It may also include penile cancer.

Tim Terry SAC Chair from February 2013

Training in the specialty of Urology

The syllabus may be considered in 3 stages. Satisfactory completion of the initial (early years), intermediate and final stages will lead to the award of a CCT and the title of Consultant Urologist (generalist). Included are the areas of diagnosis, investigation, operative and non-operative management for and communication with those in his/her care. In addition, the programme should allow the trainee to develop generic skills that allow effective interaction with other professionals (clinical and non-clinical) involved in the delivery of health care to patients.

Initial stage
In the initial stage (early years training), the urology trainee may not have even decided upon a urological career. They will undergo broad based surgical training, while being able to sample a range of surgical specialties. The objectives will be to attain the knowledge skills and behaviours required of all surgeons (ie the common competences), together with some initial competences relevant to the specialty of urology. At the end of this period of training, the trainee will have decided upon a career in Urology, and will seek to enter urological training.

Intermediate stage
In the intermediate and final stages of training, trainees will be exposed to pure urology and will progress from novice to competent practitioner to emerge as a Consultant Urologist. Essential knowledge and skills will be acquired both for urology and allied specialties (i.e. gynaecology, general surgery) to broaden career choice.

Final stage
In the final stage of training, when the trainee has attained the knowledge and skills required for the essential parts of the curriculum, all will have the opportunity to extend their skills and competences in one or two specific fields. The syllabus for this part of the curriculum is modular in format, with content that covers the major areas of sub-specialist urological practise, outlined above. These syllabuses are intended to allow the CCT holder to develop an area of clinical interest and expertise upon appointment to a consultant post. It is not intended that this training will necessarily prepare the trainee for sub-specialist practise. Some will require further post-CCT training, in order to achieve the competences necessary for some of the rarer complex urological procedures.

It is incumbent on the trainee that the levels of competence achieved are recorded in the appropriate log books together with relevant research, records of training courses and an audit of personal cases performed. This portfolio will continue into consultant practice.

Within the training programme there will be opportunities for exposure to a wide range of urological problems both of the medical and surgical nature.

Academic Urology

Academic surgery provides an exciting and challenging career for those who wish to combine clinical urology with a major commitment to research and undergraduate teaching.

Trainees interested in this career pathway will, in addition to completing clinical training in urology (and developing an area of special interest), acquire a high level of competence in research (and teaching).

After completing their clinical training those committed to an academic career will pursue a position in a university department as senior lecturer with a longer-term view to promotion to a chair.

The Scope and Standards of Urological Practice at CCT

This list defines, in general terms the essential skills and levels of clinical expertise expected of a Urologist emerging from training having completed the Urology specialty CCT. It is unlikely that their expertise will be confined to the descriptions that follow, as most urologists will have developed additional interests and competences by the time that they emerge from training. There is flexibility within the curricula to accommodate this.

There are several modular syllabi that are available to trainees in their final stage of training. These syllabi build on the core requirements of the basic CCT holder and cover clinical areas within Urological Oncology, Endourology, Andrology and Female and Reconstructive Urology.

It should be understood that as a surgical career develops following CCT, the range and levels of expertise will change in response to the demands of the service, personal aspirations, the needs of patients and the developments in the specialty.

Taking into account the present and future requirements of the service, the Urologist emerging from training at CCT level will expect to see patients who may present with a range of problems. As it is used here, the term ‘manage’ equates to diagnosis, assessment and treatment or referral as appropriate. The levels of expertise expected are further expressed within the detail of the syllabus.

At CCT, all Urologists will be able to:

Manage the patient presenting with stone disease

- Be familiar with the presentation of stone disease
- Recognise the patient presenting with acute ureteric colic, urinary obstruction and sepsis and manage appropriately
- Manage appropriate investigation (CT, IVU , MRI and ultrasound) in such situations, involving other specialists as appropriate.
- Treat straightforward ureteric stones safely and appropriately, referring more complicated cases to specialist colleagues as appropriate
- Treat straightforward bladder stones safely and effectively referring more complicated cases to specialist colleagues as appropriate.
- Treat straightforward renal stones, by means of extracorporeal shock wave lithotripsy referring more complicated cases to specialist colleagues as appropriate
- Undertake appropriate metabolic assessment and treatment of straightforward urinary tract calculi

Manage the patient presenting with acute or chronic abdominal pain referable to the urinary tract

- Diagnose the underlying cause of renal pain
- Manage the patient presenting with acute or chronic loin pain
- Refer onwards to other specialists if appropriate.
- Manage the patient presenting with upper urinary tract obstruction
- Be familiar with the modes of presentation of upper tract obstruction (retroperitoneal fibrosis, ureteric stricture) and manage appropriately, involving other specialists as appropriate.
- Undertake cystoscopy and stenting when appropriate

Manage patients presenting with lower urinary tract symptoms (LUTS)

- Manage the patient presenting with LUTS from presentation to completion
- Manage the patient presenting with acute or chronic retention from presentation to completion
- Competently perform diagnostic cystoscopy, urodynamics, bladder neck incision and TURP using various energy sources in patients with bladder outflow obstruction.
- Competently insert a suprapubic catheter, with ultrasound guidance as appropriate

Manage the patient presenting with haematuria

- Diagnose and manage the common causes of haematuria using appropriate radiological and endoscopic techniques and supervise effective resuscitation.
- Competently perform diagnostic cystoscopy, bladder biopsy and TURBT in patients with bladder lesions.
- Competently evaluate and manage of patients with ureteric obstruction

- Be familiar with the indications for referral to specialist units and other colleagues for patients with muscle invasive bladder cancer.

Manage the patient presenting with urethral stricture

- Evaluate and manage patients with urethral stricture and refer onwards to other specialists as appropriate
- Competently perform urethral dilatation and optical urethrotomy in patients with urethral stricture where indicated
- Competently insert a suprapubic catheter, with ultrasound quidance as appropriate

Manage urinary tract infections

- Manage pyelonephritis, renal and peri-renal abscess from presentation to completion
- Manage patients presenting with recurrent UTI from presentation to completion
- Competently diagnose, assess and manage patients with different forms of cystitis (interstitial cystitis etc) and to refer onward where appropriate
- Competently diagnose, assess and manage men with different forms of prostatitis and epididymitis
- Competently diagnose, assess and manage men with different forms of gonococcal and non-gonococcal urethritis and other STDs seeking advice and onward referral as and when appropriate.

Manage benign & malignant lesions of male genitalia skin

- Recognise the common malignant and potentially malignant conditions of the penis, including phimosis, paraphimosis, viral lesions, squamous carcinoma and be familiar with current management protocols and their implications for early management.
- Diagnose and excise, biopsy or treat conservatively common swellings of the skin and subcutaneous tissues of the penis and genitalia
- Apply straightforward plastic surgical techniques for primary wound closure.
- Recognise the indications for and to perform a circumcision

Manage patients presenting with a scrotal swelling

- Diagnose and manage patients presenting with scrotal symptoms such as hydrocele, epididymal cyst, varicocele, post vasectomy pain, testicular torsion, abscess etc, involving other specialist colleagues appropriately.
- Diagnose and manage initially, neoplastic conditions of the testis and refer onwards to other specialists as appropriate
- Diagnose, assess and manage serious infections such as acute necrotising fasciitis, seeking advice and onward referral as and when appropriate.
- Competently undertake surgery for benign and malignant scrotal conditions including hydrocele repair, excision of an epididymal cyst, ligation of a varicocele, treatment of testicular torsion, and to perform an orchidectomy for benign and malignant indications

Manage the patient presenting with urinary incontinence

- Competently diagnose investigate and manage patients presenting of urinary incontinence
- Be able to undertake urodynamic studies, where needed, to investigate patients with urinary incontinence
- Treat straightforward patients with urinary incontinence including the provision of operative intervention including Botulinum toxin and mid-urethral tape insertion while referring more complex cases onward as and when appropriate.
- Be familiar with the presentation of voiding dysfunction and incontinence in patients with neurological disease

Manage the patient with prostate cancer

- Be competent to diagnose and manage patients presenting with an elevated PSA including the provision of trans-rectal ultrasound / biopsy and MRI
- Be competent in the evaluation and management of patients with organ confined, locally advanced and metastatic prostate cancer
- Be familiar with the indications for referral to specialist units and other colleagues for patients with prostate cancer
- Be competent in performing diagnostic cystoscopy, urodynamics and TURP in patients with prostate cancer.

Manage the patient with bladder cancer

- Competently diagnose, investigate and manage patients presenting with bladder cancer including the provision of cystoscopy, TURBT, intra-vesical chemotherapy etc
- Be familiar with the indications for referral to specialist units and other colleagues for patients with locally advanced bladder cancer

Manage the patient with renal cancer

- Competently diagnose and initially manage patients presenting with renal cancer
- Manage appropriate investigation (CT, MRI etc) in such situations, involving other specialists as appropriate.
- Be familiar with the indications for referral to specialist units and other colleagues for patients

Manage the patient presenting with infertility, ejaculatory disorders etc

- Competently diagnose, assess and manage couples with infertility appropriately and refer on to other specialist colleagues as appropriate.

Manage the patient presenting with erectile dysfunction

- Competently diagnose, assess and manage men with erectile dysfunction appropriately and refer on to other specialist colleagues as appropriate.

Manage the patient presenting with penile deformity, priapism, penile fracture

- Competently diagnose, assess and manage benign penile problems (including priapism and fracture) appropriately and refer on to other specialist colleagues as required

Manage the common urological conditions of childhood

- Competently diagnose, assess and manage appropriately children presenting with urinary tract infections and involving other specialist colleagues as the situation requires.
- Competently diagnose, assess and manage appropriately patients presenting with the common inguinoscrotal conditions of childhood (torsion of the testis, hernia, undescended testis), phimosis, referring and involving other specialist colleagues as the situation requires.
- Be aware of the important surgical conditions of childhood, their presentation as elective and emergency cases and the indications for urgent assessment and diagnosis by specialist colleagues (e.g. acute appendicitis, intussusception, volvulus)

Manage the patient presenting with renal failure

- Competently diagnose, assess and initially manage appropriately patients presenting with renal failure / anuria, involving other specialist colleagues as the situation requires
- Understand the indications for treatment with haemodialysis or peritoneal dialysis
- Competently assess bladder function in those patients under consideration for renal transplantation

Manage the patient with multiple injuries.

- Assess and resuscitate the patient with multiple injuries in accordance with the ATLS standards current at the time.
- Work appropriately as part of the trauma team, participating at a level appropriate to the situation either as member or leader.
- Conduct the initial management of gun-shot and other penetrating wounds involving the urinary tract, calling in other expertise as necessary.
- Participate as an effective member of the major incident team as required.

Manage trauma of the renal tract according to accepted protocols.

- Diagnose and manage the patient with possible injury to the urogenital tract from blunt and penetrating renal trauma
- Diagnose, resuscitate and transfer to specialist units patients suffering from renal and other trauma calling in other expertise as necessary

All urologists will also possess the professional skills and behaviour associated with consultant surgical practice in the UK (including those outlined in Good Medical Practice and Good Surgical Practice 2014).

Core Overview

The purpose of the initial stage (early years) (CT1 - 3) is to allow the trainee to develop the basic and fundamental surgical skills common to all surgical specialties, together with a few surgical skills relevant to Urology.

The outcome of early years training is to achieve the competences required of surgeons entering ST3. These competences include:

- Competence in the management of patients presenting with a range of symptoms and elective and emergency conditions as specified in the core syllabus for surgery.
- Competence in the management of patients presenting with an additional range of elective and emergency conditions, as specified by the Urology specialty component of the early years syllabus.
- Professional competences as specified in the syllabus and derived from Good Medical Practice documents of General Medical Council of the UK

By the end of CT2/3, trainees, (including those following an academic pathway), will have acquired to the defined level:

- Generic skills to allow team working and management of urological patients
- The ability to perform as a member of the team caring for surgical patients
- The ability to receive patients as emergencies and review patients in clinics and initiate management and diagnostic processes based on a reasonable differential diagnosis
- The ability to manage the perioperative care of their patients and recognise common complications and either be able to deal with them or know to whom to refer
- To be a safe and useful assistant in the operating room
- To perform some simple procedures under minimal supervision and perform more complex procedures under direct supervision

In addition they will have attained the knowledge, skills and behaviour as defined in the following (common) modules of the syllabus:

Module 1: Basic Science Knowledge relevant to surgical practice (These can all be contextualised within the list of presenting symptoms and conditions outlined in module 2)

- Anatomy
- Physiology
- Pharmacology - in particular safe prescribing
- Pathological principles underlying system specific pathology
- Microbiology
- Diagnostic and interventional radiology

Module 2: Common surgical conditions

- To assess and initiate investigation and management of common surgical conditions which may confront any patient whilst under the care of surgeons, irrespective of their speciality.
- To have sufficient understanding of these conditions so as to know what and to whom to refer in a way that an insightful discussion may take place with colleagues whom will be involved in the definitive management of these conditions.
- This defines the scope and depth of the topics in the generality of clinical surgery required of any surgeon irrespective of their ST3 defined speciality

Module 3 Basic surgical skills

- To prepare oneself for surgery
- To safely administer appropriate local anaesthetic agents
- To handle surgical instruments safely
- To handle tissues safely
- To incise and close superficial tissues accurately
- To tie secure knots
- To safely use surgical diathermy
- To achieve haemostasis of superficial vessels.
- To use a suitable surgical drain appropriately.
- To assist helpfully, even when the operation is not familiar.
- To understand the principles of anastomosis

- To understand the principles of endoscopy including laparoscopy

Module 4: The principles of assessment and management of the surgical patient
- To assess the surgical patient
- To elicit a history that is relevant, concise, accurate and appropriate to the patient's problem
- To produce timely, complete and legible clinical records.
- To assess the patient adequately prior to operation and manage any pre-operative problems appropriately.
- To propose and initiate surgical or non-surgical management as appropriate.
- To take informed consent for straightforward cases.

Module 5: Perioperative care of the surgical patient
- To manage patient care in the perioperative period.
- To assess and manage preoperative risk.
- To take part in the conduct of safe surgery in the operating theatre environment.
- To assess and manage bleeding including the use of blood products.
- To care for the patient in the post-operative period including the assessment of common complications.
- To assess and plan perioperative nutritional management.

Module 6: Assessment and early treatment of the patient with trauma
- To safely assess the multiply injured patient.
- To safely assess and initiate management of patients with
- traumatic skin and soft tissue injury
- chest trauma
- a head injury
- a spinal cord injury
- abdominal and urogenital trauma
- vascular trauma
- a single or multiple fractures or dislocations
- burns

Module 7: Surgical care of the paediatric patient
- To assess and manage children with surgical problems, understanding the similarities and differences from adult surgical patients.
- To understand common issues of child protection and to take action as appropriate.

Module 8: Management of the dying patient
- To manage the dying patient appropriately.
- To manage the dying patient in consultation with the palliative care team.

Module 9: Organ and tissue transplantation
- To understand the principles of organ and tissue transplantation.
- To assess brain stem death and understand its relevance to continued life support and organ donation.

Module 10: Health promotion
- To promote good health.

In addition they will have attained the knowledge, skills and behaviour as defined in the following (urology specific) modules of the syllabus:

1. Urinary tract calculi
- To be able to provide the early care of a patient presenting with the symptoms suggestive of urinary tract calculi including onward referral

2. Functional urology
- To be able to provide the early care of a patient presenting with lower urinary tract symptoms and dysfunction including onward referral
- To be able to provide the early care of a patient presenting with urinary tract obstruction including onward referral
- To diagnose and initiate management of a patient presenting with acute or chronic urinary retention

3. Urinary tract infection

- To be able to provide the early care of a patient presenting with urinary tract infections including onward referral when appropriate
- To be able to provide the early care of a patient presenting with epididymitis and scrotal abscess including onward referral when appropriate

4. Urological oncology

- To be able to provide the early care of a patient with suspected urological cancer including onward referral

5. Treatment of renal failure

- To be able to provide the early care of a patient presenting with renal failure including onward referral when appropriate

6. Testicular pain and swelling

- To be able to provide the early care of a patients presenting with acute testicular pain or testicular swelling

CORE SURGICAL TRAINING MODULES

Module 1	**Basic sciences**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Objective	• To acquire and demonstrate underpinning basic science knowledge appropriate for the practice of surgery, including:- • Applied anatomy: Knowledge of anatomy appropriate for surgery • Physiology: Knowledge of physiology relevant to surgical practice • Pharmacology: Knowledge of pharmacology relevant to surgical practice centred around safe prescribing of common drugs • Pathology: Knowledge of pathological principles underlying system specific pathology • Microbiology: Knowledge of microbiology relevant to surgical practice Imaging: • Knowledge of the principles, strengths and weaknesses of various diagnostic and interventional imaging methods	Course completion certificate MRCS	
Knowledge	Applied anatomy: • Development and embryology • Gross and microscopic anatomy of the organs and other structures • Surface anatomy • Imaging anatomy This will include anatomy of thorax, abdomen, pelvis, perineum, limbs, spine, head and neck as appropriate for surgical operations that the trainee will be involved with during core training (see Module 2). Physiology: General physiological principles including: • Homeostasis • Thermoregulation • Metabolic pathways and abnormalities • Blood loss and hypovolaemic shock • Sepsis and septic shock • Fluid balance and fluid replacement therapy • Acid base balance • Bleeding and coagulation • Nutrition This will include the physiology of specific organ systems relevant to surgical care including the cardiovascular, respiratory, gastrointestinal, urinary, endocrine and neurological systems. Pharmacology: • The pharmacology and safe prescribing		Strongly recommended: Life support Critical care Desirable Anatomy Team-Based Human Factors

	of drugs used in the treatment of surgical diseases including analgesics, antibiotics, cardiovascular drugs, antiepileptic, anticoagulants, respiratory drugs, renal drugs, drugs used for the management of endocrine disorders (including diabetes) and local anaesthetics. • The principles of general anaesthesia • The principles of drugs used in the treatment of common malignancies • Can describe the effects and potential for harm of alcohol and other drugs including common presentations, wide range of acute and long term presentations (e.g. trauma, depression, hypertension etc.), the range of interventions, treatments and prognoses for use of alcohol and other drugs. Pathology: General pathological principles including: • Inflammation • Wound healing • Cellular injury • Tissue death including necrosis and apoptosis • Vascular disorders • Disorders of growth, differentiation and morphogenesis • Surgical immunology • Surgical haematology • Surgical biochemistry • Pathology of neoplasia • Classification of tumours • Tumour development and growth including metastasis • Principles of staging and grading of cancers • Principles of cancer therapy including surgery, radiotherapy, chemotherapy, immunotherapy and hormone therapy • Principles of cancer registration • Principles of cancer screening • The pathology of specific organ systems relevant to surgical care including cardiovascular pathology, respiratory pathology, gastrointestinal pathology, genitourinary disease, breast, exocrine and endocrine pathology, central and peripheral, neurological systems, skin, lymphoreticular and musculoskeletal systems Microbiology: • Surgically important micro organisms including blood borne 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 Imaging: • Principles of diagnostic and interventional imaging including x-rays, ultrasound, CT, MRI. PET, radiounucleotide scanning		

Module 2	**Common Surgical Conditions**		**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Objective	This section assumes that trainees have general medical competences consistent with a doctor leaving Foundation in the UK. It also assumes an ongoing commitment to keeping these skills and knowledge up to date as laid out in GMP. It is predicated on the value that surgeons are doctors who carry our surgery and require competence. To demonstrate understanding of the relevant basic scientific principles for each of these surgical conditions and to be able to provide the relevant clinical care as defined in modules assessment and management as defined in Modules 1 and 4.		Certificate of successful completion of course MRCS	
Topics	Presenting symptoms or syndromes • Abdominal pain • Abdominal swelling • Change in bowel habit • Gastrointestinal haemorrhage • Rectal bleeding • Dysphagia • Dyspepsia • Jaundice	To include the following conditions • Appendicitis • Gastrointestinal malignancy • Inflammatory bowel disease • Diverticular disease • Intestinal obstruction • Adhesions • Abdominal hernias • Peritonitis • Intestinal perforation • Benign oesophageal disease • Peptic ulcer disease • Benign and malignant hepatic, gall bladder and pancreatic disease • Haemorrhoids and perianal disease		Strongly recommended: Basic surgical skills Basic laparoscopic skills Fracture treatment Desirable Imaging interpretation Desirable (Cardiothoracic Surgery / Plastic Surgery): • Anastomosis • Angiography • Vascular ultrasound • Surgical approaches to fractures

		• Abdominal wall stomata		
	Breast disease • Breast lumps and nipple discharge • Acute Breast pain	To include the following conditions • Benign and malignant breast lumps • Mastitis and breast abscess		
	Peripheral vascular disease Presenting symptoms or syndrome • Chronic and acute limb ischaemia • Aneurismal disease • Transient ischaemic attacks • Varicose veins • Leg ulceration	To include the following conditions • Atherosclerotic arterial disease • Embolic and thrombotic arterial disease • Venous insufficiency • Diabetic ulceration		
	Cardiovascular and pulmonary disease	To include the following conditions • Coronary heart disease • Bronchial carcinoma • Obstructive airways disease • Space occupying lesions of the chest		
	Genitourinary disease Presenting symptoms or syndrome • Loin pain • Haematuria • Lower urinary tract symptoms • Urinary retention • Renal failure • Scrotal swellings • Testicular pain	To include the following conditions • Genitourinary malignancy • Urinary calculus disease • Urinary tract infection • Benign prostatic hyperplasia • Obstructive uropathy		
	Trauma and orthopaedics Presenting symptoms or syndrome • 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 • Basic principles of Degenerative joint disease • Basic principles of inflammatory joint disease including bone and joint infection • Compartment		

		syndrome • Spinal nerve root entrapment and spinal cord compression • Metastatic bone cancer • Common peripheral neuropathies and nerve injuries		
	Disease of the Skin, Head and Neck Presenting symptoms or syndrome • Lumps in the neck • Epistaxis • Upper airway obstructions	To include the following conditions • Benign and malignant skin lesions • Benign and malignant lesions of the mouth and tongue		
	Neurology and Neurosurgery Presenting symptoms or syndrome • Headache • Facial pain • Coma	To include the following conditions • Space occupying lesions from bleeding and tumour		
	Endocrine Presenting symptoms or syndrome • Lumps in the neck • Acute endocrine crises	To include the following conditions • Thyroid and parathyroid disease • Adrenal gland disease • Diabetes		

Module 3	**Basic surgical skills**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Objective	• Preparation of the surgeon for surgery • Safe administration of appropriate local anaesthetic agents • Acquisition of basic surgical skills in instrument and tissue handling. • Understanding of the formation and healing of surgical wounds • Incise superficial tissues accurately with suitable instruments. • Close superficial tissues accurately. • Tie secure knots. • Safely use surgical diathermy • Achieve haemostasis of superficial vessels. • Use suitable methods of retraction. • Knowledge of when to use a drain and	WBA- PBA, CBD, DOPS	

	which to choose. • Handle tissues gently with appropriate instruments. • Assist helpfully, even when the operation is not familiar. • Understand the principles of anastomosis • Understand the principles of endoscopy		
Knowledge	Principles of safe surgery • Preparation of the surgeon for surgery • Principles of hand washing, scrubbing and gowning • Immunisation protocols for surgeons and patients Administration of local anaesthesia • Choice of anaesthetic agent • Safe practise Surgical wounds • Classification of surgical wounds • 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 • Safe practice • Knot tying o Range and choice of material 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 • Biopsy techniques including fine needle aspiration cytology • Use of drains: o Indications o Types o Management/removal • Principles of anastomosis • Principles of surgical endoscopy		Strongly recommended: Basic surgical skills Tissue handling/suturing Strongly recommended (Paediatric Surgery): • Basic suturing and wound management Desirable (Cardiothoracic Surgery / Plastic Surgery): • Anastomosis • Endoscopy
Clinical Skills	4 Preparation of the surgeon for surgery • Effective and safe hand washing, gloving and gowning • Administration of local anaesthesia • Accurate and safe administration of local anaesthetic agent		

	4 Preparation of a patient for surgery • Creation of a sterile field • Antisepsis • Draping		
Technical Skills and Procedures	4 Preparation of the surgeon for surgery • Effective and safe hand washing, gloving and gowning 4 Administration of local anaesthesia • Accurate and safe administration of local anaesthetic agent 4 Incision of skin and subcutaneous tissue: • Ability to use scalpel, diathermy and scissors 4 Closure of skin and subcutaneous tissue: • Accurate and tension free apposition of wound edges 4 Knot tying: • Single handed • Double handed • Instrument • Superficial • Deep 3 Haemostasis: • Control of bleeding vessel (superficial) • Diathermy • Suture ligation • Tie ligation • Clip application • Transfixion suture 4 Tissue retraction: • Tissue forceps • Placement of wound retractors 3 Use of drains: • Insertion • Fixation • Removal 3 Tissue handling: • Appropriate application of instruments and respect for tissues • Biopsy techniques 4 Skill as assistant: • Anticipation of needs of surgeon when assisting		

Module 4	**The assessment and management of the surgical patient**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Objective	To demonstrate the relevant knowledge, skills and attitudes in assessing the patient and manage the patient, and propose surgical or non-surgical management.	Examinations- MRCS	
Knowledge	The knowledge relevant to this section will be variable from patient to patient and is covered within the rest of the syllabus – see common surgical conditions in particular (Module 2). As a trainee develops an interest in a particular speciality then the principles of history taking and examination may be increasingly applied in that context.		Strongly recommended: Life Support Critical Care ATLS / APLS Desirable: Team working Human Factors
Clinical Skills	4 Surgical history and examination (elective and emergency) 3 Construct a differential diagnosis 3 Plan investigations 3 Clinical decision making 3 Team working and planning 3 Case work up and evaluation; risk management 3 Active participation in clinical audit events 3 Appropriate prescribing 3 Taking consent for intermediate level intervention; emergency and elective 3 Written clinical communication skills 3 Interactive clinical communication skills: patients 3 Interactive clinical communication skills: colleagues		

Module 5	**Peri-operative care**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Objective	To assess and manage preoperative risk To manage patient care in the peri-operative period To conduct safe surgery in the operating theatre environment To assess and manage bleeding including the use of blood products To care for the patient in the post-operative period including the assessment of common complications To assess, plan and manage post-operative fluid balance To assess and plan perioperative nutritional management To prevent, recognise and manage delirium in the surgical patient within the appropriate legal framework in place across the UK (see **footnote**). **Footnote** The relevant legislation includes: • Mental Capacity Act (2005) • Mental Health Act (1983 and 2007) • Adults with Incapacity (Scotland) Act (2000) • Mental Health (Care and Treatment) (Scotland) Act (2003) • Adult Support and Protection (Scotland) Act (2007)	WBA Course test completion certificate	
Knowledge	Pre-operative 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 Intraoperative care: • Safety in theatre including patient positioning and avoidance of nerve injuries • Sharps safety		Strongly recommended: Basic surgical skills Life Support Critical Care Strongly recommended (Paediatric Surgery): • Safe surgery Desirable Human Factors Team-working

	• 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 • Prevention of venous thrombosis • Surgery in hepatitis and HIV carriers • Fluid balance and homeostasis Post-operative care: • Post-operative 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 • Multi-organ dysfunction syndrome • Post-operative complications in general • Methods of postoperative analgesia To assess and plan nutritional management • Post-operative nutrition • Effects of malnutrition, both excess and depletion • Metabolic response to injury • Methods of screening and assessment of nutritional status • Methods of enteral and parenteral nutrition Haemostasis and Blood Products: • Mechanism of haemostasis including the clotting cascade • Pathology of impaired haemostasis e.g. haemophilia, liver disease, massive haemorrhage • Components of blood • Alternatives to use of blood products • Principles of administration of blood products • Patient safety with respect to blood products Coagulation, deep vein thrombosis and		

	embolism: • Clotting mechanism (Virchow Triad) • Effect of surgery and trauma on coagulation • Tests for thrombophilia and other disorders of coagulation • Methods of investigation for suspected thromboembolic disease • Principles of treatment of venous thrombosis and pulmonary embolism including anticoagulation • Role of V/Q scanning, CTpulmonary angiography, D-dimer and thrombolysis • Place of pulmonary embolectomy • Prophylaxis of thromboembolism: • Risk classification and management of DVT • Knowledge of methods of prevention of DVT, mechanical and pharmacological Antibiotics: • Common pathogens in surgical patients • Antibiotic sensitivities • Antibiotic side-effects • Principles of prophylaxis and treatment Metabolic and endocrine disorders in relation 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 hyponatraemia • Causes and effects of hyperkalaemia and hypokalaemia Delirium • Epidemiology and prognosis of delirium • Causes and clinical features of		

	delirium • The impact of delirium on patient, family and carers		
Clinical Skills	3 Pre-operative assessment and management: • History and examination of a patient from a medical and surgical standpoint • Interpretation of pre-operative investigations • Management of co morbidity • Resuscitation • Appropriate preoperative prescribing including premedication 3 Intra-operative care: • Safe conduct of intraoperative care • Correct patient positioning • Avoidance of nerve injuries • Management of sharps injuries • Prevention of diathermy injury • Prevention of venous thrombosis 3 Post-operative care: • Writing of operation records • Assessment and monitoring of patient's condition • Post-operative analgesia • Fluid and electrolyte management • Detection of impending organ failure • Initial management of organ failure • Principles and indications for Dialysis • Recognition, prevention and treatment of post-operative complications 3 Haemostasis and Blood Products: • Recognition of conditions likely to lead to the diathesis • Recognition of abnormal bleeding during surgery • Appropriate use of blood products • Management of the complications of blood product transfusion 3 Coagulation, deep vein thrombosis and embolism • Recognition of patients at risk • Awareness and diagnosis of pulmonary embolism and DVT • Role of duplex scanning,		

	venography and d-dimer measurement • Initiate and monitor treatment of venous thrombosis and pulmonary embolism • Initiation of prophylaxis 3 Antibiotics: • Appropriate prescription of antibiotics 3 Assess and plan preoperative nutritional management • Arrange access to suitable artificial nutritional support, preferably via a nutrition team including Dietary supplements, Enteral nutrition and Parenteral nutrition 3 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 • Peri-operative management of patients on steroid therapy • Peri-operative management of diabetic patients • Investigation and management of hyponatraemia • Investigation and management of hyperkalaemia and hypokalaemia Delirium 3 Assessment of cognitive impairment seeking to differentiate dementia from delirium, with the knowledge that delirium is common in people with dementia 3 Management of patients with delirium including addressing triggers and using non-pharmacological and pharmacological methods where appropriate 3 Explanation of delirium to patients and advocates		
Technical Skills and Procedures	2 Central venous line insertion 4 Urethral catheterisation		Strongly recommended

Module 6	**Assessment and management of patients with trauma (including the multiply injured patient)**	**Assessment technique**	**Areas in which simulation should be used to develop**

			relevant skills
Objective	Assess and initiate management of patients with chest trauma • who have sustained a head injury • who have sustained a spinal cord injury • who have sustained abdominal and urogenital trauma • who have sustained vascular trauma • who have sustained a single or multiple fractures or dislocations • who have sustained traumatic skin and soft tissue injury • who have sustained burns • Safely assess the multiply injured patient. • Contextualise any combination of the above • Be able to prioritise management in such situation as defined by ATLS, APLS etc It is expected that trainees will be able to show evidence of competence in the management of trauma (ATLS / APLS certificate or equivalent).	WBA Course test and certificate	
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 uncross matched 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		Strongly recommended: Life Support Critical Care Wound management ATLS / APLS Desirable: Team-working Human Factors Trauma management

	• Classification of burns • Principle of management of burns Fractures • Classification of fractures • Pathophysiology of fractures • Principles of management of fractures • Complications of fractures • 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 • Including spleen • 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 4 History and examination 3 Investigation 3 Referral to appropriate surgical subspecialties 4 Resuscitation and early management of patient who has sustained thoracic, head, spinal, abdominal or limb injury according to ATLS and APLS guidelines 4 Resuscitation and early management of the multiply injured patient 3 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	2 Central venous line insertion 3 Chest drain insertion 2 Diagnostic peritoneal lavage 4 Urethral catheterisation 2 Suprapubic catheterisation		strongly recommended

Module 7	Surgical care of the Paediatric patient	Assessment technique	Areas in which simulation should be used to develop relevant skills
Objective	To assess and manage children with surgical problems, understanding the similarities and differences from adult surgical patients To understand the issues of child protection and to take action as appropriate	WBA MRCS	
Knowledge	• Physiological and metabolic response to injury and surgery • Fluid and electrolyte balance • Thermoregulation Safe prescribing in children • Principles of vascular access in children • Working knowledge of trust and Local Safeguarding Children Boards (LSCBs) and Child Protection Procedures • Basic understanding of child protection law • Understanding of Children's rights • Working knowledge of types and categories of child maltreatment, presentations, signs and other features (primarily physical, emotional, sexual, neglect, professional) • Understanding of one personal role, responsibilities and appropriate referral patterns in child protection • Understanding of the challenges of working in partnership with children and families • Recognise the possibility of abuse or maltreatment • Recognise limitations of own knowledge and experience and seek appropriate expert advice • Urgently consult immediate senior in surgery to enable referral to paediatricians • Keep appropriate written documentation relating to child protection matters • Communicate effectively with those involved with child protection, including children and their families		Strongly recommended: Critical Care Child protection Desirable Team-working
Clinical Skills	3 History and examination of the neonatal surgical patient 3 History and examination of paediatric surgical patient		

	3 Assessment of respiratory and cardiovascular status 3 Undertake consent for surgical procedures (appropriate to the level of training) in paediatric patients		

Module 8	**Management of the dying patient**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Objective	Ability to manage the dying patient appropriately. To understand consent and ethical issues in patients certified DNAR (do not attempt resuscitation) Palliative Care: Good management of the dying patient in consultation with the palliative care team.	MRCS	
Knowledge	Palliative Care: • Care of the terminally ill • Appropriate use of analgesia, antiemetics and laxatives Principles of organ donation: • Circumstances in which consideration of organ donation is appropriate • Principles of brain death Understanding the role of the coroner and the certification of death		Desirable Team-working Human Factors
Clinical Skills	3 Palliative Care: • Symptom control in the terminally ill patient 3 Principles of organ donation: • Assessment of brain stem death • Certification of death		Strongly recommended (Paediatric Surgery: • Ethical issues • Palliative care • Communication

Module 9	**Organ and Tissue transplantation**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Objective	To understand the principles of organ and tissue transplantation	MRCS	
Knowledge	• Principles of transplant immunology including tissue typing, acute, hyperactute and chronic rejection • Principles of immunosuppression • Tissue donation and procurement • Indications for whole organ transplantation		

Module 10	Health Promotion
General Aspects	
Objective	This syllabus module aims to enable all surgical trainees to develop the competencies necessary to support patients in caring for themselves, to empower them to improve and maintain their own health.
Knowledge	• Damaging health and social issues such as excessive alcohol consumption, obesity, smoking and illicit drugs and the harmful effects they have on health • The connection between mental health and physical health • The importance of health education for promoting self-care for patients
Clinical Skills	3 Modification of explanations to match the intellectual, social and cultural background of individual patients 3 Patient centred care 4 Identification and utilisation of opportunities to promote health
Reference to other relevant syllabus items	• Nutrition (Module 5, Perioperative Care) • Drugs and alcohol (Module 1, Pharmacology) • Screening (Module 1, Pathology) • Child protection (Module 7, Surgical Care of the Paediatric Patient)
Obesity	
Objective	• Recognise the health risks posed by obesity including an increased incidence of coronary heart disease, type 2 diabetes, hypertension, stroke, and some major cancers. • Assess and explain the higher risks for obese individuals undergoing surgery.
Knowledge	• Classification of excess body mass • Social, psychological and environmental factors that underpin obesity • Physiological and metabolic effects of obesity on the surgical patient • Available treatments for obesity including diet, exercise, medication and surgery
Clinical Skills	4 The ability to treat patients who are obese in a supportive and sensitive manner 3 Management of cardiovascular, respiratory and metabolic complications in patients with obesity undergoing surgery 2 Provide advice and guidance about weight loss to overweight and obese patients within the context of a multidisciplinary team
Dementia	
Objective	• Adapt surgical treatment in order to deliver high quality and person-centred care for patients with dementia • Apply the appropriate legal framework to the treatment of patients with cognitive impairment
Knowledge	• Clinical features of dementia and the distinction between it and delirium • The impact of dementia on patient, family and carers

	• Principles and key provisions of the relevant legislation regarding the safeguarding of vulnerable adults across the UK (see **footnote**).
Clinical Skills	3 Recognises cognitive impairment and appropriately refers 2 Management of surgical patients in the context of their dementia 4 A range of techniques and strategies to communicate effectively with people with dementia and their carers/families 4 Assessment of capacity, involvement of advocates and documentation of consent and best interests in accordance with current legislation in place across the nations of the UK (see **footnote**). **Footnote** The relevant legislation includes: • Mental Capacity Act (2005) • Mental Health Act (1983 and 2007) • Adults with Incapacity (Scotland) Act (2000) • Mental Health (Care and Treatment) (Scotland) Act (2003) • Adult Support and Protection (Scotland) Act (2007).
Exercise and physical fitness	
Objective	• Promote the use of exercise in the prevention and management of long term chronic conditions such as coronary heart disease, diabetes, hypertension, obesity, cancer, osteoporosis, peripheral vascular disease and depression and the promotion of health and well being
Knowledge	• Physical inactivity as an independent risk factor for ill health and obesity • Relationship between physical exercise programmes and healthy eating and smoking cessation programmes • Government behaviour change programmes such as 'Let's Get Moving' and 'Shift into Sports'
Clinical Skills	4 Utilisation of all patient interactions as opportunities for health and fitness promotion 4 Modification of advice on physical exercise to the specific requirements of individual patients

Requirement to meet the ST3 in Urology

In order to meet the job specifications of an ST3 trainee an early year's trainee must take a clear role in the Urology team, managing clinic and ward based patients under supervision, including the management of acute urological admissions. They will need to be able to take part in an outpatient clinic and see patients themselves with the consultant available for advice.

Therefore in early years training, In addition to the common competences for all surgeons, it is necessary to address the specifics of a developing interest in Urology during these years. This means spending 6-12 months in Urology in a service which gives trainees access to the appropriate learning opportunities. Also by the time a trainee enters ST3 they need to be familiar with the operating room environment both with respect to elective and emergency cases.

Trainees must attend MDT and other Departmental meetings and ward rounds, prepare elective operating lists (including inpatient, day-case and endoscopy), and actually perform some surgery under appropriate supervision. They must manage all patients in a Urology ward environment, preoperatively and post operatively. This includes recognising and initiating the management of common complications and emergencies, over and above those already laid out in the common surgical component of the curriculum, particularly module 2.

The range of conditions a trainee needs to manage is laid out below and in the depth demonstrated in a text book such as Blandy's Lecture notes in Urology include:

1. Urinary tract calculi
- To be able to provide the early care of a patient presenting with the symptoms suggestive of urinary tract calculi including onward referral

2. Functional urology
- To be able to provide the early care of a patient presenting with lower urinary tract symptoms and dysfunction including onward referral
- To be able to provide the early care of a patient presenting with urinary tract obstruction including onward referral
- To diagnose and initiate management of a patient presenting with acute or chronic urinary retention

3. Urinary tract infection
- To be able to provide the early care of a patient presenting with urinary tract infections including onward referral when appropriate
- To be able to provide the early care of a patient presenting with epididymitis and scrotal abscess including onward referral when appropriate

4. Urological oncology
- To be able to provide the early care of a patient with suspected urological cancer including onward referral

5. Treatment of renal failure
- To be able to provide the early care of a patient presenting with renal failure including onward referral when appropriate

6. Testicular pain and swelling
- To be able to provide the early care of a patients presenting with acute testicular pain or testicular swelling

Early Years training in Urology		
Objective	Provide experience in the early care of patients with common genitourinary problems: • The common emergency problems are urinary tract infection affecting the bladder and kidney, ureteric or renal colic, urinary retention, urinary tract obstruction, renal failure and acute testicular pain. • The common elective problems include lower urinary tract symptoms in men, urinary tract infection affecting the bladder and kidney, haematuria, testicular swelling and other patients in whom urological malignancy is suspected. Provide some operative experience of scrotal surgery and circumcision, together with some experience of straightforward lower urinary tract endoscopy.	**Areas in which simulation should be used to develop relevant skills**
Knowledge	Basic science relevant to the management of patients with the common elective and emergency genitourinary problems, (including anatomy, physiology, pharmacology, pathology and radiology) Principles of management of patients presenting with the common elective and emergency genitourinary problems Detailed initial management of patients presenting the common urological problems including onward referral	
Clinical Skills	3 Assessment, investigation and initial management of patients presenting with common elective and emergency urological conditions	
Technical Skills and Procedures	4 Urethral catheterisation 3 Suprapubic catheterisation 3 Flexible cystoscopy 2 Rigid cystoscopy 2 Rigid cystoscopy with biopsy and diathermy 2 Rigid cystoscopy and retrograde ureterogram 2 Rigid cystoscopy and insertion JJ stent 3 Testicular fixation for torsion of the testicle 2 Hydrocele surgery 2 Excision of epididymal cyst 2 Circumcision	Strongly recommended

Assessment

The speciality elements of the early years will all be assessed primarily in the workplace and then scrutinised in the Annual Review of Competence Progression. All these documents would be included in a portfolio which would contribute as evidence in subsequent applications to enter ST3.

Specific evidence includes

Assessment type	**Subject**
DOPS a selection of types and numbers of each type according to learning agreements	Urethral catheterisation Suprapubic catheterisation Flexible cystoscopy Testicular fixation for torsion of the testicle Rigid cystoscopy Circumcision Rigid cystoscopy with biopsy and diathermy Rigid cystoscopy and retrograde ureterogram Rigid cystoscopy and insertion JJ stent Hydrocele surgery Excision of epididymal cyst Circumcision
Case Based Discussion	One per attachment
CEX	Clinical assessment of patients with common urological conditions
PBAs	Hydrocele repair
Training Supervisors report	Evidenced by the above WPBAs
ARCP for each specified training interval	As per local Deanery specifications
MRCS	Common syllabus

Intermediate Stage Overview

Clinical placements during the intermediate stage (ST3-6) will be purely in urology. The purpose of the intermediate stage is to allow the trainee to develop further the skills necessary for independent urological practise. These will include skills in general urology and in emergency urology. They will also be an introduction to some specialist areas of urology.

Entry into ST3

Entry into ST3 will usually involve a competitive selection process. The current person specifications for entry into ST3 in urology are shown on the Modernising Medical Careers website. The essential components here are completion of the common component of the core surgical training programme (as evidenced by successful ARCP, WPBA and completion of the MRCS examination) and completion of the urology specific components of the early years training as evidenced by a successful ARCP and completion of the appropriate WPBA.

INTERMEDIATE TOPICS

Simulation techniques

Knowledge / Clinical Skills: Can be simulated within CRM and team scenarios
Technical Skills: Can be simulated in bench-top and low fidelity simulators, animals or cadaveric material.

Topic	Basic science	Areas in which simulation should be used to develop relevant skills
Objective	*The trainee should understand the basic anatomy that urologists will encounter during the daily management of urological patients, and basic embryology relevant to clinical practice* *To understand and apply physiological principles in the management of patient with urological problems.* *To understand normal physiological processes at different ages and understand the effects of disease and trauma on these processes* *To understand the pharmacological principles relevant to the genitourinary tract* *To understand pathological processes as applied to the organs of the urogenital system*	
Knowledge	**Anatomy** 4 Macro anatomy and Micro anatomy of the urinary tract 4 Vascular anatomy of the urinary tract 4 Neurological supply including central connections 4 3-dimensional relationship to other organs 4 General knowledge of intra abdominal operative anatomy 4 Embryological development in relation to disorders affecting the urinary tract 3 Pathways of pain **Physiology** 4 Mechanism of endocrine homeostasis 4 Control of blood pressure 4 Mechanism of urine production 4 Mechanism of peristalsis initiation 4 Mechanisms of neuromuscular transmission 4 Anti-reflux mechanisms 4 Neuro-physiological control of filling/voiding cycles 4 Physiological properties of bladder musculature 4 Physiological properties of bladder mucosa 4 Bladder sensation 4 Neurophysiology of sphincter mechanisms in male and female 4 Physiology and molecular biology of prostate cell 4 Physiology of prostate secretion 4 Prostate specific antigen and related markers 3 Physiology of erection and ejaculation 3 Urological endocrinology 3 Interpretation of semen analysis 3 Mechanisms of spermatogenesis and mechanism of spermatic transport 3 Function of accessory genital organs 3 Effect of disease and drugs on normal genital function 3 Physiology of pain **Pharmacology** 4 Mechanisms of action of commonly used drugs in urology 4 Nephro-pharmacology	

	4 Cholinergic and Adrenergic mechanisms 4 Non-adrenergic, non-cholinergic (NANC) mechanisms 4 Pharmacology of coagulation 4 Pharmacology of inflammation 4 Pharmacology of neoplastic disease **Pathology** 3 Basic genetics of uropathological conditions 3 Common congenital disorders affecting the urinary tract (eg undescended testis and urinary tract reflux) 3 Changes related to congenital abnormalities 4 Basic principles of microbiology, resistance, cross infection relevant to the GU tract 4 Antibiotics including mechanism of action 4 Acute and chronic inflammatory response 3 Chronic inflammatory mechanisms and diseases 3 Role of genetic and environmental factors in urological cancer 3 Mechanisms of tumour initiation/growth 4 TNM classification of common urological tumours 2 Oncogenes, growth factors and angiogenesis 2 Mechanisms of chemotherapy, immunotherapy and radiotherapy 3 Familial prostate cancer and renal oncology 3 Abnormalities resulting from trauma 4 Primary and secondary wound healing by anatomical site	
Clinical Skills	**Anatomy** 4 Application of anatomical knowledge in clinical and operative setting **Physiology** 4 To understand the indications and theory of urodynamic studies 3 To understand the indications and theory of urodynamic studies in the neuropathic patient 4 Assessment of the normovolaemic patient 4 Assessment of the anuric patient 4 Assessment and management of the patient in renal failure 4 Management of post obstructive diuresis 4 Application of knowledge in clinical and operative setting 3 Assessment and early management of the infertile male 4 Application of knowledge in clinical and operative setting 4 Utilisation of PSA in the clinical setting 4 Understanding of PSA density and velocity **Pharmacology** 4 Appropriate use of commonly used drugs recognising common side effects, interactions and contra-indications **Pathology** 3 Recognition of possible genetic component to specified condition 3 Investigation and basic management of patients with congenital disorders of the GU tract 4 Appropriate investigation and management of urinary tract infection 4 Understand and apply principles of infection control 4 Management of multi-resistant organisms 3 Investigation and management of chronic inflammatory diseases affecting the urinary tract 3 Diagnosis, staging and early management of patients with urological malignancy 3 Diagnosis and early management of patients with trauma ATLS	Desirable

Technical Skills and Procedures	4 Application of knowledge in operative setting 4 Urodynamic assessment 3 Urodynamic assessment of the neuropathic bladder	

Topic	**Clinical pharmacology**	**Areas in which simulation should be used to develop relevant skills**
Objective	*To understand and apply pharmacological principles in the management of patients with urological disease.*	
Knowledge	Clinical pharmacology of commonly used drugs including side-effects and complications of commonly used drugs for the following conditions: 4 Acute and chronic infection 4 Lower urinary tract dysfunction 4 Erectile dysfunction 4 Urinary incontinence 2 Systemic chemotherapy for urological malignancy 3 Intravesical chemotherapy for urological malignancy 4 Anticoagulants 4 Drugs used for pain relief including post-operative pain relief 3 Immunosupressants 4 DVT prophylaxis in Urological surgery 4 Side effects upon the genitourinary tract of drugs used to treat common conditions (eg cardiovascular and respiratory disease)	
Clinical Skills	4 Appropriate use of commonly used drugs recognising common side effects, interactions and contra-indications	
Technical Skills and Procedures	N/A	
Topic	**Common research methodology (dry science)**	
Objective	*To understand statistical mechanisms and be able to critically assess evidence in the literature* *To understand the principles and practice of audit*	
Knowledge	4 Understanding of statistical significance, relative risk, odds ratio, weighted mean difference and confidence intervals 4 Application of tests e.g. Parametric, Non-parametric, Multivariate and Chi-squared analysis 4 Principles of screening 4 Principles of audit 4 Hierarchy of evidence 4 Principles (including theory and design), applications and limitations of randomised controlled trials, observational studies and retrospective series 4 Methodology that underpin phase 1, 2, 3 and 4 trials 4 Understanding of Good Clinical Practice including importance of ethics in research and research governance 4 Basics of meta-analysis, systematic review and narrative review 4 Basics of qualitative research	
Clinical Skills	4 Critical appraisal of scientific publications including quality assessment 4 Ability to interpret the relevance of trial / study outcomes to the	

	care of patients 4 Application of research methodology to clinical setting 4 Audit 4 Systematic review 4 Observational study	
Technical Skills and Procedures	N/A	
Topic	**Stone Disease**	
Objective	*To assess a patient presenting with a urinary stone in kidney, ureter or bladder* *To treat a patient presenting with a urinary stone in kidney, ureter or bladder including onward referral when appropriate*	
Knowledge	4 Principles of management of stones in the urinary tract 4 Mechanisms of stone formation 4 Natural history and pathophysiology 4 Variable symptom complexes according to site 4 Complications of stone formation 4 Metabolic management of urinary stone disease **Renal calculi** 4 Management of renal calculi **Ureteric calculi** 4 Mechanisms of ureteric colic 4 Renal adaptation to ureteric obstruction 4 The role of IVU/USS and CT in diagnosis 4 Management of ureteric calculi **Bladder calculi** 4 Management of bladder calculi	
Clinical Skills	4 Requirements for emergency therapy 4 Appropriate multidisciplinary assessment and management 4 Investigation and management of patient with recurrent stone disease **Renal calculi** 4 Assessment of obstruction / sepsis 4 Appropriate management and treatment plans 4 Correct referral pathways 4 Medical management **Ureteric calculi** 4 Assessment of obstruction / sepsis 4 Appropriate management and treatment plans 4 Correct referral pathways 4 Medical management **Bladder calculi** 4 Assessment of obstruction / sepsis 4 Appropriate investigation and treatment plans	Strongly recommended
Technical Skills and Procedures	2 ESWL for renal stone 2 ESWL for ureteric stone 3 Rigid ureteroscopy and therapeutic management lower 1/3 ureteric calculi	Desirable

	3 Rigid ureteroscopy and therapeutic management middle and upper 1/3 ureteric calculi 3 Cystoscopy and insertion JJ stent 3 Endoscopic fragmentation of bladder calculi 3 Open removal bladder calculi	
Topic	**Urinary tract obstruction**	
Objective	*To assess and treat a patient presenting with lower urinary tract symptoms and dysfunction* *To assess and treat a patient who has urinary tract obstruction including onward referral when appropriate* *To assess and treat a patient with urinary retention*	
Knowledge	**Upper tract obstruction** 4 Anatomy, causes and pathophysiology of upper urinary tract obstruction 4 Aetiology, pathophysiology and management of ureteric stricture **Lower tract obstruction** 4 Anatomy, physiology, epidemiology and pathophysiology of lower urinary tract dysfunction in men and women 4 Investigative tools 4 Available treatment options for male and female LUTS 4 Causes and pathophysiology of urinary retention in men and women 4 Mechanisms of acute/chronic retention Aetiology, pathophysiology and management of urethral stricture Aetiology, pathophysiology and management of bladder neck stenosis **Male LUTS and BPH** 4 Epidemiology of BPH 4 Natural history and complications of BPH 4 Mechanisms of fluid balance 4 Urodynamic basis for symptoms 4 Non-urological causes of similar symptom complex 4 Utility of PSA 4 Detailed medical and surgical therapy for BPH	Strongly recommended
Clinical Skills	**Upper tract obstruction** 4 Appropriate assessment of unilateral and bilateral renal obstruction 4 Recognition and early management of sepsis 4 Appropriate management of upper urinary tract obstruction 4 Interpretation of IVU and diuresis renography 4 Management of post obstructive diuresis 4 Assessment of renal function and fluid loading 4 Assessment of fluid balance and renal function **Lower tract obstruction** 4 Interpretation of urinary flow rates 4 Appropriate clinical assessment and investigation of men and women with LUTS 4 Formulation of differential diagnosis for men and women with LUTS 4 Formulation of therapeutic plan for men and women with LUTS 4 Management of urethral stricture including onward referral as appropriate 4 Management of bladder neck stenosis including onward referral as appropriate	

	Male LUTS and BPH 4 Appropriate assessment, investigation and management including - Interpretation of fluid charts - Interpretation of biochemistry (eg PSA) - Interpretation of urodynamic investigations (eg flow rate, residual urine) 4 Formulation of appropriate differential diagnosis 4 Formulation of appropriate plan of management 4 Medical therapy of BPH / LUTS	
Technical Skills and Procedures	4 Cystoscopy and retrograde ureterogram 3 Cystoscopy and insertion JJ stent 4 Urodynamic testing 3 TURP 3 Bladder neck incision 4 Percutaneous insertion of suprapubic catheter 3 Urethrography 3 Optical urethrotomy	Desirable

Topic	Urinary Tract Infections	
Objective	*To understand the pathogenesis, natural history and complications of urinary tract infection.* *To be able to assess and manage patients presenting with common urinary tract infections,* *To be able to assess and manage patients presenting with genital infections*	
Knowledge	**Basic Mechanisms** 4 Biological mechanisms of upper and lower urinary tract infection – virulence 4 Host defence 4 Antibiotics - Mechanisms of action 4 Appropriate microbiological tests **Pyelonephritis** 4 Predisposing causes 4 Clinical presentation and management **Renal and peri-renal abscess** 4 Pathogenesis predisposing causes 4 Clinical presentation and management **Genito-urinary tuberculosis** 4 Pathogenesis, natural history and complications 4 Clinical presentation and management **Prostatitis** 4 Classification, pathogenesis, natural history and complications 4 Diagnosis and management 4 Role of segmented culture **Epididymitis** 4 Pathogenesis, natural history and complications 4 Clinical presentation and differential diagnosis 4 Treatment **Scrotal abscess** 4 Classification 4 Pathogenesis, natural history and complications 4 Diagnosis and management **Fournier's gangrene** 3 Pathophysiology and clinical features of Fournier's gangrene **Sexually transmitted diseases including Chlamydia trachomatis, Gonococcal and non-Gonococcal urethritis** 4 Pathogenesis, natural history and complications 4 Clinical presentation, differential diagnosis and management **Interstitial cystitis and Chronic pelvic pain Syndrome** 3 Pathogenesis, natural history and complications 3 Clinical presentation 3 NIH criteria for diagnosis 3 Management options **Retroperitoneal fibrosis** 3 Pathogenesis, natural history and complications 3 Clinical presentation and management	

Clinical Skills	**General** 4 Identification of significant infection and asymptomatic bacteriuria; 4 Correct antibiotic selection 4 Management of specific patient groups e.g adult females, children 4 Collection of appropriate samples and interpretation of results **Pyelonephritis** 4 Rapid and appropriate assessment of patient 4 Correct interpretation of tests 4 Appropriate diagnostic and microbiological requests 4 Indications for nephrostomy **Renal and peri-renal abscess** 4 Rapid and appropriate assessment 4 Correct interpretation of tests 4 Appropriate diagnostic and microbiological requests 4 Appropriate treatment **Genitourinary tuberculosis** 4 Rapid and appropriate assessment 4 Correct interpretation of tests 4 Appropriate diagnostic and microbiological requests **Prostatitis** 4 Appropriate assessment 4 Correct interpretation of tests 4 Appropriate diagnostic and microbiological requests 4 Medical management **Epididymitis** 4 Appropriate assessment of patient 4 Correct interpretation of tests 4 Appropriate diagnostic and microbiological requests 4 Medical management of patient **Scrotal abscess** 4 Appropriate assessment of patient 4 Correct interpretation of tests 4 Appropriate diagnostic and microbiological requests 4 Medical management of patient **Fournier's gangrene** 3 Appropriate management of Fournier's gangrene 4 Liaison with other teams as appropriate e.g. plastic and colorectal surgeons **Sexually transmitted diseases including Chlamydia trachomatis, Gonococcal and non-Gonococcal urethritis** 4 Appropriate assessment of patient 4 Correct interpretation of tests 4 Appropriate diagnostic and microbiological requests 4 Liaison with other teams as appropriate e.g Gynaecology, GUM	Strongly recommended
	Interstitial cystitis and chronic pelvic pain syndrome 3 Assessment of patient 3 Correct interpretation of tests 3 Medical management of patient	

	Retroperitoneal fibrosis 3 Assessment of patient 3 Correct interpretation of tests 3 Medical management of patient	
Technical Skills and Procedures	4 Rigid and flexible cystoscopy 4 Cystoscopy and retrograde ureterogram 3 Cystoscopy and JJ stent insertion 4 Surgical management of scrotal abscess **Retroperitoneal fibrosis** 4 Cystoscopy and retrograde ureterogram 3 Cystoscopy and JJ stent insertion **Interstitial cystitis and chronic pelvic pain syndrome** 4 Cystoscopy and biopsy	Desirable

Topic	**Urinary incontinence**	
Objective	*To assess and manage a patient presenting with symptoms of urinary incontinence including onward referral when appropriate* *To assess and manage patients with neuropathic bladder dysfunction including onward referral when appropriate.*	
Knowledge	4 Aetiology, epidemiology, pathophysiology and classification incontinence in men and women 4 Clinical presentation and differential diagnosis of urinary incontinence 4 Management of urinary incontinence 3 Aetiology, epidemiology, pathophysiology and classification of neuropathic bladder 3 Clinical presentation and differential diagnosis of urinary incontinence 3 Management of neuropathic incontinence	Desirable
Clinical Skills	**Urinary incontinence** 4 Appropriate history and examination 4 Investigation including Interpretation of frequency volume chart 4 Appropriate liaison with multidisciplinary team 4 Appropriate referral for sub-specialist management and surgery 3 Formulation of a realistic treatment plan 4 Medical management of urinary incontinence **Neuropathic bladder** 3 Appropriate history and examination 3 Appropriate investigation 3 Interpretation of frequency volume chart 3 Appropriate liaison with multidisciplinary team (eg neurology and continence) 3 Appropriate referral for sub-specialist management and surgery 3 Formulation of a realistic treatment plan 4 Medical management	
Technical Skills and Procedures	4 Urodynamic studies 2Cystoscopy and injection of Botulinum Toxin 2Cystoscopy and injection of urethral bulking agent 2 Surgical insertion of mid-urethral tape 4 Cystoscopy and insertion of suprapubic catheter	Desirable
Topic	**Urological Oncology**	
Objective	*To assess and manage patient with suspected urological cancer.* *To manage patients with a proven urological cancer including onward referral where necessary* *To treat the patient with empathy*	
Knowledge	**Aetiology, epidemiology and pathophysiology** 3 Epidemiology of urological cancer 3 Role of genetic and environmental and factors in pathogenesis 2 Basic understanding of molecular biology of urological cancer 2 Knowledge of Oncogenes, growth factors and angiogenesis factors in relation to tumours **Clinical features** 3 Symptom complexes arising from urological malignancies kidney, ureter, bladder, prostate, testis and penis 3 Current standards for the investigation of common urological cancers 3 TNM classification of common urological tumours	

	Treatment 4 Current standards of treatment for common urological Cancers 3 Principles of neo-adjuvant versus adjuvant therapy 3 Principles and application of radiotherapy 4 Terminal care **Screening** 4 Principles of screening 4 PSA and other markers as screening tools 4 Application of urine cytology to screening 4 Controversies in screening for urological cancers	
Clinical Skills	3 High level empathetic and communication skills 3 Rapid and appropriate assessment of patient with possible malignancy 3 Role of PSA and other markers, urine cytology etc 3 Correct interpretation of tests 3 Appropriate liaison with multidisciplinary team 3 Appropriate management of urological malignancies 3 Appropriate referral for sub-specialist management and surgery 4 Care of the dying patient	Strongly recommended
Technical Skills and Procedures	4 Cystoscopy and biopsy 4 Cystoscopy and diathermy bladder lesion 3 TURBT 3 TURP 3 Cystoscopy and JJ stent insertion 3 Ureteroscopy 4 Cystoscopy and retrograde pyelogram 4 Inguinal Orchidectomy	Desirable
Topic	**Andrology**	
Objective	*To assess and manage a man with male factor infertility including onward referral as necessary* *To assess and manage a man with erectile dysfunction including onward referral as necessary* *To assess and manage a man with varicocele, ejaculatory disorders, penile deformity, penile fracture or prolonged erection including onward referral as necessary* *To assess and counsel a man requesting a vasectomy*	
Knowledge	3 Anatomy, embryology and physiology of male reproductive system 3 Causes, assessment and management of male factor infertility 3 Modern methods of assisted fertilisation 4 Anatomy, physiology and pharmacology of erectile mechanism 4 Effects of concurrent pathology on erectile mechanism 4 Standards of assessment and investigation of erectile dysfunction 4 Therapeutic options including the pharmacological basis of modern therapy 4 Penile deformity – anatomy, physiology and management 4 Prolonged erection – Causes, pathophysiology and management 4 Penile fracture – assessment and management 4 Contraception - Methods, results and complications of different methods of contraception 3 Ejaculatory disorders – anatomy, physiology and management 4 Varicocele – anatomy, physiology and management	

	3 Current standard of treatment for penile cancer	
Clinical Skills	**Male infertility** 3 Appropriate investigation and treatment plan 3 Liaison with multidisciplinary team and referral for sub-specialist management **Erectile dysfunction** 4 High level and empathetic communication skills 4 Appropriate investigation and treatment plan 4 Medical management of erectile dysfunction 4 Liaison with multidisciplinary team and referral for sub-specialist management **Andrology** Appropriate investigation and treatment plan and onward referral where appropriate for the following: 4 Penile deformity 4 Prolonged erection 3 Ejaculatory disorders 4 Varicocele 4 Penile fracture Appropriate referral for sub-specialist management and surgery 4 Contraception - Assess and counsel a man requesting contraceptive advice	
Technical Skills and Procedures	4 Adult Circumcision 4 Hydrocele repair 4 Epididymal cyst excision 2Nesbit's procedure 2 Operative management of penile cancer 2 Operative management of priapism 4 Vasectomy 2 Operative management of varicocele	Desirable
Topic	**Paediatric Urology**	
Objective	*To assess and manage a child with a congenital disorder of the urogenital tract including onward referral as necessary* *To assess and manage a child with a enuresis, congenital neuropathic bladder or with intersex, including onward referral as necessary* *To assess and manage a child with an inguinoscrotal abnormality including onward referral as necessary* *To assess and manage a child with urinary infection, including onward referral as necessary*	
Knowledge	4 Embryology and anatomy of common congenital abnormalities, e.g undescended testis, duplex systems, reflux and hydronephrosis 4 Principles of functional assessment of the genitourinary tract 2 Basic embryology, anatomy of abnormality and natural history of intersex, spina bifida and posterior urethral valves 4 Concise knowledge of inguino-scrotal anatomy 4 Bacteriology of UTI in childhood 4 Natural history and normal patterns of continence	
Clinical Skills	**Common congenital urological disorders e.g undescended testis, duplex systems reflux and hydronephrosis** 4 Appreciation of prognostic possibilities 4 Appropriate investigation plans	Strongly recommended

	4 Formulation of realistic treatment plan 4 Appropriate referral for sub-specialist management and / or surgery 4 Family orientated communication skills **Spina bifida, intersex and posterior urethral valves** 2 Appreciation of prognostic possibilities 2 Formulation of realistic treatment plan 2 Appropriate referral for sub-specialist management and / or surgery **Inguinoscotal abnormalities (eg undescended testes, hydrocele, testicular torsion) and phimosis.** 4 Appropriate tests to elicit differential diagnosis 4 Formulate appropriate treatment plan 4 Management of condition, including knowledge of indications, results and complications of surgery **Urinary tract infection** 4 Practical management of UTI 4 Appropriate investigation plans 4 Formulation of realistic treatment plan 4 Appropriate referral for sub-specialist management and / or surgery **Enuresis** 4 Practical management 4 Formulation of realistic treatment plan 4 Appropriate referral for sub-specialist management and / or surgery	
Technical Skills and Procedures	3 Circumcision 2 Hydrocele 2 Orchidopexy 4 Surgical exploration for torsions of testis, with fixation	Desirable Desirable
Topic	**Renal function and Nephrology**	
Objective	*To have a good working knowledge of the assessment of renal function and the urological conditions that predispose to the development of renal failure.* *To understand the pathogenesis, natural history and complications of urological conditions that can lead to renal dysfunction and how urological intervention may prevent or delay the onset of renal failure.* *To understand the different methods of renal replacement including renal transplantation*	
Knowledge	4 Physiology of renal function 4 GFR estimation techniques 4 Tubular function and dysfunction 4 Basic pathology of acute and chronic renal failure 4 Principles of dialysis, renal preservation 4 Control of blood pressure 4 Aetiology, diagnosis and early management of Acute tubular necrosis 4 Aetiology, diagnosis and early management of pre-renal failure 4 Mechanisms of obstructive uropathy 4 Causes and pathophysiology of bilateral and unilateral obstruction 4 Mechanisms of chronic retention and its relationship to obstructive uropathy 4 Principles of haemodialysis and peritoneal dialysis	

	4 Indwelling cannulae for haemodialysis 4 Continuous ambulatory peritoneal dialysis (CAPD) 3 Recipient selection and indications for transplantation 3 Tissue typing and cross matching for transplantation 3 Relative indications for haemodialysis or transplantation 3 Immunosuppression for transplantation 3 Complications of renal transplantation	
Clinical Skills	4 Practical methods of GFR assessment Assessment of patients with the following: 4 Tubular disorders 4 Anuria 4 Renal failure 4 Obstructed uropathy 4 Liaison with other specialties (nephrology, transplantation) 4 Management of fluid/acid base balance 4 Assessment of fluid balance, renal function and fluid loading 4 Management of post obstructive diuresis 4 Ambulatory dialysis techniques 3 Evaluation of potential recipients for renal transplantation and timing of dialysis 3 Urinary tract workup of potential recipients prior to transplantation	Strongly recommended
Technical Skills and Procedures	4 Percutaneous supra-pubic catheterisation	Desirable
Topic	**Emergency Urology**	
Objective	*To assess and manage patients who present acutely with urological problems, including onward referral when necessary*	
Knowledge	**Ureteric colic** 4 Pathophysiology of nephrolithiasis 4 Renal adaptation to ureteric obstruction 4 Presentation and clinical course of urinary tract calculi 4 The role of IVU/USS and CT in diagnosis 4 Management options 4 Complications of urinary tract calculi including urosepsis 4 Pharmacology of pain relief 3 Endoscopic management of ureteric calculi **Urinary tract infection and pyelonephritis** 4 Causes and pathophysiology of urinary tract infections, including the complications 4 Presentation of urinary tract infection 4 Renal function during infection 4 Antibiotics and their relevant pharmacology 4 Indications for further investigation of urinary tract infection **Urinary retention in men and women** 4 Causes, epidemiology and pathophysiology of acute and chronic urinary retention 4 Mechanisms of acute and chronic urinary retention 4 Risk factors and timing of treatment 4 Treatment options for acute and chronic urinary retention **Haematuria** 4 Causes and pathophysiology of haematuria	

	4 Causes and pathophysiology of disorders of coagulation 4 Tests for disorders of coagulation **Testicular pain** 4 Anatomy of the Scrotum and Testicle 4 Pathophysiology of testicular torsion 4 Pathophysiology of epididymo-orchitis 4 Pathophysiology of scrotal abscess 4 Clinical features and differential diagnosis 4 Appropriate management **Other emergencies** 3 Causes pathophysiology, clinical features and management of Fournier's Gangrene 4 Causes, pathophysiology, clinical features and management of phimosis 4 Causes, pathophysiology, clinical features and management of paraphimosis 4 Causes, pathophysiology, clinical features and management of priapism 4 Causes, pathophysiology, clinical features and management of penile fracture	
Clinical Skills	**Ureteric colic** 4 Emergency assessment and treatment of uncomplicated urinary tract calculi including analgesia 4 Appropriate definitive management of uncomplicated urinary tract calculi 4 Assessment and management of obstruction and sepsis 4 Detection of complications e.g. as obstructed kidney, renal failure, perinephric abscess **Urinary tract infection and pyelonephritis** 4 Diagnosis and management of urinary tract infection 4 Assessment and management of obstruction and sepsis 4 Appropriate relief as indicated 4 Appropriate action to relieve renal function **Urinary retention in men and women** 4 Assessment, investigation and formulation of a management plan for acute and chronic urinary retention 4 Assessment of fluid balance and renal function 4 Medical management of urinary retention 4 Management of post obstructive diuresis **Haematuria** 4 Assessment, investigation and management of patient with haematuria **Testicular pain** 4 Assessment, investigation and management of acute scrotal pain 4 Assessment, investigation and management of epididymo-orchitis 4 Assessment, investigation and management of scrotal abscess **Other emergencies** 3 Assessment, investigation and management of Fournier's gangrene including liaison with other teams as appropriate e.g. plastic and colorectal surgeons 4 Assessment, investigation and management of Phimosis 4 Assessment, investigation and management of Paraphimosis	Strongly recommended

	4 Assessment, investigation and management of Priapism including onward referral where necessary 4 Assessment, investigation and management of Penile fracture including onward referral	
Technical Skills and Procedures	3 Rigid ureteroscopy and therapeutic management lower 1/3 ureteric calculi 3 Rigid ureteroscopy and therapeutic management middle and upper 1/3 ureteric calculi 3 Cystoscopy and insertion JJ stent 4 Percutaneous suprapubic catheterisations 3 TURP 3 Bladder neck incision 4 Cystoscopy and bladder washout 3 TURBT 4 Surgical exploration for torsions of testis, with fixation 4 Surgical management of scrotal abscess 3 Surgical management of Fournier's gangrene 4 Reduction of paraphimosis 4 Dorsal slit 4 circumcision2 Operative management of priapism 2 Operative management of penile fracture	
Topic	**Trauma to the Urinary Tract**	
Objective	*To assess and manage patients who present with genitourinary trauma, including onward referral when necessary*	
Objective	*To assess and manage patients who present acutely with urological problems, including onward referral when necessary*	
Knowledge	3 Causes, pathophysiology classification and management of renal trauma 3 Causes, pathophysiology classification and management of ureteric trauma 3 Causes, pathophysiology classification and management of bladder trauma 3 Causes, pathophysiology classification and management of urethral trauma 3 Causes, pathophysiology classification and management of genital trauma 4 Causes, pathophysiology classification and management of testicular trauma	
Clinical Skills	4 Resuscitation, ATLS 3 Appropriate liaison with other relevant specialists in multiple trauma cases 3 Assessment and management of renal trauma 3 Assessment and management of ureteric trauma including appropriate onward referral 3 Assessment and management of bladder trauma including appropriate onward referral 3 Assessment and management of urethral trauma including appropriate onward referral 4 Assessment and management of testicular trauma 3 Assessment and management of genital trauma including appropriate onward referral	Strongly recommended
Technical Skills and Procedures	3 Cystoscopy and insertion JJ stent 4 Percutaneous suprapubic catheterisation 3 Testicular repair 4 Orchidectomy	

	4 Circumcision	
Topic	**Urological Radiology**	
Objective	*To understand the different radiological techniques used in the investigation of urological disease, including practical techniques, indications and safety issues* *To gain hands on experience in diagnostic and interventional radiology* *To develop technical skills in standard radiological techniques relevant to urology*	
Knowledge	4 Principles of ionising radiation 4 Patient and physician protection 4 Investigation related radiation dose 3 Appreciation of aberrant anatomy 4 Appropriate use of radiological investigations 4 Principles of isotope and isotope imaging 4 Application of isotopes to functional assessment 3 Techniques of interventional radiology 4 Indications, limitations and complications of interventional radiology 4 IVP: Basic theory, practical techniques (including contrast agents), indications, interpretation and limitations, safety issues and contraindications 4 Ultrasound (including Doppler): Basic theory principles, practical techniques (including contrast agents), indications, interpretation and limitations, safety issues and contraindications 4 CT scanning: Basic theory principles, practical techniques (including contrast agents), indications, interpretation and limitations, safety issues and contraindications 4 MR scanning: Basic theory, practical techniques (including contrast agents), indications, interpretation and limitations, safety issues and contraindications 2 PET scanning: Basic theory, practical techniques (including contrast agents), indications, interpretation and limitations, safety issues and contraindications 4 Renography: Basic theory, practical techniques (including contrast agents), indications, interpretation and limitations, safety issues and contraindications	
Clinical Skills	4 Indications for use of ionising radiation in urological investigation 4 Application in clinical situation 4 Understand role of ultrasound in urological investigations 4 Resuscitation skills following complications 4 Selection of appropriate isotopic investigations 4 Interpretation of renograms 4 IVP: Therapeutic application, interpretation and limitations 4 Ultrasound (including Doppler): Therapeutic application, interpretation and limitations 4 CT scanning: Therapeutic application, interpretation and limitations 4 MR scanning: Therapeutic application, interpretation and limitations	Strongly recommended

	2 PET scanning: Therapeutic application, interpretation and limitations 4 Renography: Therapeutic application, interpretation and limitations	
Technical Skills and Procedures	2 CTUrogram 3 Cystogram 3 Urethrogram 4 Retrograde Pyelogram 2 Renal ultrasound 2 Bladder ultrasound 2 Scrotal ultrasound 4 Transrectal ultrasound (TRUS) including biopsy 2 Ultrasound guided percutaneous puncture of kidney 3 Ultrasound guided percutaneous puncture of bladder	

Final Stage Overview

The final stage of urological training (ST7) will have two separate components. By the end of the Final stage trainees will be competent to manage a range of general urological conditions including operative competences and emergency urological problems. These will be common to all trainees and will form the basis for the award of the CCT. In addition, trainees will be exposed to one or two specialist areas of urology and will develop competences relevant to that specialist area (see optional modules 1-14). The number and extent of this exposure will depend upon the aptitude of the trainee and the size of the specialist area.

Final Stage Modular Syllabus Overview

During the final stage of training, trainees will have the opportunity to develop an area of specialist interest, which they may subsequently develop following the award of a CCT. The areas covered are defined by the following modular curricula, which describe the knowledge, skills and behaviours relevant to those areas of specialist practice.

As will be seen, the size of the different modules is highly variable, being defined by subject rather than size. Accordingly trainees will be able to undertake one or more of these modules, depending upon their aptitude and interest.

The modules are as follows:

1. Urinary tract stone disease
2. Benign disease of the upper urinary tract
3. Prostate cancer
4. Bladder cancer
5. Renal and ureteric cancer
6. Penile cancer
7. Testicular cancer
8. Reconstruction, incontinence and female floor
9. Advanced reconstruction
10. Neurourology
11. Urethral reconstruction
12. Benign andrology
13. Paediatric urology
14. Renal transplantation

Final Stage Topics for all Trainees

Simulation techniques

Clinical Skills: Can be simulated within CRM and team scenarios
Technical Skills: Can be simulated in bench-top and low fidelity simulators, animals or cadaveric material.

Topic	Basic science	Areas in which simulation should be used to develop relevant skills
Objective	*To understand and apply physiological principles in the management of patient with urological problems.* *To understand normal physiological processes at different ages and understand the effects of disease and trauma on these processes* *To understand pathological processes as applied to the organs of the urogenital system*	
Knowledge	**Anatomy** 4 Pathways of pain **Physiology** 4 Physiology of erection and ejaculation 4 Urological endocrinology 4 Interpretation of semen analysis 4 Mechanisms of spermatogenesis and mechanism of spermatic transport 4 Function of accessory genital organs 4 Effect of disease and drugs on genital function 4 Physiology of pain **Pathology** 4 Common congenital disorders affecting the urinary tract (eg undescended testis and urinary tract reflux) 4 Changes related to congenital abnormalities 4 Chronic inflammatory mechanisms and diseases 3 Oncogenes, growth factors and angiogenesis 3 Mechanisms of chemotherapy, immunotherapy and radiotherapy 4 Abnormalities resulting from trauma	
Clinical Skills	4 To understand the indications and theory of urodynamic studies in the neuropathic patient 4 Assessment and early management of the subfertile male 4 Investigation and management of chronic inflammatory diseases affecting the urinary tract	Strongly recommended
Technical Skills and Procedures	4 Urodynamic assessment of the neuropathic bladder	Strongly recommended

Topic	**Clinical pharmacology**	
Objective	*Understand and apply pharmacological principles in the management of patients with urological disease.*	
Knowledge	Pharmacology of commonly used drugs including side-effects and complications: 3 Systemic chemotherapy for urological malignancy 4 Intravesical chemotherapy for urological malignancy	
Clinical Skills	Appropriate use of commonly used drugs recognising common side effects, interactions and contra-indications: 3 Systemic chemotherapy for urological malignancy 4 Intravesical chemotherapy for urological malignancy	
Technical Skills and Procedures	N/A	

Topic	**Stone Disease**	**Areas in which simulation should be used to develop relevant skills**
Objective	*To assess a patient presenting with a urinary stone in kidney, ureter or bladder* *To treat a patient presenting with a urinary stone in kidney, ureter or bladder including onward referral when appropriate*	
Knowledge	N/A	
Clinical Skills	N/A	
Technical Skills and Procedures	2 ESWL for renal stone 2 ESWL for ureteric stone 4 Rigid ureteroscopy and therapeutic management lower 1/3 ureteric calculi 4 Rigid ureteroscopy and therapeutic management middle and upper 1/3 ureteric calculi 3 Open removal bladder calculi	desirable
Topic	**Urinary tract obstruction**	
Objective	*To assess and treat a patient presenting with lower urinary tract symptoms and dysfunction* *To assess and treat a patient who has urinary tract obstruction including onward referral when appropriate* *To assess and treat a patient with urinary retention*	
Knowledge	N/A	
Clinical Skills	N/A	
Technical Skills and Procedures	4 TURP 4 Bladder neck incision 4 Optical urethrotomy	Desirable

	4 Cystoscopy and insertion JJ stent	

Topic	**Urinary Tract Infections**	
Objective	*To understand the pathogenesis, natural history and complications of urinary tract infection.* *To be able to assess and manage patients presenting with common urinary tract infections,* *To be able to assess and manage patients presenting with genital infections*	
Knowledge	4 Pathophysiology and clinical features of Fournier's gangrene Interstitial cystitis 4 Pathogenesis, natural history and complications 4 Clinical presentation 4 NIH criteria for diagnosis 4 Management options Retroperitoneal fibrosis 4 Pathogenesis, natural history and complications 4 Clinical presentation and management	
Clinical Skills	4 Appropriate management of Fournier's gangrene Interstitial cystitis 4 Assessment of patient 4 Correct interpretation of tests 4 Medical management of patient Retroperitoneal fibrosis 4 Assessment of patient 4 Correct interpretation of tests 4 Medical management of patient	Strongly recommended
Technical Skills and Procedures	4 Cystoscopy and JJ stent insertion 4 Surgical management of Fournier's gangrene	Desirable

Topic	**Urinary incontinence**	
Objective	*To assess and manage a patient presenting with symptoms of urinary incontinence including onward referral when appropriate* *To assess and manage patients with neuropathic bladder dysfunction including onward referral when appropriate.*	
Knowledge	4 Basic anatomy physiology, pathophysiology, pharmacology of neuropathic bladder 4 Causes of neuropathic bladder 4 Types of neuropathic bladder presentation 4 Clinical presentation and differential diagnosis 4 Management of neuropathic incontinence	
Clinical Skills	**Urinary incontinence** 4 Formulation of a realistic treatment plan **Neuropathic bladder** 4 Appropriate history and examination 4 Appropriate investigation 4 Interpretation of frequency volume chart 4 Appropriate liaison with multidisciplinary team (eg neurology and continence services) 4 Appropriate referral for sub-specialist management and surgery 4 Formulation of a realistic treatment plan	Strongly recommended
Technical Skills and Procedures	2 Cystoscopy and injection of urethral bulking agent 2 Surgical insertion of mid-urethral tape 4 Cystoscopy and injection of Botulinum toxin to bladder	Desirable
Topic	**Urological Oncology**	
Objective	*To assess and manage patient with suspected urological cancer.* *To manage patients with a proven urological cancer including onward referral where necessary* *To treat the patient with empathy*	
Knowledge	4 Epidemiology of urological cancers 4 Role of genetic and environmental and factors 3 Basic understanding of molecular biology 3 Knowledge of Oncogenes, growth factors and angiogenesis in relation to tumours **Clinical presentation** 4 Symptom complexes arising from urological malignancies kidney, ureter, bladder, prostate, testis and penis 4 Current standards for the investigation of common urological cancers 4 TNM classification of common urological tumours **Therapy** 4 Current standards of treatment for common urological Cancers 4 Principles of neo-adjuvant versus adjuvant therapy 4 Principles and application of radiotherapy	
Clinical Skills	4 High level empathetic and communication skills 4 Rapid and appropriate assessment of patient with possible malignancy 4 Appropriate investigation 4 Role of PSA and other markers, urine cytology etc 4 Correct interpretation of tests 4 Appropriate liaison with multidisciplinary team	Strongly recommended

	4 High level/empathetic communication skills 4 Appropriate management of urological malignancies 4 Appropriate referral for sub-specialist management and surgery	
Technical Skills and Procedures	4 TURBT 4 TURP 4 Ureteroscopy 3 ileal conduit 3 Nephrectomy (open/ Lap) 1 Radical Prostatectomy 1 Radical Cystectomy	Desirable Desirable
Topic	**Andrology**	
Objective	*To assess and manage a man with male factor infertility including onward referral as necessary* *To assess and manage a man with erectile dysfunction including onward referral as necessary* *To assess and manage a man with varicocele, ejaculatory disorders, penile deformity, penile fracture or prolonged erection including onward referral as necessary* *To assess and counsel a man requesting a vasectomy*	
Knowledge	4 Embryology and physiology of male reproductive system 4 Causes, assessment and management of male factor infertility 4 Modern methods of assisted fertilisation 4 Ejaculatory disorders – anatomy, physiology and management	
Clinical Skills	**Male infertility** 4 Basic management of the subfertile male 4 Appropriate investigation/treatment plan 4 Appropriate liaison with multidisciplinary team and referral for sub-specialist management and / or surgery 4 Appropriate investigation and treatment plan and onward referral where appropriate for Ejaculatory disorders	Strongly recommended
Technical Skills and Procedures	2 Nesbit's procedure 2 Operative management of priapism 2 Operative management of penile fracture 2 Operative management of varicocele	
Topic	**Paediatric Urology**	
Objective	*To assess and manage a child with a congenital disorder of the urogenital tract including onward referral as necessary* *To assess and manage a child with a enuresis, congenital neuropathic bladder or with intersex, including onward referral as necessary* *To assess and manage a child with an inguinoscrotal abnormality including onward referral as necessary* *To assess and manage a child with urinary infection, including onward referral as necessary*	
Knowledge	3 Basic embryology, anatomy of abnormality and natural history of Spina bifida, intersex and posterior urethral valves	
Clinical Skills	**Spina bifida, intersex and posterior urethral valves** 3 Appreciation of prognostic possibilities 3 Formulation of realistic treatment plan	Strongly recommended

	3 Appropriate referral for sub-specialist management and / or surgery	
Technical Skills and Procedures	3 Circumcision 3* Hydrocele * Orchidopexy 4 Surgical exploration for torsions of testis, with fixation	Desirable Desirable
Topic	**Renal Function and Nephrology**	
Objective	*To have a good working knowledge of the assessment of renal function and the urological conditions that predispose to the development of renal failure.* *To understand the pathogenesis, natural history and complications of urological conditions that can lead to renal dysfunction and how urological intervention may prevent or delay the onset of renal failure.* *To understand the different methods of renal replacement including renal transplantation*	
Knowledge	4 Recipient selection and indications for transplantation 4 Tissue typing and cross matching 4 Relative indications for haemodialysis or transplantation 4 Immunosuppression 4 Complications of renal transplantation	
Clinical Skills	4 Evaluation of potential recipients and timing of dialysis 4 Urinary tract workup of potential recipients prior to transplantation 4 Appropriate liaison with other specialties	Strongly recommended
Technical Skills and Procedures	N/A	
Topic	**Emergency Urology**	
Objective	*To assess and manage patients who present acutely with urological problems, including onward referral when necessary*	
Knowledge	4 Endoscopic management of ureteric calculi 4 Pathophysiology and clinical features of Fournier's Gangrene	Desirable
Clinical Skills	4 Appropriate management of Fournier's gangrene	Strongly recommended
Technical Skills and Procedures	4 Rigid ureteroscopy and therapeutic management lower 1/3 ureteric calculi 4 Rigid ureteroscopy and therapeutic management middle and upper 1/3 ureteric calculi 4 TURP 4 Bladder neck incision 4 TURBT 4 Surgical management of Fournier's gangrene 2 Operative management of priapism 2 Operative management of penile fracture	Desirable Desirable
Topic	**Trauma to the Urinary Tract**	
Objective	*To assess and manage patients who present with genitourinary trauma, including onward referral when necessary*	
Knowledge	4 Differences In children 4 Causes, pathophysiology, classification and management of renal	Strongly recommended

	trauma 4 Causes, pathophysiology, classification and management of ureteric trauma 4 Causes, pathophysiology, classification and management of bladder trauma 4 Causes, pathophysiology, classification and management of urethral trauma 4 Causes, pathophysiology, classification and management of genital trauma	
Clinical Skills	4 Appropriate liaison with other relevant specialists in multiple trauma cases 4 Assessment and management of renal trauma including onward referral where appropriate 4 Assessment and management of ureteric trauma including onward referral where appropriate 4 Assessment and management of bladder trauma including onward referral where appropriate 4 Assessment and management of urethral trauma including onward referral where appropriate 4 Assessment and management of genital trauma including onward referral where appropriate	
Technical Skills and Procedures	4 Cystoscopy and insertion of JJ Stent 4 testicular repair	Desirable

Topic	**Urological Radiology**	
Objective	*To understand the different radiological techniques used in the investigation of urological disease, including practical techniques, indications and safety issues* *To gain hands on experience in diagnostic and interventional radiology* *To develop technical skills in standard radiological techniques relevant to urology*	
Knowledge	4 Appreciation of aberrant anatomy 3 PET scanning: Basic theory, practical techniques (including contrast agents), indications, interpretation and limitations, safety issues and contraindications	
Clinical Skills	3 PET scanning: Therapeutic application, interpretation and limitations	
Technical Skills and Procedures	3 Renal ultrasound 3 Abdominal ultrasound 3 Testicular ultrasound	Desirable

Final Stage modular curricula

Simulation techniques

Knowledge / Clinical Skills: Can be simulated within CRM and team scenarios
Technical Skills: Can be simulated in bench-top and low fidelity simulators, animals or cadaveric material.

1. Modular Curriculum for urinary tract stone disease

Topic	Basic Science	Areas in which simulation should be used to develop relevant skills
Objective	*To develop advanced skills in the management of patients with urinary tract stone disease*	
Knowledge	**Anatomy** 4 To understand the detailed anatomy that will be encountered during the management of patients with urinary tract stone disease 4 Embryology, macro and micro anatomy with specific reference to vascular anatomy and neurological anatomy, and its anomalies. **Physiology** 4 Mechanism of urine production 4 Mechanism of peristalsis initiation 4 Mechanisms of neuromuscular transmission 4 Anti-reflux mechanisms 4 Principles of isotope and isotope imaging **Pharmacology** 4 Pharmacology of commonly used drugs in the medical management of ureteric colic 4 Pharmacology of commonly used drugs in metabolic stone disease 4 Pharmacology of pain prevention and relief 4 Use of local anaesthetic and regional techniques 4 Pharmacology of commonly used drugs for sepsis of the urinary tract 4 Indications, contraindications and side effects **Pathology** 4 Pathophysiology or upper urinary tract obstruction 4 Pathophysiology of urolithiasis 4 Microbiology of sepsis of the urinary tract 4 Acute and chronic inflammatory response	
Clinical Skills	4 Selection of appropriate isotopic investigations 4 Interpretation of renograms 4 Assessment of the normovolaemic patient 4 Assessment of the anuric patient 4 Assessment and management of the patient in renal failure 4 Appropriate use of commonly used drugs recognising common side effects, interactions and contra-indications 4 Appropriate use of imaging and other investigations 4 Appropriate management choices and operative skills 4 Prevention, diagnosis and management of urinary sepsis 4 Appropriate investigation and management of urinary tract	Strongly recommended

	infection 4 Recognition of risks and early diagnosis of sepsis	
Technical Skills and Procedures	3 Access to the kidney and the retroperitoneum including percutaneous access 4 Instrumentation of the ureter	Desirable

Topic	**Renal calculi**	
Objective	*To develop advanced skills in the management of patients with urinary tract stone disease*	
Knowledge	4 Assessment and investigation patients with renal calculi 4 Indications for different treatment modalities 4 Mechanisms of extracorporeal lithotripsy 4 Mechanisms of intracorporal lithotripsy 4 Complications of treatment including lithotripsy 4 Results of stone treatment in different locations 4 Outcomes of treatment 4 Understanding of normal post-operative progress 4 Post treatment care 3 Imaging and access techniques for percutaneous access including supra-costal access 4 Operative management of renal calculi including choice of approach according to size, position etc.	
Clinical Skills	4 Assessment and investigation of patients with renal calculi 4 MDT management of stones and ability to formulate management plan including issues of complications 4 Able to take informed consent and explain procedures and outcomes to patients 4 Team working with theatre staff 4 Post-operative assessment and communication 4 Prioritisation of further investigation 4 Post-operative assessment 4 Able to vary access dependent on stone location 3 Appropriate intervention to deal with changing parameters 4 Appropriate use of intracorporal fragmentation devices including laser, EHL, lithoclast Advanced skills enabling safe treatment of complex renal calculi	Strongly recommended
Technical Skills and Procedures	2 ESWL 3 Percutaneous nephrolithotomy including intracorporal lithotripsy 4 Flexible ureteroscopy including intracorporal lithotripsy 4 Rigid ureteroscopy including intracorporal lithotripsy	Desirable

Topic	**Ureteric calculi**	
Objective	*To develop advanced skills in the management of patients with urinary tract stone disease*	
Knowledge	4 Assessment and investigations of patients with ureteric calculi 4 Indications for different treatment modalities 4 Mechanisms of extracorporeal lithotripsy 4 Mechanisms of intracorporal lithotripsy 4 Complications of treatment including lithotripsy 4 Results of stone treatment in different locations 4 Outcomes of treatment 4 Understanding of normal post-operative progress 4 The role of stents	

	4 Post treatment care 3 Aware of range and appropriate use of different instruments 4 Operative management of ureteric calculi including choice of approach depending upon stone position, size etc	
Clinical Skills	4 MDT management of stones and ability to formulate management plan including issues of complications 2 Ability to perform extracorporeal lithotripsy 4 Able to take informed consent and explain procedures and outcomes to patients 4 Team working with theatre staff 4 Post-op assessment and communication 4 Prioritisation of further investigation 4 Post-operative assessment 4 Appropriateness of investigation and interventions 4 Appropriate use of intracorporal fragmentation devices including laser, EHL, lithoclast 4 Advanced skills enabling safe treatment of complex urinary calculi	Strongly recommended
Technical Skills and Procedures	4 Rigid ureteroscopy including intracorporal lithotripsy 4 Flexible ureteroscopy including intracorporal lithotripsy	Desirable

Topic	**Bladder calculi**	
Objective	*To develop advanced skills in the management of patients with urinary tract stone disease*	
Knowledge	4 Assessment and investigations of patients with bladder calculi 4 Indications for different treatment modalities 4 Mechanisms of intracorporal lithotripsy 4 Complications of treatment 4 Results of treatment 4 Outcomes of treatment 4 Understanding of normal post-operative progress	
Clinical Skills	4 Use of endourological techniques to deal with complex bladder calculi 4 Lower urinary tract endoscopic techniques e.g. cystolitholapaxy	Desirable
Technical Skills and Procedures	4 Endoscopic litholopaxy	Desirable

2. Modular curriculum in Benign Disease of the Upper Urinary Tract

Topic	Basic Science	Areas in which simulation should be used to develop relevant skills
Objective	*To develop advanced skills in the management of upper urinary tract obstruction, the surgery of renal failure and other benign conditions of the upper urinary tract*	
Knowledge	4 To understand the detailed anatomy that will be encountered during the management of patients undergoing laparoscopy for renal disease 4 Embryology, macro and micro anatomy with specific reference to vascular anatomy and neurological anatomy, and its anomalies 4 Mechanism of urine production 4 Mechanism of peristalsis initiation 4 Mechanisms of neuro-muscular transmission 4 Principles of isotopes and isotope imaging. 4 Pharmacology of pain prevention and relief 4 Use of local anaesthetic and regional techniques 4 Pharmacology of commonly used drugs for sepsis of the urinary tract including indications, contraindications and side effects 4 Aetiology, investigation and treatment of acute and chronic urinary tract obstruction including PUJ stenosis and ureteric strictures 4 Pathophysiology or upper urinary tract obstruction 4 Microbiology of sepsis of the urinary tract 4 Acute and chronic inflammatory response	
Clinical Skills	4 Selection of appropriate isotopic investigations 4 Assessment and management of the patient in renal failure 4 Appropriate use of commonly used drugs recognising common side effects, interactions and contra-indications 4 Appropriate use of imaging and other investigations 4 Appropriate management choices and operative skills 4 Prevention, diagnosis and management of urinary sepsis 4 Appropriate investigation and management of urinary tract infection 4 Recognition of risks and early diagnosis of sepsis	
Technical Skills and Procedures	3 Access to the kidney and the retroperitoneum including percutaneous access 4 Instrumentation of the ureter	Desirable

Topic	Upper tract obstruction	
Objective	*To develop advanced skills in the management of upper urinary tract obstruction, the surgery of renal failure and other benign conditions of the upper urinary tract*	
Knowledge	4 Causes and pathophysiology of upper urinary tract obstruction 4 Clinical features of upper urinary tract obstruction 4 Endoscopic management of upper urinary tract obstruction	
Clinical Skills	4 Appropriate assessment including investigation and formulation of management plan 4 Formulate a differential diagnosis 4 Management of associated urosepsis 4 Management of post obstructive diuresis	Desirable

	4 Ability to choose appropriate surgical approach for the treatment of upper urinary tract obstruction	
Technical Skills and Procedures	4 Cystoscopy and insertion JJ stent 4 Rigid diagnostic ureteroscopy 4 Flexible diagnostic ureteroscopy	Desirable

Topic	**Pelviureteric Junction Obstruction**	
Objective	*To develop advanced skills in the management of upper urinary tract obstruction, the surgery of renal failure and other benign conditions of the upper urinary tract*	
Knowledge	4 Aetiology, pathophysiology and Clinical features 4 Investigation 4 Formulation of appropriate management of patient with PUJ obstruction 4 Indications, operative steps and complications of the different approaches to the treatment of PUJ obstruction, including: -Percutaneous approaches -Ureteroscopic approaches -Laparoscopic approaches -Open surgical approaches 3 Practical expertise in the surgical management of PUJ obstruction	
Clinical Skills	4 Appropriate management of patient with PUJ obstruction 4 Interpretation of clinical findings and results of investigations 4 Ability to organise appropriate management plan 4 Ability to explain procedures and outcomes to patients and relatives and obtain informed consent 4 Knowledge and appropriate use of treatment options 3 Ability to choose appropriate surgical approach for the treatment of PUJ obstruction	Strongly recommended
Technical Skills and Procedures	2 Ureteroscopic treatment of PUJ obstruction 2 Percutaneous treatment of PUJ obstruction 2 Laparoscopic pyeloplasty 3 Laparoscopic nephrectomy 2 Open pyeloplasty	Desirable

Topic	**Ureteric strictures**	
Objective	*To develop advanced skills in the management of upper urinary tract obstruction, the surgery of renal failure and other benign conditions of the upper urinary tract*	
Knowledge	4 Aetiology, pathophysiology and Clinical features 4 Investigation 4 Formulation of appropriate management of patient with ureteric stricture 4 Indications, operative steps and complications of the different approaches to the treatment of ureteric strictures including: -Ureteroscopic approaches -Laparoscopic approaches 4 Practical expertise in the surgical management of ureteric strictures	
Clinical Skills	4 Appropriate management of patient with ureteric stricture 4 Interpretation of clinical findings and results of investigations 4 Ability to organise appropriate management plan	Strongly recommended

	4 Ability to explain procedures and outcomes to patients and obtain informed consent 4 Knowledge of treatment options 4 Team working with other specialties e.g. radiologists, reconstructive surgeon 4 Ability to choose appropriate surgical approach for the treatment of ureteric strictures	
Technical Skills and Procedures	4 Cystoscopy and insertion JJ stent 2 Ureteroscopic treatment 2 Extra-anatomical stent insertion 2 Open surgical procedures for correction of ureteric stricture	Desirable

Topic	**Renal Failure**	
Objective	*To develop advanced skills in the management of upper urinary tract obstruction, the surgery of renal failure and other benign conditions of the upper urinary tract*	
Knowledge	4 Knowledge of available management pathways and role of nephrologists 4 Principles of dialysis 4 Indications for transplantation 4 Indications, operative steps and complications of surgery in the treatment of end stage renal failure 3 Practical expertise in the surgery in the treatment of end stage renal failure	
Clinical Skills	4 Appropriate assessment and investigation of renal failure patients 4 Practical management of fluid/electrolyte/acid base balance 4 Temporary dialysis techniques 4 Team working with other specialties e.g. radiologists, renal physicians, transplant surgeons 3 Ability to choose appropriate surgical approach for the treatment of end stage renal failure	Strongly recommended
Technical Skills and Procedures	3 Laparoscopic nephrectomy 3 Open (simple) nephrectomy 1 Open donor nephrectomy 1 Laparoscopic donor nephrectomy	Desirable

3. Modular curriculum in Prostate Cancer

Topic	Basic Science	Areas in which simulation should be used to develop relevant skills
Objective	*To develop advanced skills in the assessment and treatment of men with prostate cancer*	
Knowledge	**Anatomy** 4 Embryology and anatomy of the prostate and bladder and male genital sphincters 4 Lymphatic drainage of the pelvic organs **Physiology** 4 Physiology of the prostate 4 Physiology of micturition 4 Physiology of erection **Pharmacology** 4 Pharmacology of pain prevention and relief 4 Use of local anaesthetic and regional techniques 4 Pharmacology of endocrine drugs used in the treatment of prostate cancer 4 Pharmacology of cytotoxic drugs used in the treatment of prostate cancer 4 Pharmacology of other agents used in the treatment of men with prostate cancer **Pathology** 4 Relevance of congenital anomalies to subsequent malignant pre-disposition 4 Role of genetics in prostate cancer 4 Role of oncogenes and growth factors in the pathogenesis of prostate cancer 4 Role of environmental factors in malignancies 4 Current theories of tumour initiation and growth 4 Thorough understanding of current and previous systems for the staging and grading of prostate cancer 4 Understanding of the theoretical basis and techniques of radiotherapy for prostate cancer 4 Understanding of the theoretical basis and techniques of radiological and nuclear medicine imaging	
Clinical Skills	4 Appropriate use of pharmacological agents in men with prostate cancer either for peri-operative, therapeutic or palliative reasons 4 Application of the indications, contraindications and side effects 4 Appropriate use of stage, grade and molecular markers in the management of an individual with prostate cancer 4 Appropriate use or radiotherapy in the treatment of men with prostate cancer 4 Appropriate imaging of men with prostate cancer	Strongly recommended
Technical Skills and Procedures	N/A	

Topic	**Locally confined prostate cancer (T1a-T2c)**	
Objective	*To develop advanced skills in the assessment and treatment of men with prostate cancer*	
Knowledge	4 Rationale for, indications, complications of different therapies for locally confined prostate cancer including: -Radical surgery -Radical radiotherapy -Radical brachytherapy -Adjuvant and neo-adjuvant hormones -Active surveillance 4 The rationale, role and limitations of new technology (eg cryotherapy and high intensity focussed ultrasound) 4 Understanding of the biology of prostate cancer 4 Understanding of the relevance of co-morbidity in the choice of therapy 4 Entry into the relevant clinical trial 3 Practical treatment of locally confined prostate cancer	
Clinical Skills	4 Assessment of patients with locally confined prostate cancer 4 Indications for relevant radiological and pathological investigations. 4 Formulation of management policy after discussion at an MDT meeting 4 Obtaining informed consent for the relevant procedure offering patient the options of discussion of other therapies 4 Co-ordinating the role of non-medical professionals in patient management 4 Formulation of a relevant follow up plan including location of follow-up 3 Ability to choose appropriate therapeutic approach for the treatment of prostate cancer	Strongly recommended
Technical Skills and Procedures	3 Radical Prostatectomy (retro-pubic, perineal, laparoscopic procedure or robotic) 2 Brachytherapy	Desirable

Topic	**Locally advanced (T3-T4) No Mo**	
Objective	*To develop advanced skills in the assessment and treatment of men with prostate cancer*	
Knowledge	4 Rationale for, indications, complications of different therapies for locally advanced prostate cancer including: -Radical surgery -Radiotherapy -Brachytherapy -Hormone treatment -Active surveillance 4 Understanding of the extent and relevance of co-morbidity in the choice of therapy 4 Entry into the relevant clinical trial	
Clinical Skills	4 Appropriate assessment of patients with locally advanced prostate cancer 4 Indication of the relevant radiological and pathological investigations. 4 Formulation of a best fit management policy following discussion at an MDT meeting 4 Obtaining informed consent for the relevant procedure offering	Strongly recommended

	patient the options of discussion of other therapies 4 Appropriate liaison with other specialties (radiation oncology, medical oncology etc) 4 Co-ordinating the role of non-medical professionals in the management of treatment 4 Formulation of a relevant follow up plan	
Technical Skills and Procedures	N/A	

Topic	**Metastatic disease (Any T, and N, M1)**	
Objective	*To develop advanced skills in the assessment and treatment of men with prostate cancer*	
Knowledge	4 Rationale for, indications, complications of different therapies for metastatic prostate cancer including: -Hormone therapy -Radiotherapy -Chemotherapy -Novel therapy 4 Entry into the relevant clinical trials	
Clinical Skills	4 Assessment of patients with metastatic prostate cancer 4 Formulations of best fit treatment plan following an MDT meeting 4 Indication of likely response, duration of that response and survival in the individual patient 4 Management of patient with metastatic prostate cancer 4 Liaison with other specialties (eg radiotherapy, medical oncology)	Strongly recommended
Technical Skills and Procedures	N/A	

Topic	**Hormone refractory disease**	
Objective	*To develop advanced skills in the assessment and treatment of men with prostate cancer*	
Knowledge	4 Rationale for, indications, complications of different therapies for hormone escape prostate cancer including: -Hormone therapy -Radiotherapy -Chemotherapy -Novel therapy 4 Entry into the relevant clinical trials	
Clinical Skills	4 Assessment of patients with hormone escape prostate cancer 4 Formulations of best fit treatment plan following an MDT meeting 4 Indication of likely response, duration of that response and survival in the individual patient 4 Management of patient with hormone escape prostate cancer 4 Liaison with other specialties (eg radiotherapy, palliative care)	Strongly recommended
Technical Skills and Procedures	N/A	

4. Modular curriculum in bladder cancer

Topic	Basic Science	Areas in which simulation should be used to develop relevant skills
Objective	*To develop advanced skills in the assessment and treatment of men with bladder cancer*	
Knowledge	**Anatomy** 4 Embryology and anatomy of the urinary tract 4 Lymphatic drainage of the pelvic organs **Physiology** 4 Physiology of micturition and continence 4 Physiology of erection **Pharmacology** 4 Pharmacology of pain prevention and relief 4 Use of local anaesthetic and regional techniques 4 Pharmacology of agents used for intravesical chemotherapy in men with bladder cancer 4 Immunology of agents used for intravesical therapy in bladder cancer 4 Pharmacology of cytotoxic drugs used in the treatment of bladder and other urothelial cancers **Pathology** 4 Pathology of the differing types of bladder cancer 4 Relevance of congenital anomalies to subsequent malignant pre-disposition 4 Role of genetics, oncogenes and growth factors in bladder cancer 4 Role of environmental factors in bladder cancer 4 Current theories of tumour initiation and growth 4 Thorough understanding of current and previous systems for the staging and grading of bladder cancer 4 The immunology of bladder cancer and bladder cancer therapy 4 Understanding of the theoretical basis and techniques of radiotherapy for bladder cancer 4 Understanding of the theoretical basis and techniques of radiological and nuclear medicine imaging	
Clinical Skills	4 Appropriate use of pharmacological and biological agents in men with bladder cancer either for peri-operative, therapeutic or palliative reasons 4 Application of the indications, contraindications and side effects 4 Appropriate use of stage, grade and molecular markers in the management of an individual with bladder cancer 4 Appropriate use or radiotherapy in the treatment of men with bladder cancer 4 Appropriate imaging of men with bladder cancer	Strongly recommended
Technical Skills and Procedures	N/A	

Topic	Superficial bladder cancer (pTis and pTa-1 G1-G3)	

Objective	*To develop advanced skills in the assessment and treatment of men with bladder cancer*	
Knowledge	4 Rationale for, indications, results, and complications of different therapies for superficial bladder cancer including: -Endoscopic therapy -Intravesical chemotherapy -Intravesical BCG -Radical surgery 4 The rationale, role and limitations of new technology in the diagnosis and therapy of superficial bladder cancer 4 Understanding of the biology of bladder cancer 4 Understanding of the extent and relevance of co-morbidity in the choice of therapy 4 Entry into the relevant clinical trial 4 Practical treatment of superficial bladder cancer	
Clinical Skills	4 Appropriate assessment of patients with superficial bladder cancer 4 Indication of the relevant radiological and pathological investigations. 4 Formulation of a best fit management policy following discussion at an MDT meeting 4 Obtaining informed consent for the relevant therapy following discussion of alternative therapies 4 Co-ordinating the role of non-medical professionals in the management of treatment 4 Formulation of a relevant follow up plan	Strongly recommended
Technical Skills and Procedures	4 Cystoscopy, biopsy and diathermy 4 TURBT	Desirable

Topic	**Muscle invasive bladder cancer (pT2-4)**	
Objective	*To develop advanced skills in the assessment and treatment of men with bladder cancer*	
Knowledge	4 Rationale for, indications, results and complications of different therapies for muscle invasive bladder cancer including: -Endoscopic therapy -Radical surgery -Radical radiotherapy -Palliative radiotherapy -Systemic chemotherapy 4 Rationale, indications, results and complications of reconstructive surgery following cystectomy 4 The rationale, role and limitations of new technology in the diagnosis and therapy of muscle invasive bladder cancer 4 Understanding of the biology of bladder cancer 4 Understanding of the relevance of co-morbidity in the choice of therapy 4 Entry into the relevant clinical trial 4 Practical surgery of muscle invasive bladder cancer including indications, techniques, results, consequences and complications	
Clinical Skills	4 Assessment of patients with muscle invasive bladder cancer 4 Indications for radiological and pathological investigations. 4 Formulation of management after discussion at an MDT meeting 4 Obtaining informed consent following discussion of alternative therapies	Strongly recommended

	4 Obtaining informed consent for the relevant urinary diversion following cystectomy 4 Liaison with reconstructive surgeon, where appropriate 4 Co-ordinating the role of non-medical professionals in the management of treatment 4 Formulation of a relevant follow up plan 4 Ability to choose appropriate therapeutic approach for the treatment of bladder cancer	
Technical Skills and Procedures	4 TURBT 2 Radical cystectomy, cystoprostatectomy, cystourethrectomy etc 2 Urethrectomy 3 Ileal conduit diversion 2 Orthotopic bladder reconstruction 1 Construction of a continent urinary diversion	Desirable

Topic	**Metastatic bladder cancer**	
Objective	*To develop advanced skills in the assessment and treatment of men with bladder cancer*	
Knowledge	4 Rationale for, indications, complications of different therapies for metastatic bladder cancer including: -Palliative surgery -Radiotherapy -Chemotherapy -Novel therapy 4 Entry into the relevant clinical trials	
Clinical Skills	4 Assessment of patients with metastatic bladder cancer 4 Formulations of best fit treatment plan following an MDT meeting 4 Indication of likely response, duration of that response and survival in the individual patient 4 Management of patient with metastatic bladder cancer 4 Liaison with other specialties (eg radiotherapy, medical oncology)	Strongly recommended
Technical Skills and Procedures	N/A	

5. Modular curriculum in Renal Cancer

Topic	Basic Science	Areas in which simulation should be used to develop relevant skills
Objective	*To develop advanced skills in the assessment and treatment of men with renal cancer* *To develop advanced skills in the assessment and treatment of upper tract urothelial cancer*	
Knowledge	**Anatomy** 4 Embryology and anatomy of the urinary tract **Physiology** 4 Physiology of urine production erection Pharmacology 4 Pharmacology of pain prevention and relief 4 Use of local anaesthetic and regional techniques 4 Pharmacology of agents used for systemic therapy in men with renal cancer 4 Pharmacology of immunological agents used for therapy in renal cancer 4 Pharmacology of biological agents used in the treatment of renal **Pathology** 4 Pathology of the differing types of renal cancer and other benign and malignant tumours affecting the kidney 4 Role of genetics in renal cancer and upper tract TCC 4 Role of oncogenes and growth factors in renal cancer and upper tract TCC 4 Role of environmental factors in renal cancer and upper tract TCC 4 Current theories of tumour initiation and growth 4 Thorough understanding of current and previous systems for the staging and grading of renal cancer and upper tract TCC 4 Immune response and its relevance to the therapy of renal cancer and upper tract TCC 4 Understanding of the theoretical basis and techniques of radiological and nuclear medicine imaging	
Clinical Skills	4 Appropriate use of pharmacological, immunological and biological agents in men with renal cancer 4 Application of the indications, contraindications and side effects 4 Appropriate use of stage, grade and molecular markers in the management of an individual with renal cancer 4 Appropriate imaging of men with bladder cancer	Strongly recommended
Technical Skills and Procedures	N/A	

Topic	Localised Renal cancer	
Objective	*To develop advanced skills in the assessment and treatment of men with renal cancer*	

	To develop advanced skills in the assessment and treatment of upper tract urothelial cancer	
Knowledge	4 Rationale for, indications, results, and complications of different therapies for localised renal cancer 4 Radical surgery 4 Nephron sparing surgery 4 Minimally invasive therapies 4 The rationale, role and limitations of new technology in the diagnosis and therapy of renal cancer 4 Understanding of the biology of renal cancer 4 Understanding of the extent and relevance of co-morbidity in the choice of therapy 4 Entry into the relevant clinical trial 2 Practical treatment of localised renal cancer	
Clinical Skills	4 Appropriate assessment of patients with renal cancer 4 Indication of the relevant radiological and pathological investigations. 4 Formulation of a best fit management policy following discussion at an MDT meeting 4 Obtaining informed consent for the relevant therapy following discussion of alternative therapies 4 Co-ordinating the role of non-medical professionals in the management of treatment 4 Formulation of a relevant follow up plan 2 Ability to choose appropriate therapeutic approach for the treatment of renal cancer	Strongly recommended
Technical Skills and Procedures	2 Radical nephrectomy 2 Partial nephrectomy 2 Laparoscopic nephrectomy 2 Laparoscopic partial nephrectomy	Desirable

Topic	**Metastatic renal cancer**	
Objective	*To develop advanced skills in the assessment and treatment of men with renal cancer* *To develop advanced skills in the assessment and treatment of upper tract urothelial cancer*	
Knowledge	4 Rationale for, indications, complications of different therapies for metastatic renal cancer including: -Surgery -Biological therapy -Immunotherapy -Hormone therapy -Novel therapy 4 Entry into the relevant clinical trials	
Clinical Skills	4 Assessment of patients with metastatic renal cancer 4 Formulations of best fit treatment plan following an MDT meeting 4 Indication of likely response, duration of that response and survival in the individual patient 4 Management of patient with metastatic renal cancer 4 Liaison with other specialties (eg radiotherapy, medical oncology)	Strongly recommended
Technical Skills and Procedures	N/A	

Topic	Upper Tract TCC	
Objective	*To develop advanced skills in the assessment and treatment of men with renal cancer* *To develop advanced skills in the assessment and treatment of upper tract urothelial cancer*	
Knowledge	4 Rationale for, indications, results, and complications of different therapies for upper tract TCC 4 Radical surgery 4 Endoscopic therapy 4 The rationale, role and limitations of new technology in the diagnosis and therapy of upper tract TCC 4 Understanding of the biology of upper tract TCC 4 Understanding of the extent and relevance of co-morbidity in the choice of therapy 4 Entry into the relevant clinical trial 3 Practical treatment of upper tract TCC	
Clinical Skills	4 Assessment of patients with Upper tract TCC 4 Indications for radiological and pathological investigations 4 Formulation of a best fit management policy following discussion at an MDT meeting 4 Obtaining informed consent for the relevant therapy following discussion of alternative therapies 4 Liaison with reconstructive surgeon, where appropriate 4 Formulation of a relevant follow up plan 3 Ability to choose appropriate therapeutic approach for the treatment of upper tract TCC	Strongly recommended
Technical Skills and Procedures	3 Radical nephroureterectomy 2 Segmental ureterectomy and reconstruction 3 Laparoscopic nephroureterectomy 4 Rigid Ureteroscopy and endoscopic therapy to TCC	Desirable

6. Modular Curriculum in Penile Cancer

Topic	**Basic Science Anatomy**	**Areas in which simulation should be used to develop relevant skills**
Objective	*To develop advanced skills in the assessment and treatment of men with penile cancer*	
Knowledge	4 Embryology and anatomy of the male genitalia including Lymphatic drainage 4 Anatomy of the femoral triangle and upper thigh 4 Physiology of erection 4 Pharmacology of pain prevention and relief 4 Use of local anaesthetic and regional techniques 4 Pharmacology of agents used for chemotherapy in men with penile cancer 4 Pathology of the differing types of penile cancer and pre-malignant conditions 4 Role of genetics, oncogenes and growth factors in penile cancer 4 Role of environmental factors in penile cancer 4 Thorough understanding of current and previous systems for the staging and grading of penile 4 Understanding of the theoretical basis and techniques of radiological and nuclear medicine imaging 4 Understanding of the theoretical basis and techniques of radiotherapy for bladder cancer	
Clinical Skills	4 Appropriate use of pharmacological, immunological and biological agents in men with penile cancer 4 Application of the indications, contraindications and side effects 4 Appropriate use of stage, grade and molecular markers in the management of an individual with penile cancer 4 Appropriate imaging of men with penile cancer 4 Appropriate use or radiotherapy in the treatment of men with penile cancer	Strongly recommended
Technical Skills and Procedures	N/A	

Topic	**Management of the primary cancer**	
Objective	*To develop advanced skills in the assessment and treatment of men with penile cancer*	
Knowledge	4 Rationale for, indications, results, and complications of surgery and radiotherapy the treatment of penile cancer 4 The rationale, role and limitations of new technology in the diagnosis and therapy of penile cancer 4 Understanding of the biology of penile cancer 4 Understanding of the extent and relevance of co-morbidity in the choice of therapy 4 Entry into the relevant clinical trial 4 Practical surgery of the primary tumour in penile cancer	
Clinical Skills	4 Appropriate assessment of patients with penile cancer including radiological assessment 4 Formulation of a best fit management policy following discussion	Strongly recommended

	at an MDT meeting 4 Obtaining informed consent for the relevant therapy 4 Liaison with other specialties (eg plastic surgery, radiotherapy etc) 4 Formulation of a relevant follow up plan 4 Ability to choose appropriate therapeutic approach for the treatment of penile cancer	
Technical Skills and Procedures	4 Circumcision and penile biopsy 3 Partial penectomy 3 Glansectomy and skin grafting 3 Total penectomy	

Topic	**Management of the lymph nodes**	
Objective	*To develop advanced skills in the assessment and treatment of men with penile cancer*	
Knowledge	4 Rationale for, indications, results, and complications of surgery, chemotherapy and radiotherapy the treatment of lymphatic involvement 4 Understanding of the biology of penile cancer 4 Understanding of the extent and relevance of co-morbidity in the choice of therapy 4 Entry into the relevant clinical trial 2 Practical aspects of surgery for lymphatic involvement	
Clinical Skills	4 Assessment of patients with possible lymphatic involvement including radiological assessment 4 Formulation of treatment policy following discussion at an MDT meeting 4 Obtaining informed consent for the relevant therapy 4 Co-ordinating the role of non-medical professionals in the management 4 Formulation of a follow up plan 2 Ability to choose appropriate therapeutic approach for the treatment of penile cancer	Strongly recommended
Technical Skills and Procedures	2 Block dissection inguinal lymph nodes 2 Block dissection external iliac lymph nodes 2 Laparoscopic pelvic node dissection	Desirable

Topic	**Metastatic penile cancer**	
Objective	*To develop advanced skills in the assessment and treatment of men with penile cancer*	
Knowledge	4 Rationale for, indications, complications of different therapies for metastatic penile cancer including: 4 Novel therapy 4 Entry into the relevant clinical trials	
Clinical Skills	4 Assessment and treatment of patients with metastatic penile cancer 4 Formulations of best fit treatment plan following an MDT meeting 4 Liaison with other specialties (eg radiotherapy, medical oncology)	
Technical Skills and Procedures	N/A	

7. Modular curriculum in Testicular Cancer

Topic	**Basic Science Anatomy**	**Areas in which simulation should be used to develop relevant skills**
Objective	*To develop advanced skills in the assessment and treatment of men with testis cancer*	
Knowledge	4 Embryology and anatomy of male genitalia including Lymphatic drainage 4 Anatomy of the retroperitoneum 4 Reproductive physiology 4 Pharmacology of pain prevention and relief 4 Use of local anaesthetic 4 Pharmacology of cytotoxic agents used in men with testis cancer 4 Pathology of the differing types of testis cancer and pre-malignant conditions 4 Role of genetics, oncogenes and growth factors in testis cancer 4 Role of environmental factors in testis cancer 4 Understanding of past and current systems for the staging and grading of testis cancer 4 Understanding of the theoretical basis and techniques of radiological and nuclear medicine imaging 4 Understanding of the theoretical basis and techniques of radiotherapy for bladder cancer	
Clinical Skills	4 Appropriate use of pharmacological agents in men with testis cancer 4 Application of the indications, contraindications and side effects 4 Appropriate use of stage, grade and molecular markers in the management of an individual with testis cancer 4 Appropriate imaging of men with testis cancer 4 Appropriate use or radiotherapy in the treatment of men with testis cancer	
Technical Skills and Procedures	N/A	

Topic	**Management of the primary cancer**	
Objective	*To develop advanced skills in the assessment and treatment of men with testis cancer*	
Knowledge	4 Rationale for, indications, results, and complications of surgery in the treatment of testis cancer 4 Understanding of the biology of testis cancer 4 Entry into the relevant clinical trial 4 Practical surgery of the primary tumour in testis cancer	
Clinical Skills	4 Appropriate assessment of patients with testis cancer including radiological assessment 4 Show appropriate regard to future fertility prospects	

	4 Liaison with other specialties (eg medical oncology, radiotherapy etc) 4 Formulation of a relevant follow up plan	
Technical Skills and Procedures	4 Radical orchidectomy 4 Insertion of testicular prosthesis	

Topic	**Metastatic testis cancer**	
Objective	*To develop advanced skills in the assessment and treatment of men with testis cancer*	
Knowledge	4 Rationale for, indications, results, and complications of surgery, chemotherapy and radiotherapy in the treatment of metastatic testis cancer 4 Understanding of the biology of testis cancer 4 Understanding of the extent and relevance of co-morbidity in the choice of therapy 4 Entry into the relevant clinical trial 2 Practical aspects of surgery for metastatic disease	
Clinical Skills	4 Appropriate assessment of patients with possible metastatic testis cancer including assessment 4 Formulation of a best fit management policy following discussion at an MDT meeting 4 Obtaining informed consent for the relevant therapy 4 Liaison with other specialties (eg medical oncology, vascular surgery) 4 Formulation of a relevant follow up plan	Strongly recommended
Technical Skills and Procedures	2 Retroperitoneal lymph node dissection	

Module 8: Female, Reconstructive and Neurourology

Topic	**Basic Science**	**Areas in which simulation should be used to develop relevant skills**
Objective	*To develop advanced skills in the assessment and treatment of men and women with urinary and genital tract dysfunction including that arising as a consequence of neurological disease.* *To develop advanced skills in lower urinary tract reconstruction*	
Knowledge	**Anatomy** 4 Detailed knowledge of abdomino-pelvic anatomy especially bony pelvis, all pelvic viscera including vascular systems, pelvic floor, pelvic side wall and the endopelvic fasciae 4 Embryology of the genitourinary tract including development of the cloaca, intestinal tract and omentum. 4 Neuroanatomy of the central and peripheral nervious system as it relates to normal and abnormal bladder, urethral, bowel, pelvic floor and erectile function	

	Physiology 4 Physiology and neurophysiology of the bladder including the basis of micturition and continence 4 Physiology of bladder musculature 4 Physiology of bladder mucosa 4 Physiology of bladder sensation 4 Physiology of female reproduction including hormonal function 4 Physiology of reproduction in men including hormonal function 4 Physiology and neurophysiology of sexual function in men and women 3 Physiology of gastrointestinal function **Pharmacology** 4 Pharmacology of the urogenital organs including but not limited to cholinergic and adrenergic neurotransmitter systems 4 Pharmacology of drugs used in the management of lower urinary tract dysfunction including adverse reactions and interactions 4 Pharmacology of drugs used to treat male and female sexual dysfunction 4 Pharmacology of drugs used to treat disorders of the central nervous system (e.g. treatment of Parkinson's Disease, Neuropathic pain etc.)4 Knowledge of the relevant supporting scientific literature 4 Pharmacology l of common non-urological therapeutic agents and their adverse effects on the urogenital tract 4 The use of hormone replacement therapy in postmenopausal women and hormone manipulation in pre-menopausal women 4 Pharmacological agents treating ano-rectal dysfunction including manipulation of bowel activity and management of constipation **Pathology** 4 Pathophysiology of urinary incontinence in men and women 4 Pathophysiology of micturition 4 Aetiology and pathophysiology of central and peripheral nerve conditions (congenital and acquired) and their consequence on urinary, genital, sexual and gastrointestinal tract function 4 Aetiology and pathophysiology of conditions which may require urinary tract reconstruction including but not limited to congenital abnormalities, genitourinary tumours, inflammatory conditions, iatrogenic injury and trauma 4 Pathophysiology of renal dysfunction secondary to neurogenic bladder dysfunction 4 Effects of neurological disease upon mobility, manual dexterity, vision and other systems relevant to the management of patients with bladder dysfunction 4 Pathophysiology of pelvic organ prolapse in women including those secondary to neurogenic dysfunction 4 Pathological effects of ageing on the genitourinary tract in women 4 Pathophysiology of painful bladder syndrome 4 Pathophysiology of urinary infection in men and women 4 Pathophysiology of complex UTI in patients with neurogenic dysfunction including the effects of intermittent and indwelling catheters 4 Pathophysiology of autonomic dysreflexia	
Clinical	4 Appropriate assessment of women and men with lower	Strongly recommended

Skills	urinary tract dysfunction 4 Integrate reproductive and sexual issues into the holistic management of men and women with lower urinary tract dysfunction 4 Integrate issues regarding bowel dysfunction into the holistic management of patients with neurological dysfunction 4 Appropriate use of pharmacological agents and knowledge of common side effects, interactions and contra-indications 4 Appropriate selection of investigations in patients requiring reconstructive surgery to the lower urinary tract	
Technical Skills and Procedures	4 Undertake advanced standard urodynamic studies to investigate lower urinary tract dysfunction 4 Undertake video urodynamic studies to investigate urinary tract dysfunction. 4 Undertake and understand the reasons for cystoscopy in patients with complex lower urinary tract dysfunction and reconstruction 3 Management of bladder stones in patients with complex lower urinary tract dysfunction including endoscopic and open stone removal	Desirable

Topic	**Management of continence problems in the elderly and the cognitively impaired**	
Objective	*To develop skills in the assessment and treatment of men and women with overactive bladder, incontinence, sensory bladder disorder and female pelvic floor problems*	
Knowledge	4 Specific needs of the elderly and cognitively impaired 4 Pathophysiology of incontinence in elderly men and women	
Clinical Skills	4 Demonstrate an appreciation of the specific issues posed by old age on management of lower urinary tract dysfunction	
Technical Skills and Procedures	N/A	

Topic	**Urinary frequency/urgency syndrome and urinary urge incontinence**	
Objective	*To develop advanced skills in the assessment and treatment of men and women with lower urinary tract dysfunction caused by neurological disease*	
Knowledge	4 Clinical assessment techniques compliant with International Continence Society (ICS) standards 4 A detailed understanding of diagnosis and management of Overactive Bladder Syndrome (OAB) 4 The role of investigative techniques including but not limited to urodynamics, imaging and endoscopy. 4 Knowledge of pharmacological management 4 Knowledge of surgical management techniques including indications, results and complications	

	4 Knowledge of bladder management in relation to neurogenic bladder dysfunction	
Clinical Skills	4 Plan investigation and treatment 4 Counsel patients for a range of therapeutic options 4 Instigate and advise regarding conservative management 4 Appropriate liaison with the multidisciplinary team 4 Determine appropriate management of patients with resistant overactive bladder 4 Determine appropriate management of patient with unsafe high pressure bladder	Strongly recommended
Technical Skills and Procedures	4 Cystoscopy and injection Botulinum toxin 3 Augmentation cystoplasty with appropriate bowel segments 2 substitution cystoplasty 3 Sacral neuromodulation 4 Ileal conduit formation 3 Simple cystectomy 2 Mitrofanoff harvesting and formation 3 removal of bladder stones from patients with reconstructed urinary tracts	Desirable

Topic	**Bladder and pelvic pain syndromes**	
Objective	*To develop advanced skills in the assessment and treatment of women with lower urinary tract dysfunction secondary to bladder pain syndrome*	
Knowledge	4 Classification, aetiology, pathophysiology, current terminology and differential diagnosis of pain syndrome. 4 Detailed understanding of investigative techniques and diagnosis 4 Clinical assessment techniques compliant with International Continence Society (ICS) standards. 4 The role of investigative techniques including but not limited to urodynamics,radiological imaging and endoscopy 4 Knowledge of conservative management 4 Knowledge of surgical management including indications, results and complications	
Clinical Skills	4 Counsel patients for a range of therapeutic options 4 Plan investigation and treatment 4 Instigate and advise regarding conservative management 4 Appropriate liaison with the multidisciplinary team 4 Determine appropriate management of patients with resistant painful bladder syndrome	Strongly recommended
Technical Skills and Procedures	4 Cystoscopic assessment painful bladder 3 Augmentation and cystoplasty 2 substitution cystoplasty 3 Simple cystectomy 4 Ileal conduit diversion 2 Continent Urinary Diversion	Desirable

Topic	**Stress urinary incontinence in men and women**	
Objective	*To develop advanced skills in the assessment and treatment of women with lower urinary tract dysfunction*	
Knowledge	4 Detailed understanding of investigative techniques and diagnosis 4 Clinical assessment techniques compliant with International Continence Society (ICS) standards. 4 The role of investigative techniques including but not limited to urodynamics, radiological imaging and endoscopy 4 Instigate and advise regarding conservative management techniques4 Pharmacological management of stress urinary incontinence 4 Surgical management including indications, results and complications 4 Surgical interventions for stress urinary incontinence 4 Recognition and maintenance of bladder safety with regard to treatment of stress urinary incontinence in patients with neurogenic dysfunction	
Clinical Skills	4 Plan investigation and treatment 4 Counsel patients for a range of therapeutic options 4 Instigate and advise regarding conservative management 4 Appropriate liaison with the multidisciplinary team 4 Determine appropriate surgical management of patients with stress urinary incontinence	Strongly recommended
Technical Skills and Procedures	4 Urodynamics including video studies 4 Midurethral tape insertions 4 Injection of bulking agents 3 Colposuspension 3 Pubourethral sling insertion in women 2 Artificial urinary sphincter in women 3 Artificial urinary sphincter in men 3 Sub-urethral sling placement in men 2 Closure of bladder neck	Desirable

Topic	Mixed urinary incontinence in men and women	TOPIC EXTRACTED FROM PREVIOUS TOPIC AND EXPANDED
Objective	*To develop advanced skills in the assessment and treatment of men and women with lower urinary tract dysfunction*	
Knowledge	4 Detailed understanding of the investigative techniques and diagnosis 4 Clinical assessment techniques compliant with ICS standards 4 The role of investigative techniques including but not limited to urodynamics, radiological imaging and endoscopy 4 Instigate and advise regarding conservative management 4 Surgical management including indications, results and complications 4 Surgical interventions for 4 Recognition and maintenance of bladder safety with regard to treatment of mixed urinary incontinence in neuropathic patients	
Clinical Skills	4 Counsel patients for a range of therapeutic options 4 Plan investigation and treatment 4 Conservative management 4 Appropriate liaison with the multidisciplinary team 4 Ability to determine appropriate surgical management of patient with stress urinary incontinence 4 Demonstrate ability to tailor treatment plan according to individual nature of mixed incontinence	
Technical Skills and Procedures	4 Midurethral tapes 4 Injection of bulking agents 3 Colposuspension 3 Pubourethral slings 2 Artificial urinary sphincter in women 3 Artificial urinary sphincter in men 3 Sub-urethral sling placement in men 4 Cystoscopy and injection Botulinum toxin 3 Augmentation cystoplasty with appropriate bowel segments 2 Substitution cystoplasty with appropriate bowel segments 3 Sacral neuromodulation 4 Ileal conduit formation	

Topic	Female Urinary retention	
Objective	*To develop advanced skills in the assessment and treatment of women with lower urinary tract dysfunction*	
Knowledge	4 Aetiology and pathophysiology of urinary retention in women	
Clinical Skills	4 Ability to initiate appropriate investigation with short and long-term management of women with urinary retention including complications of management strategies 4 Liaison with other specialties as appropriate	

Technical Skills and Procedures	3 Sacral neuromodulation 2 Mitrofanoff formation	

Topic	**Genito-urinary prolapse (primary and recurrent)**	
Objective	*To develop advanced skills in the assessment and treatment of women with pelvic floor dysfunction*	
Knowledge	4 Understanding of aetilogy, pathophysiology and classification of pelvic organ prolapse 4 Understanding of female sexual function and dysfunction secondary to pelvic organ prolapse 4 Understand the relationship between pelvic organ prolapse and lower urinary tract dysfunction 4 Understanding of the relevance of neurological dysfunction in relation to pelvic floor dysfunction 4 Understanding of indications, methods, results and complications of surgical and non-surgical management of pelvic organ prolapse 3 Surgical interventions for pelvic organ prolapse	
Clinical Skills	4 Detailed assessment of pelvic organ prolapse 4 Ability to select and advise suitable conservative management strategies. 4 Ability to select and advise regarding surgical treatment options 4 Liaison with other specialties as appropriate 3 Ability to determine appropriate management of patients with prolapse	Strongly recommended
Technical Skills and Procedures	4 Insertion and removal of pessaries 3 Anterior repair 3 Posterior repair 1 Paravaginal repair 1 Vaginal hysterectomy	Desirable

Topic	**Urinary fistula**	
Objective	*To develop advanced skills in the assessment and treatment of men and women with complex urinary tract dysfunction*	
Knowledge	4 Aetiology, pathophysiology, presentation and complications of urinary fistulae 4 Knowledge of diagnostic techniques 4 Knowledge of appropriate management including indications, results, complications 4 Surgical treatment of urinary fistula	
Clinical Skills	4 Appropriate assessment of urinary fistulae 4 Ability to advise on the suitability of surgery 4 Liaise with appropriate specialties and recognise need for referral to pelvic reconstructive surgeon 1 Ability to determine appropriate management of patients with urinary fistula	Strongly recommended
Technical Skills and Procedures	2 Repair vesicovaginal fistula 2 Martius flap 4 Ileal conduit	Desirable

	2 Repair urethrovaginal fistula 2 Repair of uretero vaginal fistula 3 Simple cystectomy 2 Continent urinary diversion	

Topic	**Urethral diverticulum**	
Objective	*To develop advanced skills in the assessment and treatment of women with lower urinary tract dysfunction*	
Knowledge	4 Aetiology, pathophysiology, presentation and complications of urethral diverticula 4 Knowledge of appropriate imaging and diagnostic techniques 4 Knowledge of appropriate management options including indications, results and complications	
Clinical Skills	4 Appropriate assessment of urethral diverticulum 4 Ability to advise on the appropriateness of surgery 4 Liaise with appropriate specialty including pelvic reconstructive surgeon	Strongly recommended
Technical Skills and Procedures	3 Surgical excision urethral diverticulum 3 Martius fat pad	Desirable

Topic	**Effects of radiation and bowel or pelvic surgery on bladder, bowel and pelvic floor function**	**TOPIC WORDING CHANGED**
Objective	*To develop advanced skills in the assessment and treatment of women and men with lower urinary tract dysfunction*	
Knowledge	2 Pathophysiology of congenital, inflammatory, traumatic and radiation damage to the genitourinary tract 2 Knowledge of management and diagnostic techniques 2 Awareness of possible techniques including inverted skin grafts, use of chorionic tissue, gracilis flaps and bowel interposition	
Clinical Skills	2 Appropriate assessment of women and men with congenital, traumatic, inflammatory and radiation damage to the genitourinary tract 2 Be able to advise on the appropriateness of surgery 1 Practical surgical treatment congenital, inflammatory, traumatic and radiation damage to the genitourinary tract	Strongly recommended
Technical Skills and Procedures	1 Vaginal reconstruction 2 Martius flap 4 Ileal conduit 3 Simple cystectomy 2 Continent urinary diversion	Desirable

Topic	**Defaecatory disorders and other lower gastrointestinal disorders / Anorectal reconstruction**	
Objective	*To develop advanced skills in the assessment and treatment of women and men with defaecatory and anorectal dysfunction*	
Knowledge	2 Understand the techniques of assessment and treatment of anorectal disorders including: -Anorectal physiology tests (manometry, proctography and endoanal US) -Pelvic floor electromyography -Nerve conduction studies	
Clinical Skills	4 Assessment of bowel dysfunction in women with lower tract dysfunction 3 Competence in use of dietary regimes, bowel medications and enemas	
Technical Skills and Procedures	1 Anorectal studies	

Topic	**Reconstruction of the bladder and ureter**	**TOPIC PREVIOUSLY IN MODULE 9, NOW UPDATED AND RE-WRITTEN AND INCLUDED IN MODULE 8**
Objective	*To develop advanced skills in reconstruction of the urinary tract*	
Knowledge	4 Anatomy of gastrointestinal tract including vascular supply 4 Aetiology and pathophysiology of conditions requiring bladder and ureteric reconstruction 4 Techniques of assessment for bladder and ureteric reconstruction including but not limited to urodynamics, radiology and nuclear medicine techniques 4 Metabolic effects of urinary tract reconstruction and interposition of intestine within the urinary tract 4 Complications of urinary tract reconstruction including interposition of intestine within the urinary tract 4 Knowledge of endourological techniques relevant to urinary tract reconstruction 3 Practical surgical techniques applied to reconstruction of the bladder and ureter	
Clinical Skills	4 Appropriate assessment of patients requiring urinary tract reconstruction 4 Be able to advise on the surgical and non-surgical options and the appropriateness of surgery 4 Management of post-operative consequences of urinary tract reconstruction and interposition of intestine within the urinary tract 4 Arrange appropriate follow up of patients with urinary tract reconstruction and interposition of intestine within the urinary tract 4 Liaison with other specialties e.g. radiology, GI surgeons 3 Ability to determine appropriate choice of reconstructive technique	

Technical skills and behaviours	4 Intestinal anastomosis 4 Mobilisation omentum 4 Ureteric anastomosis 3 Ureteric reimplantation 3 Psoas hitch 3 Boari flap 2 Transuretero-ureterostomy 3 Simple cystectomy 3 Augmentation cystoplasty 2Substitution cystoplasty 4 Ileal conduit diversion 2 Continent urinary diversion 2 Orthotopic bladder reconstruction 2 Bladder neck Artificial urinary sphincter insertion 2 Vaginal reconstruction	

Topic	**Management of patients with neurogenic bladder**	**TOPIC PREVIOUSLY IN MODULE 11, NOW UPDATED AND RE-WRITTEN AND INCLUDED IN MODULE 8**
Objective	*To develop advanced skills in the assessment and treatment of patients with neuropathic bladder and genital dysfunction*	
Knowledge	4 Understand the effects of neurological diseases on bladder and sexual function 4 An understanding of the investigation, diagnosis and management of patients with neurogenic bladder or sexual dysfunction 4 Complications of neurogenic bladder dysfunction including but not limited to renal dysfunction, urosepsis and calculus formation 4 Clinical assessment techniques according to International Continence Society (ICS) standards 4 The role of investigations in the assessment of neurogenic bladder including but not limited to urodynamic studies, radiological imaging and endoscopy. 4 Knowledge of conservative management techniques 4 Knowledge of surgical management techniques including indications, results and complications 4 Surgical treatment of neurogenic bladder dysfunction	
Clinical Skills	4 Appropriate assessment of patients with neurogenic bladder or sexual dysfunction 4 Counsel patients for a range of therapeutic options 4 Plan investigation and treatment 4 Conservative and medical management of urinary incontinence and sexual dysfunction in patients with neurogenic dysfunction 4 Appropriate liaison with the multidisciplinary team 4 Ability to determine appropriate management of patients with neurogenic bladder dysfunction	Strongly recommended
Technical Skills and Procedures	4 Perform urodynamic studies in patients with neurological disease 4 Cystoscopy and injection Botulinum toxin 4 Cystoscopy and insertion suprapubic catheter 4 Removal of bladder calculi (endoscopic and open) 42Cystoscopy and external sphincterotomy 4 Intestinal anastomosis 4 Mobilisation omentum 2 Bladder neck closure 4 Ileal conduit	Desirable

	3 Augmentation cystoplasty 2 Substitution cystoplasty 2 Continent diversion 3 Insertion artificial urinary sphincter 1 Insertion spinal stimulator 3 Neuromodulation	

Module 9: Urethral reconstruction

Topic	**Urethral reconstruction**	
Objective	To develop advanced skills in reconstructive surgery of the urethra	
Knowledge	4 Pathophysiology of congenital abnormalities including but not limited to hypospadias and epispadias 4 Embryology of urethra as applied to hypospadias and epispadias 4 Aetiology, pathophysiology and complications of urethral strictures 4 Pathophysiology of traumatic urethral injury 4 Techniques of assessment for bladder and urinary tract reconstruction including urodynamics, radiology and nuclear medicine techniques 4 Techniques and complications of urethral reconstruction 4 Knowledge of endourological techniques relevant to urethral 4 Surgery of urethral reconstruction	
Clinical Skills	4 Appropriate clinical assessment of men with urethral strictures including investigative selection and interpretation 4 Be able to advise on the surgical options and the appropriateness of surgery 4 Management of post-operative consequences and complications of urethral reconstruction 4 Arrange appropriate follow up of patients with urethral reconstruction 4 Liaison with other specialties e.g. radiology, orthopaedics, GI surgeons 4 Ability to determine appropriate surgical option for patients with urethral stricture	
Technical Skills and Procedures	4 Optical urethrotomy 3 Harvesting buccal mucosa graft 2 Bulbar anastomotic urethroplasty 2 Single stage substitution urethroplasty using flaps and grafts 2Two stage buccal graft urethroplasty 2 Pelvic fracture urethral reconstruction	

Module 10: Male factor infertility

Topic	Basic Science	Areas in which simulation should be used to develop relevant skills
Objective	*To develop advanced skills in the assessment and treatment of patients with male factor infertility*	
Knowledge	**Anatomy** 4 A detailed knowledge of the anatomy and embryology of the genitalia and reproductive system 4 Knowledge of the vascular, lymphatic and nerve supply to the genitalia and reproductive system and abdominal/pelvic organs. 4 Embryology of the male genitalia with particular emphasis on congenital anomalies and their effects on male sexual function. 4 Micro/macroscopic anatomy of the reproductive system including their anatomical relationship to other genito-urinary organs 4 Micro/macroscopic anatomy of the male genitalia **Physiology** 4 Genetics and male sexual function (Normal sexual differentiation, Abnormal sexual differentiation, Intersex states Genetic anomalies and infertility) 4 The male reproductive axis (Hypothalamic- pituitary function, Endocrinology of the Testis, Testosterone metabolism, Effects of aging on male endocrinology) 4 Spermatogenesis (Genetic basis of spermatogenesis, Hormonal regulation of spermatogenesis, Sertoli cell function) 4 Physiology of male reproduction (Epididymal function, Physiology of the vas deferens, Physiology of the seminal vesicles, Ejaculation, Role of the prostate in sexual function) 4 Physiology of female sexual function 4 Physiology of female reproduction **Pharmacology** 4 Drugs / gonadotoxins and their effects on male reproduction and sexual function 4 The pharmacological treatment of male factor infertility **Pathology** 4 Aetiology and pathogenesis of male infertility 4 Anti-sperm anti-bodies and fertility 4 Varicocele and male fertility 4 Pathophysiology of testicular obstruction	
Clinical Skills	4 Appropriate assessment and treatment of man or couple with male factor infertility 4 Appropriate use of commonly used drugs recognising common side effects, interactions and contra-indications	
Technical Skills and Procedures	N/A	

Topic	Male factor infertility	

Objective	*To develop advanced skills in the assessment and treatment of patients with male factor infertility*	
Knowledge	4 Causes of male factor infertility 4 Causes of female factor infertility 4 Appropriate investigation of male sub-fertility 4 Varicocele and male fertility 4 Endocrine disease and infertility 4 Causes of testicular obstruction 4 The role of assisted conception techniques in the treatment of the infertile couple 4 Treatment of male factor infertility 4 Anti-sperm anti-bodies and fertility 4 Surgical treatment of male factor infertility 4 Indications for, methods, results and complications of sperm retrieval 4 Indications for, methods, results and complications of assisted conception 4 Regulatory rules relating to sperm storage and assisted conception 4 Microsurgical treatment of male factor infertility	
Clinical Skills	3 Evaluation of the female 4 Clinical assessment of the sub-fertile male 4 Investigation of male sub-fertility 4 Treatment of male sub-fertility 4 Appropriate liaison with multidisciplinary team 4 Empathetic assessment of fertility issues 4 Ability to determine appropriate surgical plan for male factor infertility 4 Treatment of male sub-fertility 4 Appropriate liaison with multidisciplinary team and referral for assisted reproductive techniques 4 Empathetic assessment of fertility issues 4 Ability to determine appropriate surgical plan for male factor infertility 4 Practical laboratory experience in principles of semen analysis and sperm cryopreservation	Strongly recommended
Technical Skills and Procedures	4 Microsurgical varicocoele ligation 3 Testicular exploration and vasography for obstructive azoospermia diagnosis and reconstruction 3 Transurethral resection of ejaculatory ducts 2 Electroejaculation 2 Vaso-vasostomy 4 Microsurgical testicular exploration and sperm extraction (mTESE) 3 Percutaneous epididymal sperm aspiration (PESA) 4 Micro-epididymal sperm aspiration (MESA) 3 Microsurgical epididymo(tubulo)- vasostomy	Desirable

Module 11: Benign disorders of male sexual dysfunction

Topic	Basic Science	Areas in which simulation should be used to develop relevant skills
Objective	*To develop advanced skills in the assessment and treatment of patients with benign disease of male sexual dysfunction*	
Knowledge	**Anatomy** 4 A detailed knowledge of the anatomy and embryology of the genitalia and reproductive system 4 Knowledge of the vascular, lymphatic and nerve supply to the genitalia and reproductive system and abdominal/pelvic organs. 4 Embryology of the male genitalia with particular emphasis on congenital anomalies and their effects on male sexual function. 4 Micro/macroscopic anatomy of the reproductive system including their anatomical relationship to other genito-urinary organs 4 Micro/macroscopic anatomy of the male genitalia **Physiology** 4 Functional anatomy (blood supply and venous/lymphatic drainage of the penis) 4 Physiology and neurophysiology of penile erection including neurotransmitters involved in penile erection 4 Cardiovascular function relevant to sexual dysfunction 4 Endocrinology of male sexual function (Hypothalamic-pituitary function, Endocrinology of the Testis, Testosterone metabolism) 4 Desire 4 Orgasm 4 Physiology of ejaculation (Physiology of the vas deferens, Physiology of the seminal vesicles, Role of the prostate in sexual function) 4 Physiology of female sexual function **Pharmacology** 4 Neuropharmacology and receptor pharmacology 4 Endothelial derived modulators of corporal smooth muscle 4 Oral pharmacotherapy for erectile dysfunction including basic pharmacokinetics and pharmacodynamics and adverse events/drug interactions of commonly used drugs 4 Novel oral agents for the treatment of MED 4 Intra-cavernosal, topical and intra-urethral treatments for MED 4 Pharmacological treatment of priapism 4 Pharmacological therapy of ejaculator disorders 4 Testosterone replacement therapy **Pathology** 4 Pathophysiology of Male Erectile Dysfunction (MED) 4 Risk factors and aetiology of MED 4 Sexual function and ageing 4 Cardiovascular disease and sexual function 4 Early ejaculation 4 Retrograde ejaculation 4 Delayed ejaculation 4 Hypogonadism 4 Androgen deficiency of ageing 4 Pathophysiology of penile deformity 4 Pathophysiology of priapism	

Clinical Skills	4 Appropriate assessment of man with erectile dysfunction, penile deformity or prolonged erection 4 Appropriate use of pharmacological agents for men with erectile dysfunction, priapism and ejaculatory dysfunction including indications, side effects, contraindications	
Technical Skills and Procedures	N/A	

Topic	**Erectile dysfunction**	
Objective	*To develop advanced skills in the assessment and treatment of patients with benign disease of male sexual dysfunction*	
Knowledge	4 Investigation of MED including the use and limitations of Doppler USS, cavernosography, cavernosometry, neurophysiological testing and nocturnal penile tumescence 4 Knowledge of range of therapies for treatment of MED 3 Surgical management of man with erectile dysfunction	
Clinical Skills	4 Assessment of man with MED 4 Appropriate investigation of man with MED 4 Appropriate choice of pharmacological therapy 4 Technique of intracavernosal injection therapy 4 Empathetic assessment of male sexual difficulties 3 Ability to determine appropriate surgical management of patient with drug resistant erectile dysfunction	
Technical Skills and Procedures	2 Ability to perform cavernosometry 2 Ability to perform Rigiscan assessment 3 Insertion of malleable penile prosthesis 2 Insertion of inflatable penile prosthesis 1 Penile revascularisation 1 Venous ligation	Desirable

Topic	**Penile deformity**	
Objective	*To develop advanced skills in the assessment and treatment of patients with benign disease of male sexual dysfunction*	
Knowledge	4 Causes and pathophysiology of penile deformity 4 Knowledge of range of therapies 4 Surgical management of man with penile deformity	
Clinical Skills	4 Appropriate assessment and medical management of man with penile deformity 4 Empathetic assessment of male sexual difficulties 4 Ability to determine choice of surgical approach for man with penile deformity	
Technical Skills and Procedures	3 Nesbit's procedure 3 Lue procedure or equivalent 3 Insertion of malleable penile prosthesis 2 Insertion of inflatable penile prosthesis	Desirable

Topic	**Prolonged erection**	
Objective	*To develop advanced skills in the assessment and treatment of*	

	patients with benign disease of male sexual dysfunction	
Knowledge	4 Causes, classification, pathophysiology and complication of prolonged erection 4 Knowledge of range of therapies 3 Surgical management of man with prolonged erection	
Clinical Skills	4 Appropriate assessment and medical management of man with prolonged erection 4 Liaison with relevant specialties (eg interventional radiology) 3 Ability to determine choice of surgical approach for man with prolonged erection	Strongly recommended
Technical Skills and Procedures	3 Insertion of malleable penile prosthesis 2 Shunting procedure 2 Insertion of inflatable penile prosthesis	Desirable

Topic	**Rapid Ejaculation, Retrograde ejaculation, Delayed ejaculation, Orgasmic disorders, Desire disorders**	
Objective	*To develop advanced skills in the assessment and treatment of patients with benign disease of male sexual dysfunction*	
Knowledge	3 Causes and pathophysiology 3 Knowledge of range of therapies	
Clinical Skills	3 Appropriate investigation and management of man with rapid ejaculation 3 Appropriate liaison with other specialties 3 Empathetic assessment of male sexual difficulties	
Technical Skills and Procedures	N/A	

Topic	**Penile dysmorphophobia**	
Objective	*To develop advanced skills in the assessment and treatment of patients with benign disease of male sexual dysfunction*	
Knowledge	2 Causes and classification 2 Knowledge of range of therapies 1 Surgical therapy of penile dysmorphophobia	
Clinical Skills	2 Appropriate investigation and management of man with penile dysmorphophobia 2 Appropriate liaison with other specialties 2 Empathetic assessment of male sexual difficulties	
Technical Skills and Procedures	1 Division of suspensory ligament 1 Repair of suspensory ligament	Desirable

Topic	**Penile fracture**	
Objective	*To develop advanced skills in the assessment and treatment of patients with benign disease of male sexual dysfunction*	
Knowledge	4 Mechanisms of injury	

	4 Knowledge of range of therapies	
Clinical Skills	4 Appropriate investigation and management of man with penile fracture	Strongly recommended
Technical Skills and Procedures	3 Surgical repair of penile fracture	Desirable

Module 12: Paediatric urology

Topic	**Basic Science**	**Areas in which simulation should be used to develop relevant skills**
Objective	*To develop advanced skills in the assessment and treatment of urological disease in children*	
Knowledge	4 Detailed knowledge of the pelvis, male genitalia and urethra including the embryology of urethra including hypospadias and epispadias 4 Neuroanatomy as it relates to normal and abnormal bladder, urethral and pelvic floor function 4 Physiology and neurophysiology of micturition and continence 4 Physiology of erection and ejaculation 4 Reproductive physiology 4 Pharmacology of drugs used in the management of lower urinary tract dysfunction side-effects and complications 4 Causes, pathophysiology and complications of urethral strictures 4 Pathophysiology of traumatic injury to the urethra	
Clinical Skills	4 Appropriate assessment of children with hypospadias 2 Appropriate assessment of children with epispadias 4 Appropriate use of commonly used drugs recognising common side effects, interactions and contra-indications	
Technical Skills and Procedures	N/A	

Topic	**Congenital disorders affecting the urinary tract**	
Objective	*To develop advanced skills in the assessment and treatment of urological disease in children*	
Knowledge	4 Common congenital disorders affecting the urinary tract (e.g undescended testis, hydrocele, foreskin pathologies and urinary tract reflux) 4 Changes related to congenital abnormalities	
Clinical Skills	4 Investigation and management of patients 4 Investigation and basic management of patients	
Technical Skills and Procedures	3 Surgical Management of cryptorchidism (Level 3 for 6 month placement, Level 4 for 1 year placement 4 PPV ligation, hydrocele repair 4 Foreskin procedures 2 Surgery for ureteric reflux	Desirable

Topic	**Principles of human genetics**	
Objective	*To develop advanced skills in the assessment and treatment of urological disease in children*	
Knowledge	4 Basic genetics of uropathological conditions	
Clinical Skills	4 Recognition of possible genetic component to specified condition	
Technical Skills and Procedures	N/A	

Topic	**Urinary Tract Infections**	
Objective	*To develop advanced skills in the assessment and treatment of urological disease in children*	
Knowledge	4 Biological mechanisms of upper and lower urinary tract infection – virulence 4 Host defence 4 Detailed knowledge of reflux 4 Antibiotics - Mechanisms of action	
Clinical Skills	4 Identification of; - Significant infection - Asymptomatic bacteruria 4 Correct antibiotic selection 4 Management of children 4 Choice of surgical approach for vesicoureteric reflux	Strongly recommended
Technical Skills and Procedures	3 Endoscopic treatment of reflux disease 2 Open ureteric re-implantation	Desirable

Topic	**The acute scrotum**	
Objective	*To develop advanced skills in the assessment and treatment of urological disease in children*	
Knowledge	4 Pathogenesis, natural history and complications 4 Clinical presentation and management	
Clinical Skills	4 Assessment of patient 4 Correct interpretation of tests 4 Medical management of patient	
Technical Skills and Procedures	4 Surgical management of the acute scrotum	

Topic	**Urinary tract obstruction, megaureter and posterior urethral valves**	
Objective	*To develop advanced skills in the assessment and treatment of*	

	urological disease in children	
Knowledge	4 Aetiology, pathophysiology and clinical features in childhood 4 Investigation 4 Formulation of appropriate management of children with Pelvi-ureteric junction obstruction (PUJ) obstruction, vesicoureteric junction (VUJ) obstruction and posterior urethral valves 4 Indications, operative steps and complications of the different approaches to the treatment of PUJ obstruction, including: -Percutaneous approaches -Laparoscopic approaches -Open surgical approaches	
Clinical Skills	4 Appropriate assessment of unilateral and bilateral renal obstruction 4 Recognition and early management of sepsis 4 Appropriate management of patient with PUJ obstruction 4 Interpretation of clinical findings and results of investigations 4 Ability to organise appropriate management plan 4 Ability to explain procedures and outcomes to parents and obtain informed consent 3 Knowledge and appropriate use of treatment options	Strongly recommended
Technical Skills and Procedures	2 Percutaneous treatment of PUJ obstruction 2 Laparoscopic pyeloplasty 2 Laparoscopic nephrectomy 3 Open pyeloplasty 2 Surgical management of VUJ obstruction 2 Transurethral resection of PUV	Desirable

Topic	**Wilm's tumour and Neuroblastoma**	
Objective	*To develop advanced skills in the assessment and treatment of urological disease in children*	
Knowledge	4 TNM classification 4 Pathology of the differing types of benign and malignant tumours affecting the kidney 4 Current theories of tumour initiation and growth 4 Thorough understanding of current and previous systems for staging	
Clinical Skills	4 Appropriate use of stage, grade and molecular markers in the management of a child with renal cancer	
Technical Skills and Procedures	N/A	

Topic	**Radiology**	
Objective	*To develop advanced skills in the assessment and treatment of urological disease in children*	
Knowledge	4 Understanding of the theoretical basis and techniques of radiological and nuclear medicine imaging	
Clinical	3 Appropriate imaging of children with renal cancer	

Skills		
Technical Skills and Procedures	N/A	

Topic	**Treatment**	
Objective	*To develop advanced skills in the assessment and treatment of urological disease in children*	
Knowledge	3 Current standards of treatment for common urological cancers 3 Practical treatment of localised renal cancer	
Clinical Skills	4 High level/empathetic communication skills 3 Appropriate management of urological malignancies 4 Appropriate referral for sub-specialist management and surgery	Strongly recommended
Technical Skills and Procedures	2 Radical nephrectomy 2 Laparoscopic nephrectomy	Desirable
Topic	**Urinary incontinence and neuropathic bladder To include spina bifida and epispadias/ exstrophy complex**	
Objective	N/A	
Knowledge	4 Anatomy/physiology and pharmacology of bladder and sphincter mechanisms 4 Aetiology, epidemiology, pathophysiology and classification incontinence in childhood 4 Natural history of eneuresis 4 Causes of neuropathic bladder 4 Types of neuropathic bladder presentation 4 Clinical presentation and differential diagnosis 4 Management of neuropathic incontinence 4 Clinical presentation and differential diagnosis 4 Management of urinary incontinence	
Clinical Skills	4 Appropriate history and examination 4 Investigation including Interpretation of frequency volume chart 4 Appropriate liaison with multidisciplinary team (eg neurology and continence services) 4 Appropriate referral for sub-specialist management and surgery 4 Formulation of a realistic treatment plan 4 Medical management of urinary incontinence	Strongly recommended
Technical Skills and Procedures	3 Urodynamic studies	

Topic	**Assessment of children requiring urinary tract reconstruction**	
Objective	*To develop advanced skills in the assessment and treatment of urological disease in children*	
Knowledge	3 Practical surgical techniques in reconstruction of the bladder and ureter	

Clinical Skills	3 Appropriate choice of surgical procedure for a child requiring reconstruction	
Technical Skills and Procedures	4 Intestinal anastomosis 3 Mobilisation omentum 1-2 (exact level of competence will depend upon casemix): Ureteric anastomosis Ureteric reimplantation Psoas hitch Boari flap Transuretero-ureterostomy Augmentation cystoplasty Ileal conduit diversion Continent urinary diversion Artificial urinary sphincter insertion Vaginal reconstruction / DSD surgery	Desirable

Topic	**Assessment and management of boys requiring urethral reconstruction**	
Objective	N/A	
Knowledge	4 Pathophysiology of congenital abnormalities including hypospadias and epispadias 4 Causes, pathophysiology and complications of urethral strictures 4 Pathophysiology of traumatic injury to the urethra 4 Techniques of assessment for bladder and urinary tract reconstruction including urodynamics, radiology and nuclear medicine techniques 4 Techniques and complications of urethral reconstruction	
Clinical Skills	4 Appropriate assessment of patients requiring urethral surgery 4 Be able to advise on the surgical options and the appropriateness of surgery 4 Management of post-operative consequences of urethral reconstruction 4 Arrange appropriate follow up of boys with urethral reconstruction 4 Liaison with other specialties e.g. radiology, orthopaedics, GI surgeons 3 Appropriate choice of surgical procedure for child with hypospadias	
Technical Skills and Procedures	2 MAGPI repair 2 Harvesting buccal mucosa graft 2 Snodgrass repair 2 Two stage buccal graft urethroplasty 1 Surgery for epispadias(This experience is only available at GOSH or RMCH in the UK)	

Module 13: Renal Transplantation

Topic	Renal Transplantation	Areas in which simulation should be used to develop relevant skills
Objective	*To develop advanced skills in renal transplantation and surgical aspects of renal replacement therapy*	
Knowledge	**Anatomy** 4 Retroperitoneum and the great vessels 4 Embryology of the genitourinary tract including development of the kidney and the common variations in vascular supply to the kidney. 4 Anatomy and blood supply of the kidney, ureter and bladder. 4 Neuroanatomy as it relates to normal and abnormal bladder, urethral and pelvic floor function 3 Arterial supply and venous drainage of the upper and lower limbs. **Physiology** 4 Physiology of the kidney 4 Physiology of fluid balance 4 Physiology of the lower urinary tract **Pharmacology** 4 Pharmacology of drugs used in immunosuppression 4 Pharmacology of perfusion fluids and use of diuretics 4 Pharmacology of inotropes and blood pressure control and effects of drugs on renal blood flow. **Immunology** 3 HLA matching 3 (Cytotoxic) cross match 4 Rejection 4 Immunosuppression **Renal failure** 4 Causes and classification 4 Pathophysiology 4 Clinical features 4 Treatment options for renal failure 4 Indications and contraindications for kidney transplantation 4 Indications and types of dialysis 4 Access for dialysis 4 Complications of dialysis **Organ donation** 3 Criteria for brainstem death and circulatory death 3 Pathophysiology of brainstem death 3 Principles of donor management and organ preservation	
Clinical Skills	**Vascular Access** 4 Assess patients referred for vascular access: 4 Identify appropriate access site 4 Manage complications including thrombosis, haemorrhage and vascular complications such as steal, venous hypertension, cardiac failure and aneurysm	Desirable

	Peritoneal dialysis 3 Assess patients referred for peritoneal dialysis 3 Manage post-op care of patients with peritoneal dialysis catheter 3 Manage complications including peritonitis **Renal transplantation** 4 Assess, counsel and manage living donors 2 Assess and manage potential deceased donor 4 Assessment of patients requiring renal transplantation or renal replacement therapy 4 Manage transplant recipient perioperatively 4 Manage post-operative complications 3 Follow up of patients with renal transplants 4 Liaison with other specialties e.g. nephrology and radiology	Strongly recommended
Technical Skills and Procedures	3 Peritoneal dialysis catheter-insert 3 Peritoneal dialysis catheter-removal 3 Central venous line insertion 3 Form arterio-venous fistula at wrist and elbow 3 Ligate arterio-venous fistula at wrist and elbow 2 Deceased donor nephrectomy for transplantation 2 Open live donor nephrectomy for transplantation 2 Laparoscopic (or hand assisted) live donor nephrectomy for transplantation 3 Renal transplantation including: 3 Bench preparation of kidney for transplant 3 End to side anastomosis of renal artery to recipient 3 End to side venous anastomosis and vein patch 3 Ureteric reimplantation 2 Transplant nephrectomy	Desirable

Professional Behaviour and Leadership

Professional behaviour and leadership skills are integral to the specialty specific syllabuses relating to clinical practice. It is not possible to achieve competence within the specialty unless these skills and behaviours are evident. Professional behaviour and leadership skills are evidenced through clinical practice. By the end of each stage of training, the trainee must be able to demonstrate progress in acquiring these skills and demonstrating these behaviours across a range of situations as detailed in the syllabus.

Under each category heading there are learning objectives in the domains of knowledge, skills and behaviour together with example behaviours. These objectives underpin the activities that are found in the syllabus.

	Professional Behaviour and Leadership	**Mapping to Leadership Curriculum**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Category	**Good Clinical Care**, to include: • History taking (GMP Domains: 1, 3, 4) • Physical examination (GMP Domains: 1, 2,4) • Time management and decision making (GMP Domains: 1,2,3) • Clinical reasoning (GMP Domains: 1,2, 3, 4) • Therapeutics and safe prescribing (GMP Domains: 1, 2, 3) • Patient as a focus of clinical care (GMP Domains: 1, 3, 4) • Patient safety (GMP Domains: 1, 2, 3) • Infection control (GMP Domains: 1, 2, 3)	**Area 4.1**		
Objective	To achieve an excellent level of care for the individual patient • To elicit a relevant focused history (See modules 2, 3, 4,5) • To perform focused, relevant and accurate clinical examination (See modules 2,3,4,5) • To formulate a diagnostic and therapeutic plan for a patient based upon the clinic findings (See modules 2,3,4,5) • To prioritise the diagnostic and therapeutic plan (See modules 2,3,4,5) • To communicate a diagnostic and therapeutic plan appropriately (See modules 2,3,4,5) To produce timely, complete and legible clinical records to include case-note records, handover notes, and operation notes To prescribe, review and monitor appropriate therapeutic interventions relevant to clinical practice including non – medication based therapeutic and preventative indications (See module 1,2,3,4,5) To prioritise and organise clinical and clerical duties in order to optimise patient care To make appropriate clinical and clerical		Mini CEX, CBD, Mini PAT, MRCS and Specialty FRCS	Strongly recommended Patient safety Desirable: Human factors

	decisions in order to optimise the effectiveness of the clinical team resource.
	
	To prioritise the patient's agenda encompassing their beliefs, concerns expectations and needs
	
	To prioritise and maximise patient safety:
	• To understand that patient safety depends on
	  ○ The effective and efficient organisation of care
	  ○ Health care staff working well together
	  ○ Safe systems, individual competency and safe practice
	• To understand the risks of treatments and to discuss these honestly and openly with patients
	• To systematic ways of assessing and minimising risk
	• To ensure that all staff are aware of risks and work together to minimise risk
	
	To manage and control infection in patients, including:
	• Controlling the risk of cross-infection
	• Appropriately managing infection in individual patients
	• Working appropriately within the wider community to manage the risk posed by communicable diseases
		Area 4.1		

Knowledge	**Patient assessment** • Knows likely causes and risk factors for conditions relevant to mode of presentation • Understands the basis for clinical signs and the relevance of positive and negative physical signs • Recognises constraints and limitations of physical examination • Recognises the role of a chaperone is appropriate or required • Understand health needs of particular populations e.g. ethnic minorities • Recognises the impact of health beliefs, culture and ethnicity in presentations of physical and psychological conditions **Clinical reasoning** • Interpret history and clinical signs to generate hypothesis within context of clinical likelihood • Understands the psychological component of disease and illness presentation • Test, refine and verify hypotheses • Develop problem list and action plan • Recognise how to use expert advice, clinical guidelines and algorithms • Recognise and appropriately respond to sources of information accessed by patients • Recognises the need to determine the best			

	value and most effective treatment both for the individual patient and for a patient cohort **Record keeping** • Understands local and national guidelines for the standards of clinical record keeping in all circumstances, including handover • Understanding of the importance of high quality and adequate clinical record keeping and relevance to patient safety and to litigation • Understand the primacy for confidentiality **Time management** • Understand that effective organisation is key to time management • Understand that some tasks are more urgent and/or more important than others • Understand the need to prioritise work according to urgency and importance • Maintains focus on individual patient needs whilst balancing multiple competing pressures • Outline techniques for improving time management **Patient safety** • Outline the features of a safe working environment • Outline the hazards of medical equipment in common use • Understand principles of risk assessment and management • Understanding the components of safe working practice in the personal, clinical and organisational settings • Outline local procedures and protocols for optimal practice e.g. GI bleed protocol, safe prescribing • Understands the investigation of significant events, serious untoward incidents and near misses **Infection control** • Understand the principles of infection control • Understands the principles of preventing infection in high risk groups • Understand the role of Notification of diseases within the UK • Understand the role of the Health Protection Agency and Consultants in Health Protection	**Area 4.1**		
Skills	**Patient assessment** • Takes a history from a patient with appropriate use of standardised questionnaires and with appropriate input from other parties including family members, carers and other health			

	professionals • Performs an examination relevant to the presentation and risk factors that is valid, targeted and time efficient and which actively elicits important clinical findings • Give adequate time for patients and carers to express their beliefs ideas, concerns and expectations • Respond to questions honestly and seek advice if unable to answer • Develop a self-management plan with the patient • Encourage patients to voice their preferences and personal choices about their care **Clinical reasoning** • Interpret clinical features, their reliability and relevance to clinical scenarios including recognition of the breadth of presentation of common disorders • Incorporates an understanding of the psychological and social elements of clinical scenarios into decision making through a robust process of clinical reasoning • Recognise critical illness and respond with due urgency • Generate plausible hypothesis(es) following patient assessment • Construct a concise and applicable problem list using available information • Construct an appropriate management plan in conjunction with the patient, carers and other members of the clinical team and communicate this effectively to the patient, parents and carers where relevant **Record keeping** • Producing legible, timely and comprehensive clinical notes relevant to the setting • Formulating and implementing care plans appropriate to the clinical situation, in collaboration with members of an interdisciplinary team, incorporating assessment, investigation, treatment and continuing care • Presenting well documented assessments and recommendations in written and/or verbal form **Time management** • Identifies clinical and clerical tasks requiring attention or predicted to arise • Group together tasks when this will be the most effective way of working • Organise, prioritise and manage both team-members and workload effectively and flexibly	**Area 4.1**		

	Patient safety • Recognise and practise within limits of own professional competence • Recognise when a patient is not responding to treatment, reassess the situation, and encourage others to do so • Ensure the correct and safe use of medical equipment • Improve patients' and colleagues' understanding of the side effects and contraindications of therapeutic intervention • Sensitively counsel a colleague following a significant untoward event, or near incident, to encourage improvement in practice of individual and unit • Recognise and respond to the manifestations of a patient's deterioration or lack of improvement (symptoms, signs, observations, and laboratory results) and support other members of the team to act similarly **Infection control** • Recognise the potential for infection within patients being cared for • Counsel patients on matters of infection risk, transmission and control • Actively engage in local infection control procedures • Prescribe antibiotics according to local guidelines and work with microbiological services where appropriate • Recognise potential for cross-infection in clinical settings • Practice aseptic technique whenever relevant			
Behaviour	• Shows respect and behaves in accordance with Good Medical Practice • Ensures that patient assessment, whilst clinically appropriate considers social, cultural and religious boundaries • Support patient self-management • Recognise the duty of the medical professional to act as patient advocate • Ability to work flexibly and deal with tasks in an effective and efficient fashion • Remain calm in stressful or high pressure situations and adopt a timely, rational approach • Show willingness to discuss intelligibly with a patient the notion and difficulties of prediction of future events, and benefit/risk balance of therapeutic intervention • Show willingness to adapt and adjust approaches according to the beliefs and preferences of the patient and/or carers • Be willing to facilitate patient choice • Demonstrate ability to identify one's own biases and inconsistencies in clinical reasoning • Continue to maintain a high level of safety awareness and consciousness			

	• Encourage feedback from all members of the team on safety issues • Reports serious untoward incidents and near misses and co-operates with the investigation of the same. • Show willingness to take action when concerns are raised about performance of members of the healthcare team, and act appropriately when these concerns are voiced to you by others • Continue to be aware of one's own limitations, and operate within them • Encourage all staff, patients and relatives to observe infection control principles • Recognise the risk of personal ill-health as a risk to patients and colleagues in addition to its effect on performance			
Examples and descriptors for Core Surgical Training	**Patient assessment** • Obtains, records and presents accurate clinical history and physical examination relevant to the clinical presentation, including an indication of patient's views • Uses and interprets findings adjuncts to basic examination appropriately e.g. internal examination, blood pressure measurement, pulse oximetry, peak flow • Responds honestly and promptly to patient questions • Knows when to refer for senior help • Is respectful to patients by o Introducing self clearly to patients and indicates own place in team o Checks that patients comfortable and willing to be seen o Informs patients about elements of examination and any procedures that the patient will undergo **Clinical reasoning** • In a straightforward clinical case develops a provisional diagnosis and a differential diagnosis on the basis of the clinical evidence, institutes an appropriate investigative and therapeutic plan, seeks appropriate support from others and takes account of the patients wishes **Record keeping** • Is able to format notes in a logical way and writes legibly • Able to write timely, comprehensive, informative letters to patients and to GPs **Time management** • Works systematically through tasks and attempts to prioritise • Discusses the relative importance of tasks with more senior colleagues. • Understands importance of communicating progress with other team members			

	Patient safety • Participates in clinical governance processes • Respects and follows local protocols and guidelines • Takes direction from the team members on patient safety • Discusses risks of treatments with patients and is able to help patients make decisions about their treatment • Ensures the safe use of equipment • Acts promptly when patient condition deteriorates • Always escalates concerns promptly **Infection control** • Performs simple clinical procedures whilst maintaining full aseptic precautions • Follows local infection control protocols • Explains infection control protocols to students and to patients and their relatives • Aware of the risks of nosocomial infections.	**Area 4.1**		

Examples and descriptors for CCT	**Patient assessment**
	• Undertakes patient assessment (including history and examination) under difficult circumstances. Examples include:
	  ○ Limited time available (Emergency situations, Outpatients, ward referral),
	  ○ Severely ill patients
	  ○ Angry or distressed patients or relatives
	• Uses and interprets findings adjuncts to basic examination appropriately e.g. electrocardiography, spirometry, ankle brachial pressure index, fundoscopy, sigmoidoscopy
	• Recognises and deals with complex situations of communication, accommodates disparate needs and develops strategies to cope
	• Is sensitive to patients cultural concerns and norms
	• Is able to explain diagnoses and medical procedures in ways that enable patients understand and make decisions about their own health care.
	
	Clinical reasoning
	• In a complex case, develops a provisional diagnosis and a differential diagnosis on the basis of the clinical evidence, institutes an appropriate investigative and therapeutic plan, seeks appropriate support from others and takes account of the patients wishes
	
	Record keeping
	• Produces comprehensive, focused and informative records which summarise complex cases accurately			

	Time management • Organises, prioritises and manages daily work efficiently and effectively • Works with, guides, supervises and supports junior colleagues • Starting to lead and direct the clinical team in effective fashion **Patient safety** • Leads team discussion on risk assessment, risk management, clinical incidents • Works to make organisational changes that will reduce risk and improve safety • Promotes patients safety to more junior colleagues • Recognises and reports untoward or significant events • Undertakes a root cause analysis • Shows support for junior colleagues who are involved in untoward events **Infection control** • Performs complex clinical procedures whilst maintaining full aseptic precautions • Manages complex cases effectively in collaboration with infection control specialists	**Area 4.1**		

	Professional Behaviour and Leadership	**Mapping to Leadership Curriculum**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Category	*Being a good communicator* To include: • Communication with patients (GMP Domains: 1, 3, 4) • Breaking bad news (GMP Domains: 1, 3, 4) • Communication with colleagues (GMP Domains: 1, 3)	***N/A***		
Objective	**Communication with patients** • To establish a doctor/patient relationship characterised by understanding, trust, respect, empathy and confidentiality • To communicate effectively by listening to patients, asking for and respecting their views about their health and responding to their concerns and preferences • To cooperate effectively with healthcare professionals involved in patient care • To provide appropriate and timely information to patients and their families **Breaking bad news** • To deliver bad news according to the needs of individual patients		PBA, DOPS, Mini CEX, Mini PAT and CBD	Desirable: Human factors

	Communication with Colleagues • To recognise and accept the responsibilities and role of the doctor in relation to other healthcare professionals. • To communicate succinctly and effectively with other professionals as appropriate • To present a clinical case in a clear, succinct and systematic manner			
Knowledge	**Communication with patients** • Understands questioning and listening techniques • Understanding that poor communication is a cause of complaints/ litigation **Breaking bad news** • In delivering bad news understand that: o The delivery of bad news affects the relationship with the patient o Patient have different responses to bad news o Bad news is confidential but the patient may wish to be accompanied o Once the news is given, patients are unlikely to take in anything else o Breaking bad news can be extremely stressful for both parties o It is important to prepare for breaking bad news **Communication and working with colleagues** • Understand the importance of working with colleagues, in particular: o The roles played by all members of a multi-disciplinary team o The features of good team dynamics o The principles of effective inter-professional collaboration o The principles of confidentiality			
Skills	**Communication with patients** • Establish a rapport with the patient and any relevant others (e.g. carers) • Listen actively and question sensitively to guide the patient and to clarify information • Identify and manage communication barriers, tailoring language to the individual patient and others and using interpreters when indicated • Deliver information compassionately, being alert to and managing their and your emotional response (anxiety, antipathy etc.) • Use, and refer patients to appropriate written and other evidence based information sources • Check the patient's understanding, ensuring that all their concerns/questions have been covered • Make accurate contemporaneous records of the discussion			

	• Manage follow-up effectively and safely utilising a variety if methods (e.g. phone call, email, letter) • Provide brief advice on health and self care e.g. use of alcohol and drugs. • Ensure appropriate referral and communications with other healthcare professional resulting from the consultation are made accurately and in a timely manner **Breaking bad news** • Demonstrate to others good practice in breaking bad news • Recognises the impact of the bad news on the patient, carer, supporters, staff members and self • Act with empathy, honesty and sensitivity avoiding undue optimism or pessimism **Communication with colleagues** • Communicate with colleagues accurately, clearly and promptly • Utilise the expertise of the whole multi-disciplinary team • Participate in, and co-ordinate, an effective hospital at night or hospital out of hours team • Communicate effectively with administrative bodies and support organisations • Prevent and resolve conflict and enhance collaboration			
Behaviour	**Communication with patients** • Approach the situation with courtesy, empathy, compassion and professionalism • Demonstrate and inclusive and patient centred approach with respect for the diversity of values in patients, carers and colleagues **Breaking bad news** • Behave with respect, honest ant empathy when breaking bad news • Respect the different ways people react to bad news **Communication with colleagues** • Be aware of the importance of, and take part in, multi-disciplinary teamwork, including adoption of a leadership role • Foster an environment that supports open and transparent communication between team members • Ensure confidentiality is maintained during communication with the team • Be prepared to accept additional duties in situations of unavoidable and unpredictable absence of colleagues Act appropriately on any concerns about own or colleagues' health e.g. use of alcohol and/or other drugs.			

Examples and descriptors for Core Surgical Training	• Conducts a simple consultation with due empathy and sensitivity and writes accurate records thereof • Recognises when bad news must be imparted. • Able to break bad news in planned settings following preparatory discussion with seniors • Accepts his/her role in the healthcare team and communicates appropriately with all relevant members thereof			
Examples and descriptors for CCT	• Shows mastery of patient communication in all situations, anticipating and managing any difficulties which may occur • Able to break bad news in both unexpected and planned settings • Fully recognises the role of, and communicates appropriately with, all relevant team members • Predicts and manages conflict between members of the healthcare team • Beginning to take leadership role as appropriate, fully respecting the skills, responsibilities and viewpoints of all team members			

	Professional Behaviour and Leadership	**Mapping to Leadership Curriculum**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Category	**Teaching and Training** (GMP Domains: 1, 3)	N/A		
Objective	• To teach to a variety of different audiences in a variety of different ways • To assess the quality of the teaching • To train a variety of different trainees in a variety of different ways • To plan and deliver a training programme with appropriate assessments		Mini PAT, Portfolio assessment at ARCP	Strongly recommended Teaching and Assessment Desirable: Presentation skills Reflective practice
Knowledge	• Understand relevant educational theory and principles relevant to medical education • Understand the structure of an effective appraisal interview • Understand the roles to the bodies involved in medical education • Understand learning methods and effective learning objectives and outcomes • Differentiate between appraisal, assessment and performance review • Differentiate between formative and summative assessment • Understand the role, types and use of workplace-based assessments • Understand the appropriate course of action			

	to assist a trainee in difficulty			
Skills	• Critically evaluate relevant educational literature • Vary teaching format and stimulus, appropriate to situation and subject • Provide effective feedback and promote reflection • Conduct developmental conversations as appropriate eg: appraisal, supervision, mentoring • Deliver effective lecture, presentation, small group and bed side teaching sessions • Participate in patient education • Lead departmental teaching programmes including journal clubs • Recognise the trainee in difficulty and take appropriate action • Be able to identify and plan learning activities in the workplace			
Behaviour	• In discharging educational duties respect the dignity and safety of patients at all times • Recognise the importance of the role of the physician as an educator • Balances the needs of service delivery with education • Demonstrate willingness to teach trainees and other health workers • Demonstrates consideration for learners • Acts to endure equality of opportunity for students, trainees, staff and professional colleagues • Encourage discussions with colleagues in clinical settings to share understanding • Maintains honesty, empathy and objectivity during appraisal and assessment			
Examples and descriptors for Core Surgical Training	• Prepares appropriate materials to support teaching episodes • Seeks and interprets simple feedback following teaching • Supervises a medical student, nurse or colleague through a simple procedure • Plans, develops and delivers small group teaching to medical students, nurses or colleagues			
Examples and descriptors for CCT	• Performs a workplace based assessment including giving appropriate feedback • Devises a variety of different assessments (eg MCQs, WPBAs) • Appraises a medical student, nurse or colleague • Acts as a mentor to a medical student, nurses or colleague • Plans, develops and delivers educational programmes with clear objectives and outcomes • Plans, develops and delivers an assessment programme to support educational activities			

	Professional Behaviour and Leadership	Mapping to Leadership Curriculum	Assessment technique	Areas in which simulation should be used to develop relevant skills
Category	*Keeping up to date and understanding how to analyse information* ***Including*** • *Ethical research* (GMP Domains: 1) • Evidence and guidelines (GMP Domains: 1) • Audit (GMP Domains: 1, 2) • Personal development	**Area 1.3**		
Objective	• To understand the results of research as they relate to medical practise • To participate in medical research • To use current best evidence in making decisions about the care of patients • To construct evidence based guidelines and protocols • To complete an audit of clinical practice • At actively seek opportunities for personal development • To participate in continuous professional development activities	**Area 1.3** **Area 1.3**	Mini PAT, CBD, Portfolio assessment at ARCP, MRCS and specialty FRCS	
Knowledge	• Understands GMC guidance on good practice in research • Understands the principles of research governance • Understands research methodology including qualitative, quantitative, bio-statistical and epidemiological research methods • Understands of the application of statistics as applied to medical practise • Outline sources of research funding • Understands the principles of critical appraisal • Understands levels of evidence and quality of evidence • Understands guideline development together with their roles and limitations • Understands the different methods of obtaining data for audit • Understands the role of audit in improving patient care and risk management • Understands the audit cycle • Understands the working and uses of national and local databases used for audit such as specialty data collection systems, cancer registries etc • To demonstrate knowledge of the importance of best practice, transparency and consistency	**Area 1.3**		
Skills	• Develops critical appraisal skills and applies these when reading literature • Devises a simple plan to test a hypothesis • Demonstrates the ability to write a scientific paper • Obtains appropriate ethical research approval			

	• Uses literature databases • Contribute to the construction, review and updating of local (and national) guidelines of good practice using the principles of evidence based medicine • Designs, implements and completes audit cycles • Contribute to local and national audit projects as appropriate • To use a reflective approach to practice with an ability to learn from previous experience • To use assessment, appraisal, complaints and other feedback to discuss and develop an understanding of own development needs	**Area 1.3** **Area 1.3**		
Behaviour	• Follows guidelines on ethical conduct in research and consent for research • Keep up to date with national reviews and guidelines of practice (e.g. NICE) • Aims for best clinical practice at all times, responding to evidence based medicine while recognising the occasional need to practise outside clinical guidelines • Recognise the need for audit in clinical practice to promote standard setting and quality assurance • To be prepared to accept responsibility • Show commitment to continuing professional development	**Area 1.3** **Area 1.3**		
Examples and descriptors for Core Surgical Training	• Defines ethical research and demonstrates awareness of GMC guidelines • Differentiates audit and research and understands the different types of research approach e.g. qualitative and quantitative • Knows how to use literature databases • Demonstrates good presentation and writing skills • Participates in departmental or other local journal club • Critically reviews an article to identify the level of evidence • Attends departmental audit meetings • Contributes data to a local or national audit • Identifies a problem and develops standards for a local audit • Describes the audit cycle and take an audit through the first steps • Seeks feedback on performance from clinical supervisor/mentor/patients/carers/service users	**Area 1.3** **Area 1.3**		
Examples and descriptors for CCT	• Demonstrates critical appraisal skills in relation to the published literature • Demonstrates ability to apply for appropriate ethical research approval • Demonstrates knowledge of research organisation and funding sources • Demonstrates ability to write a scientific paper • Leads in a departmental or other local journal club • Contributes to the development of local or national clinical guidelines or protocols • Organise or lead a departmental audit meeting			

	• Lead a complete clinical audit cycle including development of conclusions, the changes needed for improvement, implementation of findings and re-audit to assess the effectiveness of the changes • Seeks opportunity to visit other departments and learn from other professionals	**Area 1.3** **Area 1.3**		

	Professional Behaviour and Leadership	**Mapping to Leadership Curriculum**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Sub-category:	*Manager **including*** • Self Awareness and self management (GMP Domains: 1) • Team-working (GMP Domains: 1, 3) • Leadership (GMP Domains: 1, 2, 3) • Principles of quality and safety improvement (GMP Domains: 1, 3, 4) • Management and NHS structure (GMP Domains: 1)	**Area 1.1 and 1.2** **Area 2** **Area 4.2, 4.3, 4.4** **Area 3**		
Objective	**Self awareness and self management** • To recognise and articulate one's own values and principles, appreciating how these may differ from those of others • To identify one's own strengths, limitations and the impact of their behaviour • To identify their own emotions and prejudices and understand how these can affect their judgement and behaviour • To obtain, value and act on feedback from a variety of sources • To manage the impact of emotions on behaviour and actions • To be reliable in fulfilling responsibilities and commitments to a consistently high standard • To ensure that plans and actions are flexible, and take into account the needs and requirements of others • To plan workload and activities to fulfil work requirements and commitments with regard to their own personal health **Team working** • To identify opportunities where working with others can bring added benefits • To work well in a variety of different teams and	**Area 1.1 and 1.2** **Area 2**	Mini PAT and CBD Mini PAT, CBD and Portfolio assessment	Desirable: Patient safety Human factors

	team settings by listening to others, sharing information, seeking the views of others, empathising with others, communicating well, gaining trust, respecting roles and expertise of others, encouraging others, managing differences of opinion, adopting a team approach **Leadership** • To develop the leadership skills necessary to lead teams effectively. These include: • Identification of contexts for change • Application of knowledge and evidence to produce an evidence based challenge to systems and processes • Making decision by integrating values with evidence • Evaluating impact of change and taking corrective action where necessary **Principles of quality and safety improvement** • To recognise the desirability of monitoring performance, learning from mistakes and adopting no blame culture in order to ensure high standards of care and optimise patient safety • To critically evaluate services • To identify where services can be improved • To support and facilitate innovative service improvement **Management and NHS culture** • To organise a task where several competing priorities may be involved • To actively contribute to plans which achieve service goals • To manage resources effectively and safely • To manage people effectively and safely • To manage performance of themselves and others • To understand the structure of the NHS and the management of local healthcare systems in order to be able to participate fully in managing healthcare provision	**Area 5** **Area 4.2, 4.3 and 4.4** **Area 3**	during ARCP Mini PAT, CBD and Portfolio assessment during ARCP Mini PAT, CBD and Portfolio assessment during ARCP Mini PAT, CBD and Portfolio assessment during ARCP	
Knowledge	**Self awareness and self management** • Demonstrate knowledge of ways in which individual behaviours impact on others; • Demonstrate knowledge of personality types, group dynamics, learning styles, leadership styles • Demonstrate knowledge of methods of obtaining feedback from others • Demonstrate knowledge of tools and techniques for managing stress • Demonstrate knowledge of the role and responsibility of occupational health and other support networks • Demonstrate knowledge of the limitations of self professional competence **Team working** • Outline the components of effective collaboration	**Areas 1.1 and 1.2** **Area 2**		

	and team working • Demonstrate knowledge of specific techniques and methods that facilitate effective and empathetic communication • Demonstrate knowledge of techniques to facilitate and resolve conflict • Describe the roles and responsibilities of members of the multidisciplinary team • Outline factors adversely affecting a doctor's and team performance and methods to rectify these • Demonstrate knowledge of different leadership styles **Leadership** • Understand the responsibilities of the various Executive Board members and Clinical Directors or leaders • Understand the function and responsibilities of national bodies such as DH, HCC, NICE, NPSA, NCAS; Royal Colleges and Faculties, specialty specific bodies, representative bodies; regulatory bodies; educational and training organisations • Demonstrate knowledge of patient outcome reporting systems within surgery, and the organisation and how these relate to national programmes. • Understand how decisions are made by individuals, teams and the organisation • Understand effective communication strategies within organisations • Demonstrate knowledge of impact mapping of service change, barriers to change, qualitative methods to gather the experience of patients and carers **Quality and safety improvement** • Understand the elements of clinical governance and its relevance to clinical care • Understands significant event reporting systems relevant to surgery • Understands the importance of evidence-based practice in relation to clinical effectiveness • Understand risks associated with the surgery including mechanisms to reduce risk • Outline the use of patient early warning systems to detect clinical deterioration • Keep abreast of national patient safety initiatives including National Patient Safety Agency , NCEPOD reports, NICE guidelines etc • Understand quality improvement methodologies including feedback from patients, public and staff • Understand the role of audit, research, guidelines and standard setting in improving quality of care • Understand methodology of creating solutions for service improvement • Understand the implications of change **Management and NHS Structure** • Understand the guidance given on management and doctors by the GMC • Understand the structure of the NHS and its	**Area 5** **Area 4.2, 4.3, 4.4** **Area 3**		

	constituent organisation
	• Understand the structure and function of healthcare systems as they apply to surgery
	• Understand the principles of:
	  • Clinical coding
	  • Relevant legislation including Equality and Diversity, Health and Safety, Employment law, European Working Time Regulations
	  • National Service Frameworks
	  • Health regulatory agencies (e.g., NICE, Scottish Government)
	  • NHS Structure and relationships
	  • NHS finance and budgeting
	  • Consultant contract
	  • Commissioning, funding and contracting arrangements
	  • Resource allocation
	  • The role of the independent sector as providers of healthcare
	  • Patient and public involvement processes and role
	  • Understand the principles of recruitment and appointment procedures
	• Understand basic management techniques			

Skills	**Self awareness and self management**
	• Demonstrate the ability to maintain and routinely practice critical self awareness, including able to discuss strengths and weaknesses with supervisor, recognising external influences and changing behaviour accordingly
	• Demonstrate the ability to show awareness of and sensitivity to the way in which cultural and religious beliefs affect approaches and decisions, and to respond respectfully
	• Demonstrate the ability to recognise the manifestations of stress on self and others and know where and when to look for support
	• Demonstrate the ability to□□alance personal and professional roles and responsibilities, prioritise tasks, having realistic expectations of what can be completed by self and others
	
	Team working
	• Preparation of patient lists with clarification of problems and ongoing care plan
	• Detailed hand over between shifts and areas of care
	• Communicate effectively in the resolution of conflict, providing feedback
	• Develop effective working relationships with colleagues within the multidisciplinary team
	• Demonstrate leadership and management in the following areas:
	  ○ Education and training of junior colleagues and other members of the team
	  ○ Deteriorating performance of colleagues (e.g. stress, fatigue)
	  ○ Effective handover of care between
		Area 1.2 and 1.2
		
		Area 2		

	shifts and teams • Lead and participate in interdisciplinary team meetings • Provide appropriate supervision to less experienced colleagues • Timely preparation of tasks which need to be completed to a deadline **Leadership** • Discuss the local, national and UK health priorities and how they impact on the delivery of health care relevant to surgery • Identify trends, future options and strategy relevant to surgery • Compare and benchmark healthcare services • Use a broad range of scientific and policy publications relating to delivering healthcare services • Prepare for meetings by reading agendas, understanding minutes, action points and background research on agenda items • Work collegiately and collaboratively with a wide range of people outside the immediate clinical setting • Evaluate outcomes and re-assess the solutions through research, audit and quality assurance activities • Understand the wider impact of implementing change in healthcare provision and the potential for opportunity costs **Quality and safety improvement** • Adopt strategies to reduce risk e.g. Safe surgery • Contribute to quality improvement processes e.g. o Audit of personal and departmental performance o Errors / discrepancy meetings o Critical incident and near miss reporting o Unit morbidity and mortality meetings o Local and national databases • Maintenance of a personal portfolio of information and evidence • Creatively question existing practise in order to improve service and propose solutions **Management and NHS Structures** • Manage time and resources effectively • Utilise and implement protocols and guidelines • Participate in managerial meetings • Take an active role in promoting the best use of healthcare resources • Work with stakeholders to create and sustain a patient-centred service • Employ new technologies appropriately, including information technology • Conduct an assessment of the community needs for specific health improvement measures	**Area 5** **Area 4.2, 4.3, 4.4** **Area 3**		
Behaviour	**Self awareness and self management** • To adopt a patient-focused approach to	**Area 1.1 and 1.2**		

	decisions that acknowledges the right, values and strengths of patients and the public • To recognise and show respect for diversity and • differences in others • To be conscientious, able to manage time and delegate • To recognise personal health as an important issue			
	Team working • Encourage an open environment to foster and explore concerns and issues about the functioning and safety of team working • Recognise limits of own professional competence and only practise within these. • Recognise and respect the skills and expertise of others • Recognise and respect the request for a second opinion • Recognise the importance of induction for new members of a team • Recognise the importance of prompt and accurate information sharing with Primary Care team following hospital discharge	**Area 2**		
	Leadership • Demonstrate compliance with national guidelines that influence healthcare provision • Articulate strategic ideas and use effective influencing skills • Understand issues and potential solutions before acting • Appreciate the importance of involving the public and communities in developing health services • Participate in decision making processes beyond the immediate clinical care setting • Demonstrate commitment to implementing proven improvements in clinical practice and services • Obtain the evidence base before declaring effectiveness of changes	**Area 5** **Area 4.2, 4.3, 4.4**		
	Quality and safety improvement • Participate in safety improvement strategies such as critical incident reporting • Develop reflection in order to achieve insight into own professional practice • Demonstrates personal commitment to improve own performance in the light of feedback and assessment • Engage with an open no blame culture • Respond positively to outcomes of audit and quality improvement • Co-operate with changes necessary to improve service quality and safety	**Area 3**		
	Management and NHS Structures • Recognise the importance of equitable allocation of healthcare resources and of commissioning • Recognise the role of doctors as active participants in healthcare systems			

	• Respond appropriately to health service objectives and targets and take part in the development of services • Recognise the role of patients and carers as active participants in healthcare systems and service planning • Show willingness to improve managerial skills (e.g. management courses) and engage in management of the service			
Examples and descriptors for Core Surgical Training	**Self awareness and self management** • Obtains 360° feedback as part of an assessment • Participates in peer learning and explores leadership styles and preferences • Timely completion of written clinical notes • Through feedback discusses and reflects on how a personally emotional situation affected communication with another person • Learns from a session on time management **Team working** • Works well within the multidisciplinary team and recognises when assistance is required from the relevant team member • Invites and encourages feedback from patients • Demonstrates awareness of own contribution to patient safety within a team and is able to outline the roles of other team members. • Keeps records up-to-date and legible and relevant to the safe progress of the patient. • Hands over care in a precise, timely and effective manner • Supervises the process of finalising and submitting operating lists to the theatre suite **Leadership** • Complies with clinical governance requirements of organisation • Presents information to clinical and service managers (eg audit) • Contributes to discussions relating to relevant issues e.g. workload, cover arrangements using clear and concise evidence and information **Quality and safety improvement** • Understands that clinical governance is the over-arching framework that unites a range of quality improvement activities • Participates in local governance processes • Maintains personal portfolio • Engages in clinical audit • Questions current systems and processes **Management and NHS Structures** • Participates in audit to improve a clinical service • Works within corporate governance structures • Demonstrates ability to manage others by teaching and mentoring juniors, medical students and others, delegating work effectively, • Highlights areas of potential waste	**Area 1.1 and 1.2** **Area 2** **Area 5** **Area 4.2, 4.3, 4.4** **Area 3**		
Examples	**Self awareness and self management**	**Area 1.1**		

and descriptors for CCT	• Participates in case conferences as part of multidisciplinary and multi agency team • Responds to service pressures in a responsible and considered way • Liaises with colleagues in the planning and implementation of work rotas	**and 1.2**		
	Team working • Discusses problems within a team and provides an analysis and plan for change • Works well in a variety of different teams • Shows the leadership skills necessary to lead the multidisciplinary team • Beginning to leads multidisciplinary team meetings o Promotes contribution from all team members o Fosters an atmosphere of collaboration o Ensures that team functioning is maintained at all times. o Recognises need for optimal team dynamics o Promotes conflict resolution • Recognises situations in which others are better equipped to lead or where delegation is appropriate	**Area 2**		
	Leadership • Shadows NHS managers • Attends multi-agency conference • Uses and interprets departments performance data and information to debate services • Participates in clinical committee structures within an organisation	**Area 5**		
	Quality and safety improvement • Able to define key elements of clinical governance • Demonstrates personal and service performance • Designs audit protocols and completes audit cycle • Identifies areas for improvement and initiates improvement projects • Supports and participates in the implementation of change • Leads in review of patient safety issue • Understands change management	**Area 4.2, 4.3, 4.4** **Area 3**		
	Management and NHS Structure • Can describe in outline the roles of primary care, including general practice, public health, community, mental health, secondary and tertiary care services within healthcare • Participates fully in clinical coding arrangements and other relevant local activities • Can describe the relationship between PCTs/Health Boards, General Practice and Trusts including relationships with local authorities and social services • Participate in team and clinical directorate meetings including discussions around service development			

	• Discuss the most recent guidance from the relevant health regulatory agencies in relation to the surgical specialty • Describe the local structure for health services and how they relate to regional or devolved administration structures • Discusses funding allocation processes from central government in outline and how that might impact on the local health organisation			

	Professional Behaviour and Leadership	**Mapping to Leadership Curriculum**	**Assessment technique**	**Areas in which simulation should be used to develop relevant skills**
Sub-category:	**Promoting good health** (GMP Domains: 1, 2, 3)			
Objective	• To demonstrate an understanding of the determinants of health and public policy in relation to individual patients • To promote supporting people with long term conditions to self-care • To develop the ability to work with individuals and communities to reduce levels of ill health and to remove inequalities in healthcare provision • To promote self care	N/A	MRCS, specialty FRCS, CBD, Mini PAT	
Knowledge	• Understand guidance documents relevant to the support of self care • Recognises the agencies that can provide care and support out with the hospital • Understand the factors which influence the incidence and prevalence of common conditions including psychological, biological, social, cultural and economic factors • Understand the screening programmes currently available within the UK • Understand the possible positive and negative implications of health promotion activities • Demonstrate knowledge of the determinants of health worldwide and strategies to influence policy relating to health issues • Outline the major causes of global morbidity and mortality and effective, affordable interventions to reduce these			
Skills	• Adapts assessment and management accordingly to the patients social circumstances • Assesses patient's ability to access various services in the health and social system and offers appropriate assistance • Ensures appropriate equipment and devices are discussed and where appropriate puts the patient in touch with the relevant agency • Facilitating access to appropriate training and skills to develop the patients' confidence and			

	competence to self care • Identifies opportunities to promote change in lifestyle and to prevent ill health • Counsels patients appropriately on the benefits and risks of screening and health promotion activities			
Behaviour	• Recognises the impact of long term conditions on the patient, family and friends • Put patients in touch with the relevant agency including the voluntary sector from where they can access support or equipment relevant to their care • Show willingness to maintain a close working relationship with other members of the multi-disciplinary team, primary and community care • Recognise and respect the role of family, friends and carers in the management of the patient with a long term condition • Encourage where appropriate screening to facilitate early intervention			
Examples and descriptors for Core Surgical Training	• Understands that "quality of life" is an important goal of care and that this may have different meanings for each patient • Promotes patient self care and independence • Helps the patient to develop an active understanding of their condition and how they can be involved in self management • Discusses with patients those factors which could influence their health			
Examples and descriptors for CCT	• Demonstrates awareness of management of long term conditions • Develops management plans in partnership with the patient that are pertinent to the patients long term condition • Engages with relevant external agencies to promote improving patient care • Support small groups in a simple health promotion activity • Discuss with small groups the factors that have an influence on their health and describe steps they can undertake to address these • Provide information to an individual about a screening programme offering specific guidance in relation to their personal health and circumstances concerning the factors that would affect the risks and benefits of screening to them as an individual.			

	Professional Behaviour and Leadership	Mapping to Leadership Curriculum	Assessment technique	Areas in which simulation should be used to develop relevant skills
Sub-category:	*Probity and Ethics* To include • Acting with integrity • Medical Error • Medical ethics and confidentiality (GMP Domains: 1, 2, 3, 4) • Medical consent (GMP Domains: 1, 3, 4) • Legal framework for medical practise (GMP Domains: 1, 2, 3)	Area 1.4		
Objective	• To uphold personal, professional ethics and values, taking into account the values of the organisation and the culture and beliefs of individuals • To communicate openly, honestly and inclusively • To act as a positive role model in all aspects of communication • To take appropriate action where ethics and values are compromised • To recognise and respond the causes of medical error • To respond appropriately to complaints • To know, understand and apply appropriately the principles, guidance and laws regarding medical ethics and confidentiality as they apply to surgery • To understand the necessity of obtaining valid consent from the patient and how to obtain • To understand the legal framework within which healthcare is provided in the UK • To recognise, analyse and know how to deal with unprofessional behaviours in clinical practice, taking into account local and national regulations • Understand ethical obligations to patients and colleagues • To appreciate an obligation to be aware of personal good health	Area 1.4	Mini PAT and CBD, PBA, DOPS, MRCS, specialty FRCS	Desirable: Human factors
Knowledge	• Understand local complaints procedure • Recognise factors likely to lead to complaints • Understands the differences between system and individual errors • Outline the principles of an effective apology • Knows and understand the professional, legal and ethical codes of the General Medical Council and any other codes to which the physician is bound • Understands of the principles of medical ethics • Understands the principles of confidentiality • Understands the Data Protection Act and Freedom of Information Act • Understands the principles of Information Governance and the role of the Caldicott Guardian • Understands the legal framework for patient	Area 1.4		

	consent in relation to medical practise • Recognises the factors influencing ethical decision making including religion, personal and moral beliefs, cultural practices • Understands the standards of practice defined by the GMC when deciding to withhold or withdraw life-prolonging treatment • Understands the UK legal framework and GMC guidelines for taking and using informed consent for invasive procedures including issues of patient incapacity			
Skills	• To recognise, analyse and know how to deal with unprofessional behaviours in clinical practice taking into account local and national regulations • To create open and nondiscriminatory professional working relationships with colleagues awareness of the need to prevent bullying and harassment • Contribute to processes whereby complaints are reviewed and learned from • Explains comprehensibly to the patient the events leading up to a medical error or serious untoward incident, and sources of support for patients and their relatives • Deliver an appropriate apology and explanation relating to error • Use and share information with the highest regard for confidentiality both within the team and in relation to patients • Counsel patients, family, carers and advocates tactfully and effectively when making decisions about resuscitation status, and withholding or withdrawing treatment • Present all information to patients (and carers) in a format they understand, checking understanding and allowing time for reflection on the decision to give consent • Provide a balanced view of all care options • Applies the relevant legislation that relates to the health care system in order to guide one's clinical practice including reporting to the Coroner's/Procurator Officer, the Police or the proper officer of the local authority in relevant circumstances • Ability to prepare appropriate medical legal statements for submission to the Coroner's Court, Procurator Fiscal, Fatal Accident Inquiry and other legal proceedings • Be prepared to present such material in Court	Area 1.4 Area 1.4		
Behaviour	• To demonstrate acceptance of professional regulation • To promote professional attitudes and values • To demonstrate probity and the willingness to be truthful and to admit errors • Adopt behaviour likely to prevent causes for complaints • Deals appropriately with concerned or dissatisfied patients or relatives • Recognise the impact of complaints and medical error on staff, patients, and the National Health Service	Area 1.4 Area 1.4 Area 1.4		

	• Contribute to a fair and transparent culture around complaints and errors
	• Recognise the rights of patients to make a complaint
	• Identify sources of help and support for patients and yourself when a complaint is made about yourself or a colleague
	• Show willingness to seek advice of peers, legal bodies, and the GMC in the event of ethical dilemmas over disclosure and confidentiality
	• Share patient information as appropriate, and taking into account the wishes of the patient
	• Show willingness to seek the opinion of others when making decisions about resuscitation status, and withholding or withdrawing treatment
	• Seeks and uses consent from patients for procedures that they are competent to perform while
	  ○ Respecting the patient's autonomy
	  ○ Respecting personal, moral or religious beliefs
	  ○ Not exceeding the scope of authority given by the patient
	  ○ Not withholding relevant information
	• Seeks a second opinion, senior opinion, and legal advice in difficult situations of consent or capacity
	• Show willingness to seek advice from the employer, appropriate legal bodies (including defence societies), and the GMC on medico-legal matters			

Examples and descriptors for Core Surgical Training	• Reports and rectifies an error if it occurs • Participates in significant event audits • Participates in ethics discussions and forums • Apologises to patient for any failure as soon as an error is recognised • Understands and describes the local complaints procedure • Recognises need for honesty in management of complaints • Learns from errors • Respect patients' confidentiality and their autonomy • Understand the Data Protection Act and Freedom of Information Act • Consult appropriately, including the patient, before sharing patient information • Participate in decisions about resuscitation status, withholding or withdrawing treatment • Obtains consent for interventions that he/she is competent to undertake • Knows the limits of their own professional capabilities	Area 1.4 Area 1.4 Area 1.4		

THE ASSESSMENT SYSTEM

Assessment and feedback

Overview of the assessment system

The curriculum adopts the following GMC definitions:

Assessment

A systematic procedure for measuring a trainee's progress or level of achievement, against defined criteria to make a judgement about a trainee.

Assessment system

An integrated set of assessments which is in place for the entire postgraduate training programme and which is blueprinted against and supports the approved curriculum.

Purpose of the assessment system

The purpose of the assessment system is to:

- Determine whether trainees are meeting the standards of competence and performance specified at various stages in the curriculum for surgical training.
- Provide systematic and comprehensive feedback as part of the learning cycle.
- Determine whether trainees have acquired the common and specialty-based knowledge, clinical judgement, operative and technical skills, and generic professional behaviour and leadership skills required to practise at the level of Certification in the designated surgical specialty.
- Address all the domains of Good Medical Practice and conform to the principles laid down by the GMC.

Components of the assessment system

The individual components of the assessment system are:

- Workplace-based assessments covering knowledge, clinical judgement, technical skills and professional behaviour and attitudes. These are complemented by the surgical logbook of procedures to support the assessment of operative skills
- Examinations held at key stages; during the early years of training and towards the end of specialty training
- The Learning Agreement and the Assigned Educational Supervisors' report
- An Annual Review of Competence Progression (ARCP)

In order to be included in the assessment system, the assessments methods selected have to meet the following criteria.

- **Valid** - To ensure face validity, the workplace based assessments comprise direct observations of workplace tasks. The complexity of the tasks increases in line with progression through the training programme. To ensure content validity all the assessment instruments have been blueprinted against all the standards of Good Medical Practice.
- **Reliable** - In order to increase reliability, there will be multiple measures of outcomes. ISCP assessments make use of several observers' judgements, multiple assessment methods (triangulation) and take place frequently. The planned, systematic and permanent programme of assessor training for trainers and Assigned Educational Supervisors (AESs) through the postgraduate deaneries/LETBs is intended to gain maximum reliability of placement reports.
- **Feasible** - The practicality of the assessments in the training and working environment has been taken into account. The assessment should not add a significant amount of time to the workplace

task being assessed and assessors should be able to complete the scoring and feedback part of the assessment in 5-10 minutes.

- **Cost-effectiveness** – Once staff have been trained in the assessment process and are familiar with the ISCP website, the only significant additional costs should be any extra time taken for assessments and feedback and the induction of new Assigned Educational Supervisors. The most substantial extra time investment will be in the regular appraisal process for units that did not previously have such a system.
- **Opportunities for feedback** – All the assessments, both those for learning and of learning, include a feedback element. Structured feedback is a fundamental component of high quality assessment and should be incorporated throughout workplace based assessments.
- **Impact on learning** - The workplace-based assessments are all designed to include immediate feedback as part of the process. A minimum number of three appraisals with the AES per clinical placement are built into the training system. The formal examinations all provide limited feedback as part of the summative process. The assessment process thus has a continuous developmental impact on learning. The emphasis given to reflective practice within the portfolio also impacts directly on learning.

Assessment and feedback

Types of assessment

The assessment blueprint and framework

The Overarching Blueprint demonstrates that the curriculum is consistent with the four domains of Good Medical Practice: Knowledge, skills and performance; *Safety and quality; Communication, partnership and teamwork; Maintaining trust*. The specialty-specific syllabuses specify the knowledge, skills and performance required for different stages of training and have patient safety as their principal consideration. The professional behaviour and leadership skills syllabus specifies the standards for patient safety; communication, partnership and team-working and maintaining trust. The standards have been informed by the Academy Common Competency Framework and the Academy and NHS Leadership Competency Framework.

Curriculum assessment runs throughout training as illustrated in the Assessment Framework (PDF: 16kb) and is common to all disciplines of surgery.

Types of assessment

Assessments can be categorised as *for* learning or *of* learning, although there is a link between the two.

Assessment *for* Learning - is primarily aimed at aiding learning through constructive feedback that identifies areas for development. Alternative terms are Formative or Low-stakes assessment. Lower reliability is acceptable for individual assessments as they can and should be repeated frequently. This increases their reliability and helps to document progress. Such assessments are ideally undertaken in the workplace.

Assessments for learning are used in the curriculum as part of a developmental or on-going teaching and learning process and mainly comprise workplace-based assessments. They provide the trainee with educational feedback from skilled clinicians that should result in reflection on practice and an improvement in the quality of care. Assessments are collated in the trainee's learning portfolio. These are regularly reviewed during each placement, providing evidence that inform the judgement of the Assigned Educational Supervisors' (AES) reports to the Training Programme Director and the Annual Review of Competence Progression (ARCP). Assessments for learning therefore contribute to summative judgements of the trainee's progress.

Assessment *of* Learning - is primarily aimed at determining a level of competence to permit progression through training or for certification. Such assessments are undertaken infrequently (e.g. examinations) and must have high reliability as they often form the basis of decisions. Alternative terms are summative or high-stakes assessments [GMC].

Assessments of learning in the curriculum are focussed on the waypoints in the specialty syllabuses. For the most part these comprise the examinations and structured AES end of placement reports which, taken in the round, cover the important elements of the syllabus and ensure that no gaps in achievement are allowed to develop. They are collated at the ARCP panel, which determines progress or otherwise.

The balance between the two assessment approaches principally relates to the relationship between competence and performance. Competence (can do) is necessary but not sufficient for performance (does), and as trainees' experience increases so performance-based assessment in the workplace becomes more important.

Assessment and feedback

Workplace Based Assessment (WBA)

The purpose of WBA

The primary purpose of WBA is to provide short loop feedback between trainers and their trainees – a formative assessment to support learning. They are designed to be mainly trainee driven but may be triggered or guided by the trainer. The number of types and intensity of each type of WPBA in any one assessment cycle will be initially determined by the Learning Agreement fashioned at the beginning of a training placement and regularly reviewed. The intensity may be altered to reflect progression and trainee need. For example a trainee in difficulty would undertake more frequent assessments above an agreed baseline for all trainees. In that sense WPBAs meet the criterion of being adaptive.

WBAs are designed to:

- **Provide feedback to trainers and trainees as part of the learning cycle**

The most important use of the workplace-based assessments is in providing trainees with feedback that informs and develops their practice (formative). Each assessment is completed only for the purpose of providing meaningful feedback on one encounter. The assessments should be viewed as part of a process throughout training, enabling trainees to build on assessor feedback and chart their own progress. Trainees should complete more than the minimum number identified.

- **Provide formative guidance on practice**

Surgical trainees can use different methods to assess themselves against important criteria (especially that of clinical reasoning and decision-making) as they learn and perform practical tasks. The methods also encourage dialogue between the trainee and Assigned Educational Supervisor (AES), Clinical Supervisors (CS) and other trainers.

- **Encompass the assessment of skills, knowledge, behaviour and attitudes during day-to-day surgical practice**

WBA is trainee led; the trainee chooses the timing, the case and assessor under the guidance of the AES via the Learning Agreement. It is the trainee's responsibility to ensure completion of the required number of the agreed type of assessments by the end of each placement.

- **Provide a reference point on which current levels of competence can be compared with those at the end of a particular stage of training**

The primary aim is for trainees to use assessments throughout their training programmes to demonstrate their learning and development. At the start of a level it would be normal for trainees to have some assessments which are less than satisfactory because their performance is not yet at the standard for the completion of that level. In cases where assessments are less than satisfactory, trainees should repeat assessments as often as required to show progress.

- **Inform the AES's (summative) assessment at the completion of each placement**

Although the principal role of WBA is formative, the summary evidence will be used to inform the nnual review process and will contribute to the decision made as to how well the trainee is progressing.

- **Contribute towards a body of evidence held in the trainee's learning portfolio and be made available for the Annual Review of Competence Progression (ARCP)**

At the end of a period of training, the trainee's portfolio will be reviewed. The accumulation of formative assessments will be one of a range of indicators that inform the decision as to satisfactory completion of training at the ARCP.

Guidance on good practice use of the Workplace Based assessments (WBAs)

The assessment methods used are:

- CBD (Case Based Discussion)
- CEX (Clinical Evaluation Exercise)
- PBA (Procedure-based Assessment)
- DOPS (Direct Observation of Procedural Skills in Surgery)
- Multi Source Feedback (Peer Assessment Tool)
- Assessment of Audit
- Observation of Teaching

Assessment of Audit (AoA)

The AoA reviews a trainee's competence in completing an audit. Like all workplace-based assessments, it is intended to support reflective learning through structured feedback. It was adapted for surgery from an instrument originally developed and evaluated by the UK Royal Colleges of Physicians.

The assessment can be undertaken whenever an audit is presented or otherwise submitted for review. It is recommended that more than one assessor takes part in the assessment, and this may be any surgeon with experience appropriate to the process. Assessors do not need any prior knowledge of the trainee or their performance to date, nor do the assessors need to be the trainee's current Assigned Educational Supervisor.

Verbal feedback should be given immediately after the assessment and should take no more than 5 minutes to provide. A summary of the feedback with any action points should be recorded on the Assessment of Audit form and uploaded into the trainee's portfolio.

The Assessment of Audit guidance notes provide a breakdown of competences evaluated by this method.

Case Based Discussion (CBD)

The CBD was originally developed for the Foundation training period and was contextualised to the surgical environment. The method is designed to assess clinical judgement, decision-making and the application of medical knowledge in relation to patient care in cases for which the trainee has been directly responsible. The method is particularly designed to test higher order thinking and synthesis as it allows assessors to explore deeper understanding of how trainees compile, prioritise and apply knowledge. The CBD is not focused on the trainees' ability to make a diagnosis nor is it a viva-style assessment. The CBD should be linked to the trainee's reflective practice.

The CBD process is a structured, in-depth discussion between the trainee and the trainee's assessor (normally the Assigned Educational Supervisor) about how a clinical case was managed by the trainee; talking through what occurred, considerations and reasons for actions. By using clinical cases that offer a challenge to the trainee, rather than routine cases, the trainee is able to explain the complexities involved and the reasoning behind choices they made. It also enables the discussion of the ethical and legal framework of practice. It uses patient records as the basis for dialogue, for systematic assessment and structured feedback. As the actual record is the focus for the discussion, the assessor can also evaluate the quality of record keeping and the presentation of cases.

Most assessments take no longer than 15-20 minutes. After completing the discussion and filling in the assessment form, the assessor should provide immediate feedback to the trainee. Feedback would normally take about 5 minutes.

Clinical Evaluation Exercise (CEX) and Clinical Evaluation Exercise for Consent (CEXC)

The CEX/C is a method of assessing skills essential to the provision of good clinical care and to facilitate feedback. It assesses the trainee's clinical and professional skills on the ward, on ward rounds, in Accident and Emergency or in outpatient clinics. It was designed originally by the American Board of Internal Medicine and was contextualised to the surgical environment.

Trainees will be assessed on different clinical problems that they encounter from within the curriculum in a range of clinical settings. Trainees are encouraged to choose a different assessor for each assessment but one of the assessors must be the trainee's current Assigned Educational Supervisor. Each assessor must have expertise in the clinical problem.

The assessment involves observing the trainee interact with a patient in a clinical encounter. The areas of competence covered include: consent (CEXC), history taking, physical examination, professionalism, clinical judgement, communication skills, organisation/efficiency and overall clinical care. Most encounters should take between 15-20 minutes.

Assessors do not need to have prior knowledge of the trainee. The assessor's evaluation is recorded on a structured form that enables the assessor to provide developmental verbal feedback to the trainee immediately after the encounter. Feedback would normally take about 5 minutes.

Direct Observation of Procedural Skills (DOPS)

The DOPS is used to assess the trainee's technical, operative and professional skills in a range of basic diagnostic and interventional procedures, or parts of procedures, during routine surgical practice in order to facilitate developmental feedback. The method is a surgical version of an assessment tool originally developed and evaluated by the UK Royal Colleges of Physicians.

The DOPS is used in simpler environments and can take place in wards or outpatient clinics as well as in the operating theatre. DOPS is set at the standard for Core Surgical Training (CT1/ST1 and CT2/ST2) although some specialties may also use specialty level DOPS in higher specialty training.

The DOPS form can be used routinely every time the trainer supervises a trainee carrying out one of the specified procedures, with the aim of making the assessment part of routine surgical training practice. The procedures reflect the index procedures in each specialty syllabus which are routinely carried out in the trainees' workplace.

The assessment involves an assessor observing the trainee perform a practical procedure within the workplace. Assessors do not need to have prior knowledge of the trainee. The assessor's evaluation is recorded on a structured form that enables the assessor to provide verbal developmental feedback to the trainee immediately afterwards. Trainees are encouraged to choose a different assessor for each assessment but one of the assessors must be the current Assigned Educational Supervisor. Most procedures take no longer than 15-20 minutes. The assessor will provide immediate feedback to the trainee after completing the observation and evaluation. Feedback would normally take about 5 minutes.

The DOPS form is completed for the purpose of providing feedback to the trainee. The overall rating on any one assessment can only be completed if the entire procedure is observed. A judgement will be made on completion of the placement about the overall level of performance achieved in each of the assessed surgical procedures

Multi-Source Feedback (MSF)

Surgical trainees work as part of a multi-professional team with other people who have complementary skills. Trainees are expected to understand the range of roles and expertise of team members in order to communicate effectively to achieve high quality service for patients. The MSF, also known as peer and 360° assessment, is a method of assessing professional competence within a team-working environment and providing developmental feedback to the trainee.

Trainees should complete the MSF once a year. The trainee's Assigned Educational Supervisor (AES) may request further assessments if there are areas of concern at any time during training.

The MSF comprises a self-assessment and assessments of a trainee's performance from a range of co-workers. It uses up to 12 raters with a minimum of 8. Raters are chosen by the trainee and will always include the AES and a range of colleagues covering different grades and environments (e.g. ward, theatre, outpatients) but not patients.

The MSF process should be started in time for raters to submit their online assessments and the generation of the trainee's personalised feedback for discussion with the AES before the end of the placement, and for a further MSF to be performed before the end of the training year, if required. The MSF should, therefore, be undertaken:

- in the 3rd month of the first four-month placement in a training year
- in the 5th month of the first six-month placement in a training year
- in the 5th month of a one-year placement

The competences map across to the standards of Good Medical Practice and to the core objectives of the ISCP. The method enables serious concerns, such as those about a trainee's probity and health, to be highlighted in confidence to the AES, enabling appropriate action to be taken.

Feedback is in the form of a peer assessment chart that enables comparison of the self-assessment with the collated views received from co-workers for each of the 16 competences including a global rating, on a 3-point scale. Trainees are not given access to individual assessments, however, raters' written comments are listed verbatim. The AES should meet with the trainee to discuss the feedback on performance in the MSF. The AES makes comments and signs off the trainee's MSF assessment and can also recommend a repeat MSF.

Observation of Teaching (OoT)

The OoT provides formative feedback to trainees as part of the on-going culture of reflective learning that workplace-based assessment seeks to develop. It was adapted from the Teaching Observation Tool developed by the Joint Royal Colleges of Physicians' Training Board (JRCPTB) for use in surgery. It assesses instances of formal teaching delivered by the trainee as and when they arise.

The form is intended for used when teaching by a trainee is directly observed by the assessor. This must be in a formal situation where others are gathered specifically to learn from the speaker, and does not include bedside teaching or other occasions of teaching in the presence of a patient. Assessors may be any surgeon with suitable experience to review the teaching event; it is likely that these will be consultants for trainees in higher specialty levels.

Possible areas for consideration to aid assessment and evaluation are included in the guidance notes below. It should be noted that these are suggestions for when considering comments and observations rather than mandatory competences.

Procedure Based Assessment

The PBA assesses the trainee's technical, operative and professional skills in a range of specialty procedures or parts of procedures during routine surgical practice up to the level of certification. PBAs provide a framework to assess practice and facilitate feedback in order to direct learning. The PBA was originally developed by the Orthopaedic Competence Assessment Project (OCAP) for Trauma and Orthopaedic surgery and was further developed by the Specialty Advisory Committees for surgery for use in all the surgical specialties.

The assessment method uses two principal components:

- A series of competences within 5 domains. Most of the competences are common to all procedures, but a relatively small number of competences within certain domains are specific to a particular procedure.
- A global assessment that is divided into 8 levels of global rating. The highest rating is the ability to perform the procedure to the standard expected of a specialist in practice within the NHS (the level required for certification or equivalent).

The assessment form is supported by a worksheet consisting of descriptors outlining desirable and undesirable behaviours that assist the assessor in deciding whether or not the trainee has reached a satisfactory standard for certification, on the occasion observed, or requires development.

The procedures chosen should be representative of those that the trainee would normally carry out at that training level and will be one of an indicative list of index procedures relevant to the specialty. The trainee generally chooses the timing and makes the arrangements with the assessor. The assessor will normally be the trainee's, Clinical Supervisor or another surgical consultant trainer. One of the assessors must be the trainee's current Assigned Educational Supervisor. Some PBAs may be assessed by senior trainees depending upon their level of training and the complexity of the procedure. Trainees are encouraged to request assessments on as many procedures as possible with a range of different assessors.

Assessors do not need to have prior knowledge of the trainee. The assessor will observe the trainee undertaking the agreed sections of the PBA in the normal course of workplace activity (usually scrubbed). Given the priority of patient care, the assessor must choose the appropriate level of supervision depending on the trainee's stage of training. Trainees will carry out the procedure, explaining what they intend to do throughout. The assessor will provide verbal prompts, if required, and intervene if patient safety is at risk.

The practicalities of Workplace Based Assessment

Introduction

'I have no time to do this'

The clips located here are intended to illustrate the utility and versatility of the work based assessment tools (WPBA). They show that no more than ten minutes are required for any of these tools to be used meaningfully. They can be undertaken as a planned or as an opportunistic exercise. Any interaction with a trainee and trainer can be converted into a learning opportunity and then be evidenced for the benefit of the trainee and trainer as a WPBA.

The primary purpose of workplace-based assessments is for learning through constructive short loop feedback between trainers and their trainees that identifies areas for development. Collectively they are used as part of the Annual Review of Competence Progression (ARCP) which is a summative process. However, individually the tools are designed to develop trainees and are formative assessment tools which can:

- Trigger conversations between trainee and trainer;
- Enable observation and discussion of clinical practice;
- Record good practice and outline areas for development of knowledge, skills, judgement and professional behaviour;
- Formulate action plans for development;
- Enable trainees to analyse pattern recognition.

The tools are **not** intended to:

- Score trainees;
- Summate progress globally;
- Predict future performance;
- Be completed without a face to face feedback conversation.

These assessments can be divided into:

1. Observational tools

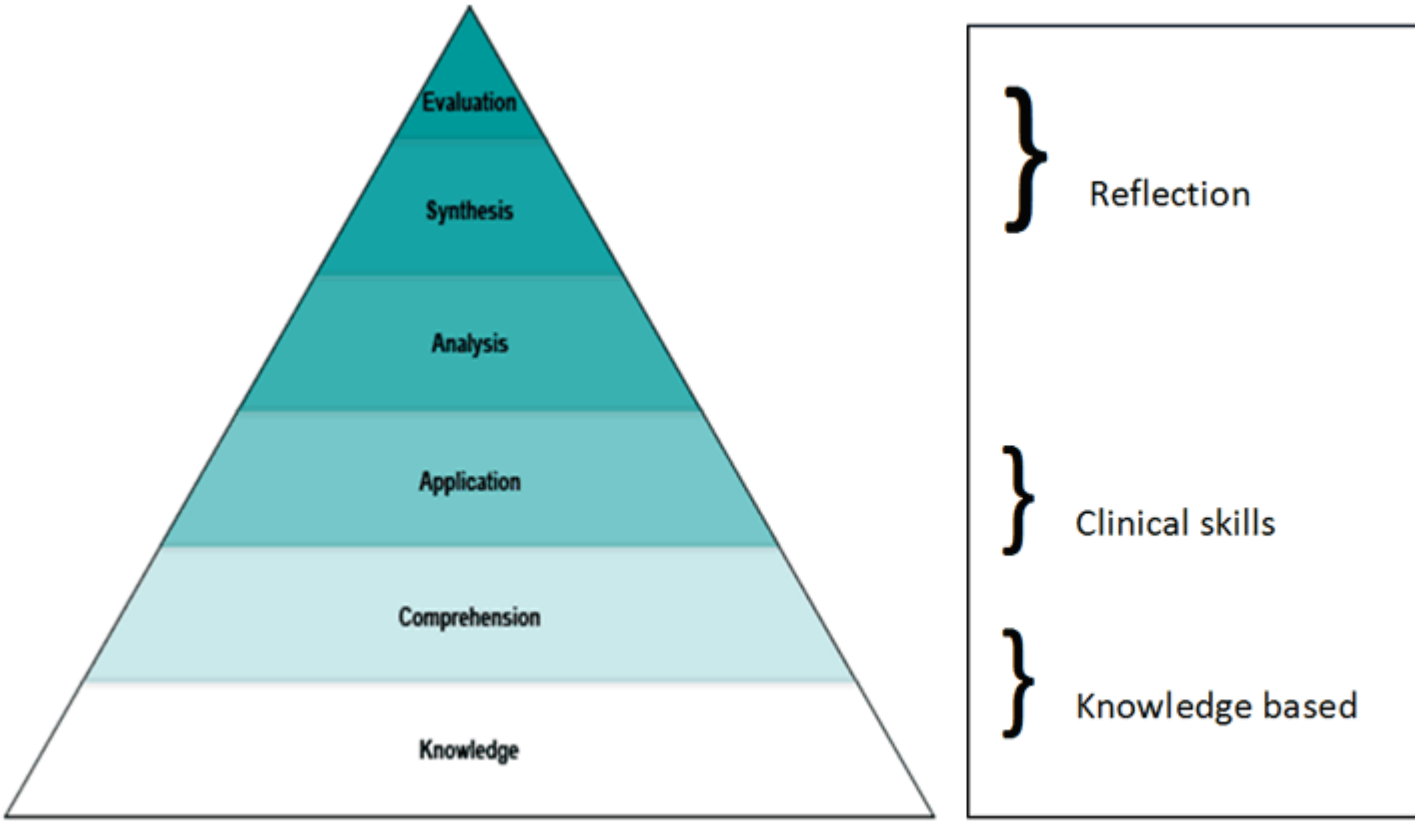
The purpose of the CEX, DOPS and PBA tools is to encourage trainee practice within a supported environment, followed by a developmental conversation (feedback) to identify elements of good practice and areas for development. Such development should be discussed in terms of follow up actions that will extend the trainee's technical proficiency and clinical skills.

2. Discussion tools

The CBD can record any conversation that reviews a trainee's practice or their thoughts about practice. From an office based, time protected tutorial to the short conversation that happens in the theatre coffee room, or even the corridor, a CBD allows trainers to explore the thinking of their trainees, and to share understanding and professional thinking.

CBDs focus on knowledge and understanding and occur at different levels of Bloom's taxonomy (see figure below). A CBD that looks at knowledge addresses the knowledge base of the trainee e.g. a trainee might be asked for the classification of shock. The trainer could take the discussion beyond the classification to look at how that knowledge relates to the understanding of the patient's condition and the symptoms manifested by the patient. Application relates to the use of knowledge and understanding in practice and so the trainee may be asked to consider the possible treatment options for that patient. Analysis and synthesis are higher order levels of the thinking or cognitive function and CBDs that look at a situation reflectively, to break it down and consider what elements helped or hindered patient care, can be invaluable to trainees in reviewing and making sense of their experiences and in extending their critical thinking. At the evaluation level trainees may well be engaging in discussions that relate to service improvement and changes in practice at a group level rather than an individual one.

Blooms Taxonomy



3. Insight tools

The Multi Source Feedback collects the trainee's self-assessment together with the subjective views of the trainee from a specified range of colleagues (consultants, specialty doctors, senior nurses and other healthcare providers.) The benefit of the MSF lies in the conversation between trainer and trainee to review and discuss the overview of the collated comments.

Practicalities

Trainers are under the pressure of training multiple trainees all at differing levels of competence and therefore with different training needs. EWTR and the constraints of managing a service as well as training require that we use our time smarter rather than working longer hours for both trainees and trainers. One educational opportunity whether in an operating theatre, on call or in a clinic can be developed into a targeted learning opportunity for individual but also multiple trainees.

The following videos will demonstrate how one case can:

1. allow targeted learning for multiple trainees
2. be alongside our normal surgical practice
3. make use of wastage time during our surgical practice
4. produce multiple items of evidence of trainee development for their portfolio

Each scenario demonstrated ensures that:

1. **Although the trainer facilitates the discussion, the recording of the case is undertaken by the trainee**
2. **Each discussion concludes with an action plan that tasks the trainee with further development**

Observational Tools

The purpose of the CEX, DOPS and PBA tools is to encourage trainee practice within a supported environment, followed by a developmental conversation (feedback) to identify elements of good practice and areas for development. Such development should be discussed in terms of follow up actions that will extend the trainee's technical proficiency and clinical skills.

The following clips demonstrate the versatility of surgical practice. An operation can be divided into several stages all of which can be used to develop trainees at differing levels of competence as well as developing teaching and training skills in the more senior trainees. The clips also demonstrate the use of DOPS and PBAs within a surgical team.

PBA/DOPS

Here a consultant is asked to provide feedback to two trainees on their DOPS (insertion of a catheter) and a PBA (laparoscopic port insertion) before the procedure begins and so this is trainee triggered. It is also possible that a list is designated as a training list and therefore all cases can be used in this way. It is important that trainees or trainers request that such tools be used prior to the procedure. DOPS, PBAs and CEXs are all observational tools and so if the observer is not aware that they are required to observe and provide feedback until after the event the quality of the observation and feedback will be compromised. Note that the consultant requested that the forms be available for her to use whilst observing and providing feedback to the trainees. This is to guide her in her evaluation and also to record comments for the trainees to document subsequently on the ISCP web-based forms.

The following clips are the discussions that occur in the coffee room after completing a laparoscopic cholecystectomy for a FY2, CTI and ST3.

Discussion Tools

The CBD can record any conversation that reviews a trainee's practice or their thoughts about practice. From an office based, time protected tutorial to the short conversation that happens in the theatre coffee room, or even the corridor, CBD allows trainers to explore the thinking of their trainees, and to share understanding and professional thinking.

CBDs that look at information are addressing the knowledge base of the trainee. This may be asking trainees for the classification of shock. A trainer could take the discussion beyond the classification to look at how that knowledge relates to the understanding of the patient's condition and the symptoms manifested by the patient. Application relates to the use of knowledge and understanding in practice and so the trainee may be asked to consider the possible treatment options for that patient. Analysis and synthesis are higher order levels of the thinking or cognitive function and CBDs that look at a situation reflectively, to break it down and consider what elements helped or hindered patient care, can be invaluable to trainees in reviewing and making sense of their experiences and in extending their critical thinking. At the evaluation level trainees may well be engaging in discussions that relate to service improvement and changes in practice at a group level rather than an individual one.

In the clips we see three CBDs focusing on the same case. The first looks at the knowledge base underpinning the case. The second looks at the clinical skills used by a CT2 - that is the application of knowledge and understanding. The third one looks at Reflection by the registrar involved in the case.

Overall Summary of case

A 23 year old man had arrived in Accident and Emergency (A&E) after being involved in a road traffic accident (RTA). He had been riding a bike and had been hit from the left hand side by a car, had got up and was shaken but sore. He was brought to A&E by ambulance and triaged by A&E. He was seen three hours later by the A&E SHO and fast tracked to SAU by a surgical CT1 at handover time. The incoming CT2 flagged him up as a case that should be reviewed by the Registrar on call. The CT2 had seen the patient in SAU as he had been transferred. Suspicious of a splenic injury with the clinical findings, he had requested a CT scan. The CT scan was carried out and was not reported for several hours. The patient was stable and so there was no real urgency but was discussed in the corridor with the consultant on call who had been angered by the clinical scenario and requested that the report be made readily available. The ST3 was busy on call and asked the CT2 to chase the report. Finally the scan result was available at 6pm just as the patient deteriorated and the ST3/ST5 was called urgently as blood pressure was falling. The patient needed urgent review and theatre that evening for a splenectomy. The procedure was carried out by an ST5 with consultant supervision.

Insight Tools

The Multi Source Feedback collects the trainee's self-assessment together with subjective views of the trainee from a specified range of colleagues (consultants, specialty doctors, senior nurses and other Health care providers.) The benefit of the MSF lies in the conversation between trainer and trainee to review and discuss the overview of the collated comments.

The Multi Source Feedback (previously known as Mini PAT) tool is used to provide a 360 degree range of feedback across a spectrum of professional domains which are closely related to the GMC duties of a good doctor. Trainees fill in their self-rating form and they ask a range of people for their ratings too, anonymously. When the data are collated electronically the Assigned Educational Supervisor will meet with the trainee to discuss the overview of the data.

The following two clips show two trainees, (played by the same actor) discussing their feedback with their Assigned Educational Supervisor.

In both clips the AES approaches the conversation in a similar way, explaining what she would like to discuss and then looking first at the strengths of the trainee and where these correlate to the strengths perceived by the other raters, before moving on to any developmental areas and finally compiling an action plan for further development.

Examinations

Examinations are held at two key stages: during initial training and towards the end of specialty training.

MRCS

The Membership Examination of the Surgical Royal Colleges of Great Britain and in Ireland (MRCS) is designed for candidates in the generality part of their specialty training. The purpose of the MRCS is to determine that trainees have acquired the knowledge, skills and attributes required for the completion of core training in surgery and, for trainees following the Intercollegiate Surgical Curriculum Programme, to determine their ability to progress to higher specialist training in surgery.
The MRCS examination has two parts: Part A (written paper) and Part B Objective Structured Clinical Examination (OSCE).

Part A (written paper)

Part A of the MRCS is a machine-marked, written examination using multiple-choice Single Best Answer and Extended Matching items. It is a four hour examination consisting of two papers, each of two hours' duration, taken on the same day. The papers cover generic surgical sciences and applied knowledge, including the core knowledge required in all surgical specialties as follows:

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

The marks for both papers are combined to give a total mark for Part A. To achieve a pass the candidate is required to demonstrate a minimum level of knowledge in each of the two papers in addition to achieving or exceeding the pass mark set for the combined total mark for Part A.

Part B (OSCE)

The Part B (OSCE) integrates basic surgical scientific knowledge and its application to clinical surgery. The purpose of the OSCE is to build on the test of knowledge encompassed in the Part A examination and test how candidates integrate their knowledge and apply it in clinically appropriate contexts using a series of stations reflecting elements of day-to-day clinical practice.

Further information can be obtained from www.intercollegiatemrcsexams.org.uk

DO-HNS and MRCS(ENT)

Otolaryngology trainees at CT1/2 level in ENT themed core surgical training posts should undertake Part A of the MRCS and the Part 2 (OSCE) of the Diploma in Otolaryngology – Head and Neck Surgery (DO-HNS) in order to acquire the Intercollegiate MRCS(ENT) Diploma. From August 2013, the MRCS(ENT) examination will be a formal exit requirement from Core Surgical Training for Otolaryngology trainees. It is also a mandatory requirement for entry into higher specialty training in ENT. The DO-HNS examination exists as a separate entity but is not a requirement for ST3 unless paired with the MRCS as explained above.

The purpose of the Diploma in Otolaryngology – Head and Neck Surgery (DO-HNS) is to test the breadth of knowledge, the clinical and communication skills and the professional attributes considered appropriate by the Colleges for a doctor intending to undertake practice within an otolaryngology department in a trainee position. It is also intended to provide a test for those who wish to practise within another medical specialty, but have an interest in the areas where that specialty interacts with the field of otolaryngology. It is also relevant for General Practitioners wishing to offer a service in minor ENT surgery.

FRCS

The Intercollegiate Specialty Examination (FRCS) is a summative assessment in each of the ten surgical specialties. It is a mandatory requirement for certification and entry to the Specialist Register. It forms part of the overall assessment system for UK and Irish surgical trainees who have participated in a formal surgical training programme leading to UK certification or a Certificate of Eligibility for Specialist Registration via the

Combined Programme (CESR CP) or, in the Republic of Ireland, a Certificate of Completion of Specialist Training (CCST).

Section 1 is a written test composed of two Multiple Choice Questions papers; Paper 1: Single Best Answer [SBA] and Paper 2: Extended Matching Items [EMI]. Candidates must meet the required standard in Section 1 in order to gain eligibility to proceed to Section 2.

Section 2 is the clinical component of the examination. It consists of a series of carefully designed and structured interviews on clinical topics, some being scenario-based and some being patient-based. Further information can be obtained from www.intercollegiate.org.uk

Feedback

All the assessments in the curriculum, both those *for* learning and *of* learning, include a feedback element. Workplace based assessments are designed to include immediate feedback for learning as part of two-way dialogue towards improving practice. Formal examinations provide limited feedback as part of the summative process. Assigned Educational Supervisors are able to provide further feedback to each of their trainees through the regular planned educational review and appraisal that features at the beginning, middle and end of each placement. Feedback is based on the evidence contained in the portfolio.

Educational feedback:

- Enhances the validity of the assessment and ensures trainees receive constructive criticism on their performance.
- Is given by skilled clinicians, thereby enhancing the learning process.

Constructive formative feedback should include three elements:

- An outline of the strengths the trainee displayed,
- Suggestions for development,
- Action plan for improvement.

Feedback is complemented by the trainee's reflection on his/her practice with the aim of improving the quality of care.

The Annual Review of Competence Progression (ARCP)

Purpose of the ARCP (adapted from the Gold Guide):

The ARCP is a formal Deanery/LETB process which scrutinises each surgical trainee's suitability to progress to the next stage of, or complete, the training programme. It follows on from the appraisal process and bases its recommendations on the evidence that has been gathered in the trainee's learning portfolio during the period between ARCP reviews. The ARCP records that the required curriculum competences and experience are being acquired, and that this is at an appropriate rate. It also provides a coherent record of a trainee's progress. The ARCP is not in itself an assessment exercise of clinical or professional competence.

The ARCP should normally be undertaken on at least an annual basis for all trainees in surgical training. Some Deaneries/Local Education and Training Boards (LETBs) plan to arrange two ARCPs each year in the early years of training. An ARCP panel may be convened more frequently if there is a need to deal with progression issues outside the normal schedule.

The surgical Specialty Advisory Committees (SACs) use the opportunity afforded, through their regional Liaison Member on the panel, to monitor the quality of training being delivered by the programme and/or its components.

Further information on this process can be found in the Reference Guide to Postgraduate Specialty Training in the UK.

Preparation for the ARCP

The trainee's learning portfolio provides the evidence of progress. It is the trainee's responsibility to ensure that the documentary evidence is complete in good time for the ARCP.

The SAC representatives on ARCP Panels will monitor trainees' progress throughout their training to assess whether they are on course to obtain certification or a Certificate of Eligibility for Specialist Registration via a Combine Programme; CESR(CP). Particular attention will be paid in the final two years of training to ensure that any remedial action can be taken, if necessary, to enable individual trainees to successfully complete their training.

The ARCP Panel

Please note that during the time of the panel meeting, members of an ARCP panel will have access to the portfolios of the trainees they review. Panel members are appointed by the Deanery/LETB and are likely to include the following:

- Postgraduate Dean / Associate Director / Associate Dean
- Training Programme Director
- Chair of the Specialty Training Committee
- College/Faculty representatives (e.g. liaison member from the surgical specialty SAC)
- Assigned Educational Supervisors (who have not been directly responsible for the trainee's placements)
- Associate Directors/Deans
- Academic representatives (for academic programmes, who have not been directly responsible for the trainee's placements)
- A representative from an employing authority
- Lay/patient representative
- External trainer
- Representative from an employing organisation

ARCP Outcomes

The ARCP panel will make one of the following recommendations about each trainee based on the evidence put before them:

Satisfactory progress

1. Achieving progress and competences at the expected rate

Unsatisfactory progress

2. Development of specific competences required – additional training time not required
3. Inadequate progress by the trainee – additional training time required
4. Released from training programme with or without specified competences

Insufficient evidence

5. Incomplete evidence presented – additional training time may be required

Recommendation for completion of the training programme (core or higher)

6. Gained all required competences for the programme

(Similar outcomes are made for those in Locum Appointment for Training (LAT) / Fixed-term Specialty Training Appointment (FTSTA) / Out of programme (OOP) and Top-up training).

The training system

Roles and responsibilities

Schools of Surgery/LETBs/Deaneries

Schools of Surgery or their equivalent have been created nationally within each Postgraduate Medical Deanery and/or Local Education and Training Board (LETB) and the Scottish Surgical Specialties Training Board (SSSTB) within NHS Education for Scotland (NES). They provide the structure for educational, corporate and financial governance and co-ordinate the educational, organisational and quality management activities of surgical training programmes. The Schools draw together the representatives and resources of Deaneries/LETBs/SSTB, JCST, trusts, NHS service providers and other relevant stakeholders in postgraduate medical education and training. They ensure the implementation of curricula and assessment methodologies with associated training requirements for educational supervision. In the Republic of Ireland, these roles are undertaken by the Medical Council, HSE National Doctors Training and Planning (NDTP) and the Royal College of Surgeons in Ireland (RCSI).

Who is Involved in training?

The key roles involved in teaching and learning are Training Programme director (TPD), Assigned Educational Supervisor (AES), Clinical Supervisor (CS), Assessor and Trainee.

Training Programme Director

The majority of Training Programme Directors (TPDs) manage specialty programmes; there are, however, a number TPDs who manage Core Surgical Training programmes TPD (CST).

TPDs are responsible for:

- Organising, managing and directing the training programmes, ensuring that the programmes meet curriculum requirements;
- Identifying and supporting local faculty (i.e. AES, CS) including organising their induction and training where necessary;
- Overseeing progress of individual trainees through the levels of the curriculum; ensuring that appropriate levels of supervision, training and support are in place;
- Helping the Postgraduate Dean and AES manage trainees who are running into difficulties by identifying remedial placements and resources where required;
- Working with delegated Specialty Advisory Committee (SAC) representatives (SAC Liaison Members) and College representatives (e.g. college tutors) to ensure that programmes deliver the specialty curriculum;
- Ensuring that Deanery/LETB administrative support are knowledgeable about curriculum delivery and are able to work with SACs, trainees and trainers;
- Administering and chairing the Annual Review of Competence Progression meetings (ARCP).

Assigned Educational Supervisor

Educational supervision is a fundamental conduit for delivering teaching and training in the NHS. It takes advantage of the experience, knowledge and skills of expert clinicians / consultant trainers and their familiarity with clinical situations. It ensures interaction between an experienced clinician and a trainee. This is the desired link between the past and the future of surgical practice, to guide and steer the learning process of the trainee. Clinical supervision is also vital to ensure patient safety and the high quality service of trainees. The curriculum requires trainees reaching the end of their training to demonstrate competence in clinical supervision before Certification. The Joint Committee on Surgical Training (JCST) also acknowledges that the process of gaining competence in supervision must start at an early stage in training with trainees supervising more junior trainees. The example set by the educational supervisor is the most powerful influence upon the standards of conduct and practice of a trainee.

In the UK, the GMC's plan for recognition and approval of trainers will take full effect from 31 July 2016. In addition to the GMC's statutory requirements for approval of GP trainers, postgraduate deans and medical

schools will formally recognise medical trainers who are named Assigned Educational Supervisors and named Clinical Supervisors.

The Assigned Educational Supervisor (AES) is responsible for between 1 and 4 trainees at any time. The number will depend on factors such as the size of the unit and the availability of support such as a Clinical Supervisors (CSs) or Clinical Tutors (CTs). The role of the Assigned Educational Supervisor is to:

- Have overall educational and supervisory responsibility for the trainee in a given placement;
- Ensure that an induction to the unit (where appropriate) has been carried out;
- Ensure that the trainee is familiar with the curriculum and assessment system relevant to the level/stage of training and undertakes it according to requirements;
- Ensure that the trainee has appropriate day-to-day supervision appropriate to their stage of training;
- Act as a mentor to the trainee and help with both professional and personal development;
- Agree a Learning Agreement, setting, agreeing, recording and monitoring the content and educational objectives of the placement;
- Discuss the trainee's progress with each trainer with whom a trainee spends a period of training and involve them in the formal report to the annual review process;
- Undertake regular formative/supportive appraisals with the trainee (typically one at the beginning, middle and end of a placement) and ensure that both parties agree to the outcome of these sessions and keep a written record;
- Ensure a record is kept in the portfolio of any serious incidents for concerns and how they have been resolved;
- Regularly inspect the trainee's learning portfolio and ensure that the trainee is making the necessary clinical and educational progress;
- Inform trainees of their progress and encourage trainees to discuss any deficiencies in the training programme, ensuring that records of such discussions are kept;
- Ensure patient safety in relation to trainee performance by the early recognition and management of those doctors in distress or difficulty;
- Keep the Training Programme Director informed of any significant problems that may affect the trainee's training;
- Provide an end of placement AES report for the Annual Review of Competence Progression (ARCP).

In order to become an AES, a trainer must be familiar with the curriculum and have a demonstrated an interest and ability in teaching, training, assessing and appraising. They must have appropriate access to teaching resources and time for training allocated to their job plan (approx. 0.25 PA per trainee). AESs must have undertaken training in a relevant Training the Trainers course/programme offered by an appropriate educational institution and must keep up-to-date with developments in training. They must have access to the support and advice of their senior colleagues regarding any issues related to teaching and training and to keep up-to-date with their own professional development.

Clinical Supervisor

Clinical supervisors (CS) are responsible for delivering teaching and training under the delegated authority of the AES. They:

- Carry out assessments as requested by the AES or the trainee. This will include delivering feedback to the trainee and validating assessments;
- Ensure patient safety in relation to trainee performance;
- Liaise closely with other colleagues, including the AES, regarding the progress and performance of the trainee with whom they are working during the placement;
- Keep the AES informed of any significant problems that may affect the trainee's training;
- Provide regular CS Reports which contribute to the AES's end of placement report for the ARCP.

The training of CSs should be similar to that of the AES.

Assessor

Assessors will carry out a range of assessments and provide feedback to the trainee and the AES, which will support judgements made about a trainee's overall performance. Assessments during training will usually be carried out by clinical supervisors (consultants) and other members of the surgical team, including (for the MSF). Those who are not medically qualified may also be tasked with this role.

Those carrying out assessments must be appropriately qualified in the relevant professional discipline and trained in the methodology of workplace based assessment (WBA). This does not apply to MSF raters.

Trainee

The trainee is required to take responsibility for his/her learning and to be proactive in initiating appointments to plan, undertake and receive feedback on learning opportunities. The trainee is responsible for ensuring that

- a Learning Agreement is carried out in each placement;
- opportunities to discuss progress are identified;
- assessments are undertaken and validated by assessors in good time;
- evidence is systematically recorded in the learning portfolio.

Teaching

The detail of clinical placements will be determined locally by Training Programme Directors (TPD). In order to provide sufficient teaching and learning opportunities, the placements need to be in units that:

- Are able to provide sufficient clinical resource;
- Have sufficient trainer capacity.

The JCST has developed a series of Quality Indicators (QIs) to help identify good and poor quality training placements. The QIs are measured through the JCST trainee survey.

The PDs and AESs define the parameters of practice and monitor the delivery of training to ensure that the trainee has exposure to:

- A sufficient range and number of cases in which to develop the necessary technical skills (according to the stage of training) and professional judgement (to know when to carry out the procedure and when to seek assistance);
- Managing the care of patients in the case of common conditions that are straightforward, patients who display well known variations to common conditions, and patients with ill-defined problems;
- Detailed feedback.

Development of professional practice can be supported by a wide variety of teaching and learning processes, including role modelling, coaching, mentoring, reflection, and the maximising of both formal and informal opportunities for the development of expertise on the job. Learning opportunities need to be related to changing patterns of healthcare delivery.

The training system

Training roles

Training roles will exist, with minor, locally agreed variation, in all Deaneries/LETBs/Schools and are a requirement of the ISCP.

In accordance with GMC and curriculum standards:

- There must be an adequate number of appropriately qualified and experienced staff in place to deliver an effective training programme.
- Trainers must have the time within their job plan to support the role.
- Subject areas of the curriculum must be taught by staff with relevant specialist expertise and knowledge.
- Individuals undertaking educational roles must undergo a formal programme of training and be subject to regular review.
- Training programmes should include practise exercises covering an understanding of the curriculum, workplace-based assessment methodology and how to give constructive feedback. They should also include equality and diversity training.

The main surgical training roles fall into one of two broad categories:

- Those to do with managing individual trainees (i.e. Clinical Supervisor, Assigned Educational Supervisor, Training Programme Director)
- Those to do with managing the system. Included within these roles would be important aspects such as the provision of common learning resources and quality control of the training being provided. Training Programme Directors would fall into this category.

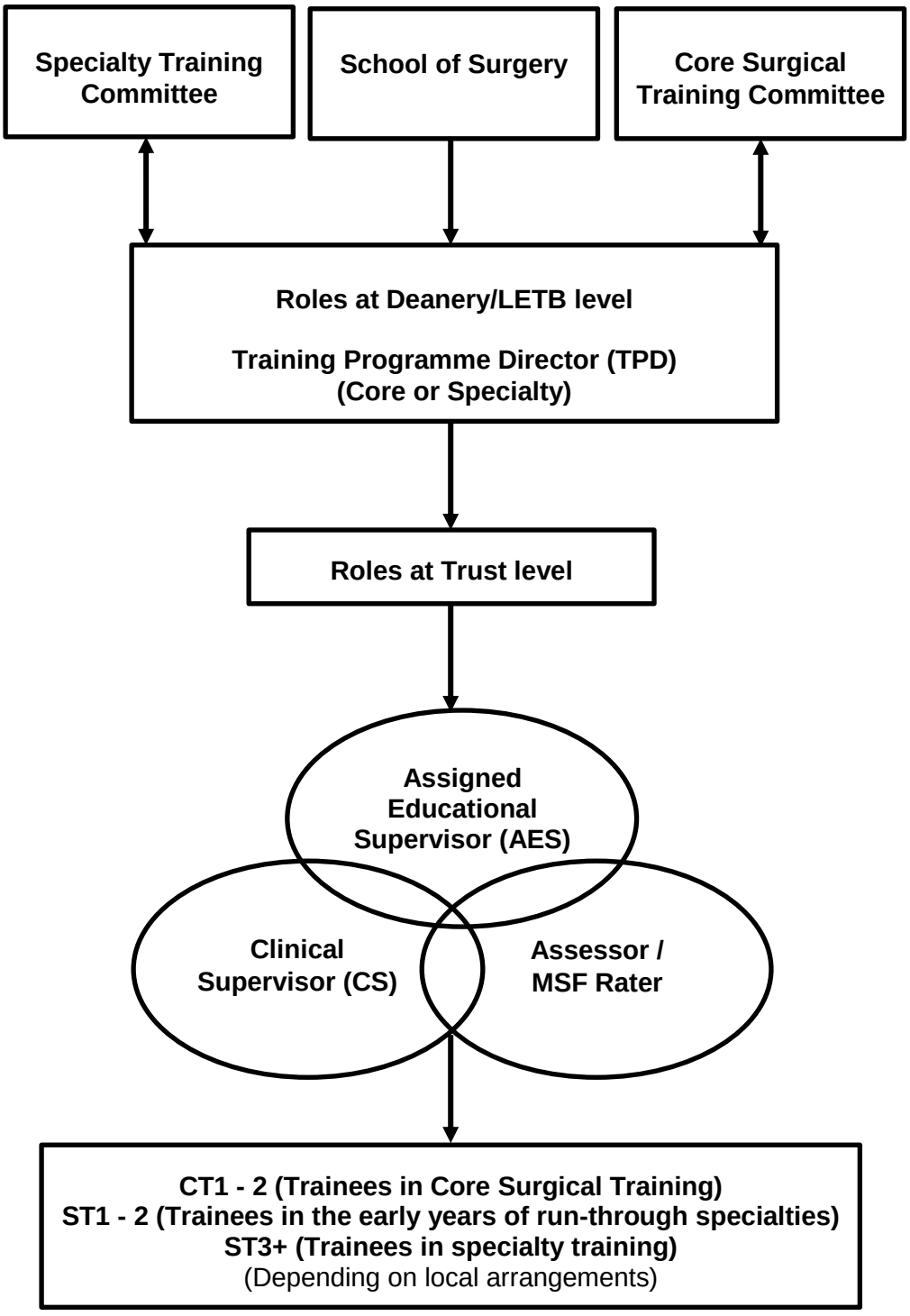
It may be entirely appropriate for a surgeon involved in training to hold more than one role (e.g. Assigned Educational Supervisor, Clinical Supervisor and Assessor) where the workload is manageable and the trainee continues to receive training input from several sources. The role of assessor is not intended to be used as a formal title, but describes a function that will be intrinsic to many of the roles described in the ISCP.

The ISCP requires adherence to a common nomenclature for the trainers who are working directly with the trainee and these are highlighted on the website. These roles are Training Programme Director (core surgical training or specialty training), Assigned Educational Supervisor, Clinical Supervisor, Trainee and Assessor. This is to support the interactive parts of the website, access levels etc. and it is strongly recommended that Deaneries/LETBs use the titles outlined here in the interests of uniformity.

There is great variation in the number of trainees being managed at the various levels within Deaneries/LETBs/Schools of Surgery. This is particularly the case during the early years of training. For this reason, many Deaneries/LETBs will find that the Training Programme Director roles may have to be subdivided. It is recommended that the suffix or prefix ‘deputy’ is used in conjunction with the main title rather than devising a completely new title. This will make clear the general area in which the surgeon is working and should help to avoid confusion.

Wherever possible these roles are harmonised with the Gold Guide but there may be minor variations in nomenclature and tasks that reflect the intercollegiate approach to surgical specialty training.

Training Governance Structure



Multi-professional team

The Training System

Quality assurance of the training system

The General Medical Council (GMC) has overall responsibility for the quality assurance of medical education and training in the UK, as outlined in its Quality Improvement Framework (QIF) but it delegates some responsibility in this respect to the Postgraduate Medical Deaneries and/or Local Education and Training Boards (LETBs) and their Schools of Surgery, the Joint Committee on Surgical Training (JCST) and Local Education Providers (LEPs). In the Republic of Ireland, these roles are undertaken by the Medical Council (MC) and by the Royal College of Surgeons in Ireland (RCSI).

Deaneries and LETBs are responsible for the quality management of training programmes and posts and must implement processes to ensure training within their region meets national standards and is implemented in accordance with the GMC-approved curricula. LEPs deliver training and are responsible for its quality control. In the Republic of Ireland, this is overseen by the MC and the RSCI.

As part of its role in the quality management of surgical training, the JCST has developed its own quality assurance strategy based upon its quality indicators, trainee surveys, Certification Guidelines and the annual specialty report. For more information on the quality assurance of surgical training, please visit the Quality assurance page on the JCST website.

Quality Indicators

- The JCST, in conjunction with the Schools of Surgery, has developed a series of quality indicators (QIs) in order to assess the quality of surgical training placements in each of the surgical specialties and at core level.
- The QIs, which are measured through the JCST trainee survey, enable good and poor quality training placements to be identified so appropriate action may be taken.

The QIs for each surgical specialty and core surgical training are available to download from the JCST Quality Indicators page of the JCST website.

JCST trainee survey

- The JCST launched the trainee survey in November 2011, which was developed in conjunction with the Schools of Surgery.
- The survey is run through the ISCP website and trainees are notified through their ISCP account of when they should complete it. This should be towards the end of each placement and prior to their ARCP.
- Confirmation of completion of all relevant surveys will be part of the evidence assessed at the trainees' ARCP.

For more information on the trainee survey, please visit the JCST Trainee Survey page of the JCST website.

Certification Guidelines

- Each SAC has produced a series of guidelines to identify what trainees applying for Certification will normally be expected to have achieved during their training programme. The guidelines cover such aspects of training as: clinical and operative experience; operative competency; research; quality improvement; and management and leadership.
- Trainees and trainers should use the guidelines to inform decisions about the experiences that trainees need to gain during their 5/6 year programme.
- Trainees will be monitored against the guidelines throughout their training programmes to ensure they are receiving appropriate exposure to all aspects of training.

For more information and to download a copy of the guidelines for each specialty, please visit the Certification Guidelines page of the JCST website.

Annual Specialty Report

The JCST submits an Annual Specialty Report (ASR) to the GMC to provide both a national overview of the status of surgical training and an update on any major developments.

For more information on the ASR, please visit the GMC Quality Improvement Framework (QIF) page.

Teaching and Learning

Principles of surgical education

The balance between didactic teaching and learning in clinical practice will change as the trainee progresses through the training programme, with the former decreasing and the latter increasing.

A number of people from a range of professional groups will be involved in teaching. In accordance with GMC standards, subject areas of the curriculum must be taught by staff with relevant specialist expertise and knowledge. Specialist skills and knowledge are usually taught by consultants and more advanced trainees; whereas the more generic aspects of practice can also be taught by the wider multi-disciplinary team. The Assigned Educational Supervisor (AES) is key as he/she agrees with each trainee how he/she can best achieve his or her learning objectives within a placement.

Establishing a learning partnership creates the professional relationship between the teacher (AES, CS or assessor) and the learner (trainee) that is essential to the success of the teaching and learning programme.

The learning partnership is enhanced when:

- The teacher understands:
    - Educational principles, values and practices and has been appropriately trained;
    - The role of professional behaviour, judgement, leadership and team-working in the trainee's learning process;
    - The specialty component of the curriculum;
    - Assessment theory and methods.
- The learner:
    - Understands how to learn in the clinical practice setting, recognising that everything they see and do is educational;
    - Recognises that although observation has a key role to play in learning, action (doing) is essential;
    - Is able to translate theoretical knowledge into surgical practice and link surgical practice with the relevant theoretical context.
    - Uses reflection to improve and develop practice (see self-directed learning);
- There is on-going dialogue in the clinical setting between teacher and the learner;
- There are adequate resources to provide essential equipment and facilities;
- There is adequate time for teaching and learning.

Trainee-led learning

The ISCP encourages a learning partnership between the trainee and AES in which learning is trainee-led and trainer-guided. Trainees are expected to take a proactive approach to learning and development and towards working as a member of a multi-professional team. Trainees are responsible for:

- Utilising opportunities for learning throughout their training;
- Triggering assessments and appraisal meetings with their trainers, identifying areas for observation and feedback throughout placements;
- Maintaining an up to date learning portfolio;
- Undertaking self and peer assessment;
- Undertaking regular reflective practice.

Learning opportunities

There are many learning opportunities available to trainees to enable them to develop their knowledge, clinical and professional judgement, technical and operative ability and conduct as a member of the profession of surgery. The opportunities broadly divide into three areas:

- Learning from practice otherwise known as learning on-the-job or in the workplace. This can be informal and opportunistic or planned and structured
- Learning from formal situations

- Self-directed learning

Learning from practice

The workplace provides learning opportunities on a daily basis for surgical trainees, based on what they see and what they do. Whilst in the workplace, trainees will be involved in supervised clinical practice, primarily in a hospital environment in wards, clinics or theatre. The trainees' role in these contexts will determine the nature of the learning experience.

Learning will start with observation of a trainer (not necessarily a doctor) and will progress to assisting a trainer; the trainer assisting/supervising the trainee and then the trainee managing a case independently but with access to expert help. The level of supervision will decrease and the level of complexity of cases will increase as trainees become proficient in the appropriate technical skills and are able to demonstrate satisfactory professional judgement. Continuous systematic feedback, both formal and informal, and reflection on practice are integral to learning from practice, and will be assisted by assessments for learning (formative assessment methods) such as surgical Direct Observation of Procedural Skills in Surgery (DOPS), Procedure Based Assessment (PBA), Clinical Evaluation Exercise (CEX) and Case Based Discussion (CBD), each of which has been developed for the purpose.

Trainees are required to keep a surgical logbook to support the assessment of operative skills, using corresponding supervision levels:

Assisting (A):

The trainer completes the procedure from start to finish
The trainee performs the approach and closure of the wound
The trainer performs the key components of the procedure

Supervised - trainer scrubbed (S-TS):

The trainee performs key components of the procedure (as defined in the relevant PBA) with the trainer scrubbed

Supervised - trainer unscrubbed (S-TU):

The trainee completes the procedure from start to finish
The trainer is unscrubbed and is:
- in the operating theatre throughout
- in the operating theatre suite and regularly enters the operating theatre during the procedure (70% of the duration of the procedure)

Performed (P):

The trainee completes the procedure from start to finish
The trainer is present for <70% of the duration of the procedure
The trainer is not in the operating theatre and is:
- scrubbed in the adjacent operating theatre
- not in the operating suite but is in the hospital

Training more junior trainee (T):

A non-consultant grade surgeon training a junior trainee

Observed (O):

Procedure observed by an unscrubbed trainee

In the Workplace – Informal

Surgical learning is largely experiential in its nature with any interaction in the workplace having the potential to become a learning episode. The curriculum encourages trainees to manage their learning and to reflect on practice. Trainees are encouraged to take advantage of clinical cases, audit and the opportunities to shadow peers and consultants.

In the Workplace - Planned and Structured

Theatre (training) lists

Training lists on selected patients enable trainees to develop their surgical skills and experience under supervision. The lists can be carried out in a range of settings, including day case theatres, main theatres endoscopy suites and minor injuries units.

Each surgical procedure can be considered an integrated learning experience and the formative workplace assessments provide feedback to the trainee on all aspects of their performance, from pre-operative planning and preparation, to the procedure itself and subsequent post-operative management.

The syllabus is designed to ensure that teaching is systematic and based on progression. The level of supervision will decrease and the level of complexity of cases will increase as trainees become proficient in the appropriate technical skills and are able to demonstrate satisfactory professional judgement. By Certification time trainees will have acquired the skills and judgement necessary to provide holistic care for patients normally presenting to their specialty and referral to other specialists as appropriate. Feedback on progress is facilitated by the DOPS and PBA.

Clinics (Out Patients)

Trainees build on clinical examination skills developed during the Foundation Programme. There is a progression from observing expert clinical practice in clinics to assessing patients themselves, under direct observation initially and then independently, and presenting their findings to the trainer. Trainees will assess new patients and will review/follow up existing patients.

Feedback on performance will be obtained primarily from the CEX and CBD workplace assessments together with informal feedback from trainers and reflective practice.

Ward Rounds (In Patient)

As in the other areas, trainees will have the opportunity to take responsibility for the care of in-patients appropriate to their level of training and need for supervision. The objective is to develop surgeons as effective communicators both with patients and with other members of the team. This will involve taking consent, adhering to protocols, pre-operative planning and preparation and post-operative management.

Progress will be assessed by MSF, CBD, CEX, DOPS and PBA.

Learning from formal situations

Work based practice is supplemented by an educational programme of courses, local postgraduate teaching sessions arranged by the Specialty Training Committees (STCs) or Schools of Surgery and regional, national and international meetings. Courses have a role at all levels, for example basic surgical skills courses using skills centres and specialty skills programmes. These focus on developing specific skills using models, tissue in skills labs and deceased donors as appropriate and are delivered by the colleges, specialty associations and locally by Deaneries/LETBs.

It is recognised that there is a clear and increasingly prominent role for off the job learning through specific intensive courses to meet specific learning goals. Trainees must show evidence that they have gained competence in the management of trauma through a valid certificate of the Advanced Trauma Life Support (ATLS®), Advanced Paediatric Life Support (APLS) or equivalent, at the completion of core training. In the

following specialties, trainees need to show that this certificate of competence is being maintained up to Certification.

- Neurosurgery
- Oral and Maxillofacial Surgery
- Paediatric Surgery (APLS)
- Plastic Surgery
- Trauma and Orthopaedic Surgery

Learning from simulation

Simulation in this context means any reproduction or approximation of a real event, process, or set of conditions or problems e.g. taking a history in clinic, performing a procedure or managing post-operative care. Trainees have the opportunity of learning in the same way as they would in the real situation but in a patient-safe environment. Simulation can be used for the development of both individuals and teams.

Simulation training is often classified as either high or low fidelity. The fidelity of simulation refers to how accurately or closely the simulation resembles the situation being reproduced. The realism of the simulation may reflect the environment in which simulation takes place, the instruments used or the emotional and behavioural features of the real situation. Simulation training does not necessarily depend on the use of expensive equipment or complex environments e.g. it may only require a suturing aid or a role play.

Simulation training has several purposes:
- supporting learning and keeping up to date;
- addressing specific learning needs;
- situational awareness of human factors which can influence people and their behaviour;
- enabling the refining or exploration of practice in a patient-safe environment;
- promoting the development of excellence;
- improving patient care.

The use of simulation in surgical training should be regarded as part of a blended approach to managing teaching and learning concurrent with supervised clinical practice. The use of simulation on its own cannot replace supervised clinical practice and experience or authorise a doctor to practice unsupervised.

Provision of feedback and performance debriefing are integral and essential parts of simulation-based training. Feedback can be assisted by workplace-based assessments and recorded in the learning portfolio. Simulation training should broadly follow the same pattern of learning opportunities offering insight into the development of technical skills, team-working, leadership, judgement and professionalism.

Self-directed learning

Self-directed learning is encouraged. Trainees are encouraged to establish study groups, journal clubs and conduct peer review; there will be opportunities for trainees to learn with peers at a local level through postgraduate teaching and discussion sessions; and nationally with examination preparation courses. Trainees are expected to undertake personal study in addition to formal and informal teaching. This will include using study materials and publications and reflective practice. Trainees are expected to use the developmental feedback they get from their trainers in appraisal meetings and from assessments to focus further research and practice.

Reflective practice is a very important part of self-directed learning and is a vital component of continuing professional development. It is an educational exercise that enables trainees to explore with rigour, the complexities and underpinning elements of their actions in surgical practice in order to refine and improve them.

Reflection in the oral form is very much an activity that surgeons engage in already and find it useful and developmental. Writing reflectively adds more to the oral process by deepening the understanding of surgeons about their practice. Written reflection offers different benefits to oral reflection which include: a record for later review, a reference point to demonstrate development and a starting point for shared discussion.

Some of this time will be taken as study leave. In addition there are the web based learning resources which are on the ISCP website and specialty association websites.

Supervision

In accordance with the requirements of Good Medical Practice, the ultimate responsibility for the quality of patient care and the quality of training lies with the supervisor. Supervision is designed to ensure the safety of the patient by encouraging safe and effective practice and professional conduct. The level of supervision will change in line with the trainee's progression through the stages of the curriculum, enabling trainees to develop independent learning. Those involved in the supervision of trainees must undertake appropriate training.

Trainees must be placed in approved posts that meet the required training and educational standards. Individual trusts must take responsibility for ensuring that clinical governance and health and safety standards are met.

Clinical Supervisors and other trainers must have the relevant qualifications, experience and training to undertake the role. There is an expectation that supervision and feedback are part of the on-going relationship between trainees and their trainers and assessors, and that it will take place informally on a daily basis.

The syllabus content details the level of knowledge, clinical, technical/operative and professional skills expected of a trainee at any given stage of training. The surgical logbook provides a record of the trainee's operative experience and supervision levels corresponding to the operative levels of: *Observed (O); Assisting (A); Supervised - trainer scrubbed (S-TS); Supervised - trainer unscrubbed (S-TU); Performed (P) and Training a more junior trainee (T).*

Trainees must work at a level commensurate with their experience and competence, and this should be explicitly set down by the Assigned Educational Supervisor in the Learning Agreement. There is a gradual reduction in the level of supervision required until the level of competence for independent practice is acquired.

In keeping with Good Medical Practice and Good Clinical Care, trainees have a responsibility to recognise and work within the limits of their professional competence and to consult with colleagues as appropriate. The development of good judgement in clinical practice is a key requirement of the curriculum. The content of the curriculum dealing with professional behaviour emphasises the responsibilities of the trainee to place the well-being and safety of patients above all other considerations. Throughout the curriculum, great emphasis is laid on the development of good judgement and this includes the ability to judge when to seek assistance and advice. Appropriate consultation with trainers and colleagues for advice and direct help is carefully monitored and assessed.

The Learning Agreement

The Learning Agreement is a written statement of the mutually agreed learning goals and strategies negotiated between a trainee (learner) and the trainee's Assigned Educational Supervisor (AES). It is agreed at the initial objective setting meeting and covers the period of the placement. The agreement is based on the learning needs of the individual trainee undertaking the learning as well as the formal requirements of the curriculum. The web-based Learning Agreement form is accessed through the secure area of the website and is completed on-line. The AES and trainee complete the Learning Agreement together and are guided by the Training Programme Director's (TPD's) Global Objective. A blank Learning Agreement Form (for illustrative purposes only) is available in the Help area of the website.

Training Programme Director's (TPD's) Global Objective

The TPD's global objective is a statement which the TPD can set for the trainee's training year, informing placement objectives. The broad global objectives, derived from the syllabuses, are included in the Learning Agreement and highlight what the trainee should achieve during a period that may encompass several placements. They normally cover the period between the annual reviews.

The global objective for early years training would normally cover the following components:

- Run-through programmes: the common surgical syllabus, specialty-specific competences in the chosen specialty and professional behaviour and leadership skills for the stage.
- Themed programmes: the common surgical syllabus, specialty-specific competences in a number of complementary specialties and professional behaviour and leadership skills for the stage.
- Un-themed, broad-based programmes: the common surgical syllabus, sampling of specialty-specific competences in a number of specialties (topping up in specific specialties later in the stage) and professional behaviour and leadership skills for the stage.

For those wishing to pursue an academic surgical career, a proportion of competences might emphasise additional academic pursuits including research and teaching.

Together, the global and placement objectives are the means used by the TPD, AES and trainee to ensure curriculum coverage.

The content of the Learning Agreement will be influenced by the:

- Requirements set by the surgical specialty in its syllabus for the stage of training;
- Learner's previous experience;
- Learner's knowledge and skills;
- Learner's personal aspirations set down in a Personal Development Plan;
- Local circumstances of the placement.

Although the Learning Agreement is a statement of expected outcomes there is equal emphasis on learning opportunities and how the outcomes can be met. Trainees use it to keep track of which objectives have been completed and which have not; AESs use it to set down the educational strategies that are suited to the experiential learning appropriate to the placement, to monitor progress and make a summative report to the annual review. TPDs use it to oversee the process and to ensure that the correct training is delivered appropriate to the achievement of learning outcomes.

Each stage in the process allows the trainee and the AES to make individual comments on the training and appraisal process and to sign it off. The trainee also has the right of appeal to the TPD through the process. The trainee will meet the AES at the start of each placement to agree the learning and development plan and at mid-point and end of placement to review and report on progress. The frequency of meetings can be increased if required. The Learning Agreement provides a mechanism for the trainee and AES to meet and discuss feedback and guidance.

Stages in the Learning Agreement

There are three stages to the Learning Agreement that should be completed in sequence: Objective Setting; Interim Review; and Final Review.

In the Objective Setting stage, the trainee and the AES:

- Agree the learning objectives for the placement according to the trainee's needs and the learning that can be delivered in the placement and with reference to the TPD's global objective;
- Identify learning opportunities in the workplace such as in theatre, ward, clinic and simulated settings;
- Agree on the workplace-based assessments that can be undertaken to obtain formative feedback and demonstrate progress matched to areas of the syllabus e.g. DOPS for central venous line insertion;
- Identify the resources required so that the trainee can achieve his/her learning objectives, for example, time in clinic and theatre, equipment, reflective practice, trainers;
- Identify formal learning opportunities, activities or events in the educational programme, that the trainee should attend e.g. seminars, presentations, peer reviews.
- Consider the examinations the trainee is required to take whilst in the placement and courses the trainee plans to attend.
- Consider opportunities for audit and quality improvement activities, research and other projects.

Once these aspects have been agreed, the trainee and the AES sign off the Learning Agreement.

Although the objective setting stage of the Learning Agreement is the agreed plan for the placement, it can be modified during training if circumstances change and this can be recorded during the interim or final review.

Interim Review occurs at the mid-point of the placement. This stage is encouraged even for 4-month placements to check that progress is in line with the placement objectives. In the event that difficulties are being experienced, focussed training and repeat assessments should be initiated. The objectives for progress and further action plans agreed at the meeting are recorded on the Interim Review form and are signed off by the trainee and AES.

Final Review occurs towards the end of the placement. The trainee and AES review what the trainee has learned in the placement against the placement objectives set down in the Learning Agreement. Evidence would typically include the following:

- Workplace-based assessments and feedback (these should occur frequently with a range of assessors)
- Surgical logbook
- Audit and quality improvement
- Courses and seminars
- Examinations
- Meetings and conferences
- Patient feedback
- Presentations and posters
- Projects
- Publications
- Reflective practice (includes self MSF, reflective CBD, reflections in the journal and workplace-based assessment)
- Research
- Teaching

Each tool captures elements of judgment in action and maps to standards of Good Medical Practice. Over the training period they reveal the trainee's particular strengths, areas for development and progress.

Assigned Educational Supervisor's Report: The AES is responsible for synthesising the portfolio evidence at the end of the placement. The process of judging the evidence also involves the Trainee's Clinical Supervisors. The AES's evidence-based report is written in terms of the trainee's progress and

specific learning outcomes and is facilitated by the learning portfolio. The report will be a key document for the Annual Review of Competence Progression (ARCP).

The TPD takes a holistic view of progress over the whole training period.

The Learning Portfolio

The trainee's portfolio has been designed to store evidence of the trainee's competence and fitness to practise. It serves as a repository of evidence that a trainee is progressing and meeting all the requirements of the curriculum. The portfolio is the vehicle used by the Annual Review of Competence Progression (ARCP) to recommend the trainee's continuing training or Certification.

The portfolio is organised into discrete sections, each designed to help trainees along the training pathway. The main sections of the portfolio include the Learning Agreement from each placement, reports from the trainee's Assigned Educational Supervisor (AES) and Clinical Supervisors (CSs); workplace-based assessment (WBA), a summary of the surgical logbook, other evidence of workplace activity and the ARCP.

The trainee is solely responsible for the contents of the portfolio both in terms of quality and veracity. Submission of information known to be false, if discovered, will have very serious consequences. All entries to the portfolio must respect the confidentiality of colleagues and patients and should not contain names or numbers to identify patients or staff. Portfolio evidence must be collected and documented systematically by the trainee as they progress through each placement.

Trainees must record all assessments that are conducted during the training period. WBA is considered to be formative and those that are of a less than satisfactory standard, if reflected upon appropriately, need not necessarily be seen as negative because they provide developmental feedback to drive learning and so improve practice. Where assessments have been unsatisfactory they should be repeated after focussed training until successful. The portfolio should enable the AES at the end of placement to assess the trainee in the round.

As part of the their professional obligations, trainees are also required to sign an educational contract which defines, in terms of education and training, their relationships, duties and obligations. It also makes explicit the basic framework the trainee can expect from each placement and what is expected by the AES in return. Statements of health and probity statement are also obligatory because doctors must have integrity and honesty and must take care of their own health and well-being so as not to put patients at risk.