ISCP INTERCOLLEGIATE SURGICAL CURRICULUM PROGRAMME

Plastic Surgery Curriculum

4 August 2021

THE INTERCOLLEGIATE
SURGICAL CURRICULUM PROGRAMME

Educating the surgeons of the future

Acknowledgements

Authors:

Mr Maniram Ragbir, Chair of the Specialty Advisory Committee (SAC) for Plastic Surgery

Mr Rob Winterton, SAC Curriculum Lead

Further acknowledgements:

Mr Simon Wood, SAC Chair (2015-2018) for initial advice and guidance

Edited by Dr Maria Bussey, Head of ISCP

You can also find the curriculum on the ISCP website at **www.iscp.ac.uk**

Table of Contents

1 Introduction

The curriculum provides the approved United Kingdom (UK) framework for the training of doctors to the level of independent consultant practice in Plastic Surgery, addressing the requirements of patients, the population and the strategic health services. The curriculum will also be followed for training in the Republic of Ireland. GMC approval of the curriculum pertains to UK training programmes while those in the Republic of Ireland are governed by the Royal College of Surgeons in Ireland (RCSI) and the Medical Council of Ireland.

2 Purpose

2.1 Purpose of the curriculum

The purpose of the curriculum for Plastic Surgery is to produce, at certification, competent doctors, able to deliver excellent outcomes for patients as consultant surgeons in the UK. The curriculum will provide consultant surgeons with the generic professional and specialty-specific capabilities needed to manage patients presenting with the full range of acute Plastic Surgery conditions up to the point of operation and to manage the full range of acute and elective conditions in the generality of Plastic Surgery, including the operation and post-operative care. Trainees will be entrusted to undertake the role of the general Plastic Surgery Registrar (StR) during training and will be qualified at certification to apply for consultant posts in Plastic Surgery in the UK and the Republic of Ireland.

Patient safety and competent practice are both essential and the curriculum has been designed so that the learning experience itself should not affect patient safety. Patient safety is the first priority of training demonstrated through safety-critical content, expected levels of performance, critical progression points, required breadth of experience and levels of trainer supervision needed for safe and professional practice. Upon satisfactory completion of training programmes, we expect trainees to be able to work safely and competently in the defined area of practice and to be able to manage or mitigate relevant risks effectively. A feature of the curriculum is that it promotes and encourages excellence through the setting of high-level outcomes, supervision levels for excellence, and tailored assessment and feedback, allowing trainees to progress at their own rate.

This purpose statement has been endorsed by the GMC's Curriculum Oversight group and confirmed as meeting the needs of the health services of the countries of the UK.

2.2 Rationale and development of a new curriculum

The *Shape of Training* (SoT) review[1] and *Excellence by design: Standards for postgraduate curricula*[2] provided an opportunity to reform postgraduate training to produce a workforce fit for the needs of patients, producing doctors who are more patient-focused, more general and who have more flexibility in their career structure. The GMC's introduction of updated standards for curricula and assessment processes laid out in *Excellence by Design* requires all medical curricula to be based on high-level outcomes. The high-level outcomes in this curriculum are called Capabilities in Practice (CiPs) and integrate parts of the syllabus to describe the professional tasks within the scope of specialty practice. At the centre of each of these groups of tasks are Generic

[1] Shape of training: Securing the future of excellent patient care

[2] Excellence by design: standards for postgraduate curricula

Professional Capabilities[3] (GPCs), interdependent essential capabilities that underpin professional medical practice and are common to all who practice medicine. The GPCs are in keeping with Good Medical Practice (GMP)[4]. Equipping all trainees with these transferable capabilities should result in a more flexible, adaptable workforce.

The curriculum will produce surgeons who are competent in elective and emergency general Plastic Surgery. This will provide clarity to employers / patients regarding the skills a surgeon will have at the time of appointment as a consultant. Plastic Surgery is the general surgery of soft tissue, cancers of the soft tissues and reconstruction. The advanced technical skills required to perform this surgery safely can be acquired through exposure to any of the broad areas of clinical application of these techniques (e.g. Cleft Lip and Palate Surgery, Hand and Upper Limb Surgery, Burns Surgery, Sarcoma Surgery and Head and Neck Surgery) and are transferable between areas of clinical application rather than being specific to an anatomical region. This ensures that the output of the Plastic Surgery curriculum will be general, transferable and flexible; trainees will be appointable to any Plastic Surgery post advertised, with the ability to focus their scope of practice if required by local services after appointment.

The curriculum takes account of and better supports the needs of patients and service providers. It has been developed in consultation with stakeholders, including trainees, trainers, employers, lay representatives and other groups, ensuring the development of a curriculum that is fair, flexible, non-discriminatory, fit for purpose today with the capacity to evolve in future iterations in response to changing needs of patients.

All trainees will develop a full range of emergency skills by certification in order to participate in the unselected adult and Plastic Surgery emergency take and provide continuity of care to this group of patients. They will be entrusted to undertake the role of the general Plastic Surgery StR throughout their training, and as part of that will be expected to look after patients in the pre-, peri-, and post-operative environments during training.

The curriculum allows ease of transfer into other surgical specialties following core surgical training and beyond. Plastic Surgery develops transferable technical skills to a high level: a trainee moving from Plastic Surgery to another specialty will have acquired many technical skills that are of value in any craft specialty destination.

The curriculum describes the clinical CiPs shared with other specialties in surgery supporting flexibility for trainees to move between the specialties in line with the recommendations set out in the GMC's report to the four UK governments[3]. The curriculum includes the GPCs common to all medical specialties, facilitating transferability of learning outcomes across other related specialties and disciplines. It will, therefore, be possible for trainees to transfer generic knowledge, clinical and surgical skills to another surgical specialty without restarting at CT1 level. Consequently, trainees will acquire generic skills which can be transferred to other surgical specialties, or to other non-surgical specialties. Trainees who choose a different career route may be able to have a shorter than usual training pathway in their new training programme, in recognition of learning already gained. This flexible approach with acquisition of transferable capabilities will allow training in Plastic Surgery to adapt to current and future patient and workforce needs as well as to changes in surgery with the advent of new treatments and technologies.

[3] Generic professional capabilities framework
[4] Good Medical Practice

2.3 The training pathway and duration of training

Trainees will enter Plastic Surgery training via a national selection process at ST3, or run-through training at ST1 after selection into academic training in Plastic Surgery. Trainees will learn in a variety of settings using a range of methods, including workplace-based experiential learning in a variety of environments, formal postgraduate teaching, simulation-based education and through self-directed learning.

Plastic Surgery training is outcome-based rather than time-based. However, it will normally be completed in an indicative time of six years (four years in phase 2 and two years in phase 3) for those entering training at ST3, and an indicative eight years for those entering via the ST1 academic programme (two years in phase 1 while following the core surgical training curriculum, on successful completion of which they will enter phase 2).

There will be options for those trainees who demonstrate exceptionally rapid development and acquisition of capabilities to complete training more rapidly than the current indicative time. There may also be a small number of trainees who develop more slowly and will require an extension of training in line with the Reference Guide for Postgraduate Specialty Training in the UK (the Gold Guide[5]).

Trainees who choose less than full time training (LTFT) will have the indicative training time extended pro-rata in accordance with the Gold Guide. LTFT trainees will perform both elective and out of hours duties pro-rata throughout the time of LTFT.

The programme will be divided into 3 phases:

Phase 1

Academic run-though trainees will spend an indicative initial two years of phase 1 following the core surgical training curriculum, with a minimum of a year spent in Plastic Surgery placements. There will then be a critical progression point, at which run-through trainees will have to demonstrate that they have satisfied the requirements of the core surgical training curriculum, passed the Intercollegiate Membership examination of the Royal Colleges of Surgeons (MRCS) and been awarded an outcome 1 at the Annual Review of Competence Progression (ARCP) at the end of the second year of training.

Phase 2

Most trainees will enter training in Plastic Surgery in phase 2 following successful completion of core surgical training or equivalent via a national selection process. Trainees will gain knowledge, clinical, professional and technical skills across the generality of Plastic Surgery. At the end of phase 2 there is a critical progression point at which trainees must be able to demonstrate competencies in knowledge, clinical skills and professional behaviours of a day-one consultant in the specialty and become eligible to sit the Intercollegiate Specialty Board (ISB) examination in Plastic Surgery. Technical skills, whilst well developed by the end of phase 2, will not have developed to the level expected for certification in the emergency and general elective competencies of the curriculum until the end of phase 3.

[5] Gold Guide 8th edition

Phase 3

Trainees will continue to develop technical skills in the elective and emergency aspects of Plastic Surgery to the level of a day-one consultant in the specialty. During phase 3 trainees will continue to be on the general Plastic Surgery on-call rota and will maintain responsibility for in-patients across the breadth of the specialty whilst on call.

During phase 3 it is expected that all of the trainee's time will be spent developing generic technical skills that are transferrable between special interest areas. Within this, the proportion of time spent within individual areas of special interest will vary according to local requirements of the service, opportunities within the training programme, and interests of the trainee. The Training Programme Director (TPD) would usually determine specialty interest allocations within any given region.

In this outcomes-based curriculum, some trainees may reach the end of phase 3 in less than the indicative time. On completion of phase 3, trainees will be eligible for certification and for recommendation to enter the specialist register. Trainees who do not meet the requirements of phase 3 within the indicative two years may require an extension of training time in accordance with the Gold Guide. The training pathway flowchart is shown below.

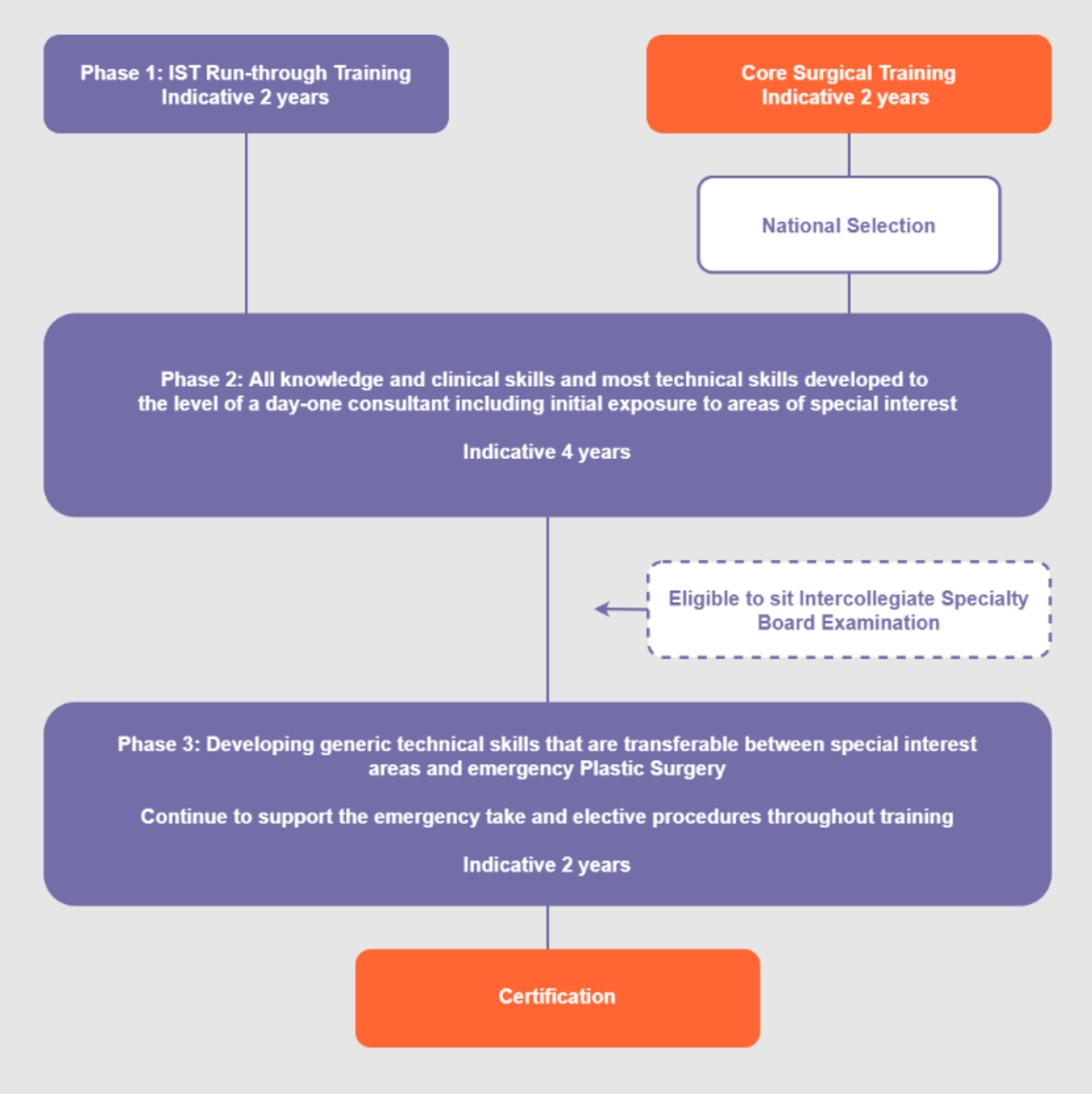


Figure 1: The training pathway

The day-one plastic surgeon will need to be able to work closely with the interdependent specialties to deliver whole patient care. The interdependent specialties are:

- Oral and Maxillofacial Surgery
- Otolaryngology
- Trauma and Orthopaedic Surgery
- General Surgery
- Vascular Surgery
- Neurosurgery
- Ophthalmology
- Cardiothoracic Surgery
- Gynaecology
- Dermatology

- Oncology
- Radiology
- Rehabilitation Medicine

3 Programme of Learning

This section covers the expected learning outcomes, learning methods, breadth of experience and levels of performance at critical progression points in the training programme and the levels of performance expected of those completing training.

3.1 What has to be learnt to complete the Plastic Surgery curriculum

The practice of Plastic Surgery requires the generic and specialty knowledge, clinical and technical skills and behaviours to manage patients presenting with the full range of emergency and elective conditions treated by Plastic Surgery in the UK. It involves development of competence in diagnostic reasoning, managing uncertainty, dealing with co-morbidities, and recognising when another specialty opinion or care is required (as well as developing technical skills in the areas and to the level described in the syllabus as shown in appendix 2). The main areas for learning are described by the CiPs which are the high-level learning outcomes for training in the specialty described below and shown in full in appendix 1.

3.2 Capabilities in Practice (the high-level outcomes of training)

Training is designed to produce a person capable of safely and effectively performing the role of a first day consultant surgeon. The role of a consultant surgeon can be thought of as a sum of all the various tasks which need to be performed through a working week. These tasks are the high-level outcomes of the curriculum and grouping these together describe the role of a consultant surgeon. To perform a high-level clinical task as a consultant surgeon requires trainees to be able to integrate areas of learning from all parts of the syllabus, including knowledge, clinical skills, professional skills and technical skills. In addition, a consultant surgeon will need to have acquired the generic skills, behaviours and values shared by all doctors in order to perform this task safely and well. A capability is a set of skills that can be developed through training from novice to expert and, therefore, these high-level clinical outcomes are known as Capabilities in Practice. They are common across all surgical specialties and are delivered within the context of the GPCs and the specialty syllabus.

There are five CiPs which are shared between all surgical specialties:

1. Manages an out-patient clinic
2. Manages the unselected emergency take
3. Manages ward rounds and the on-going care of in-patients
4. Manages an operating list
5. Manages multi-disciplinary working

In addition to these, the speciality-specific CiP is:

6. Safely assimilates new technologies and advancing techniques in the field of Plastic Surgery into practice

The generic knowledge, skills, behaviours and values shared by all doctors are described in the GPC framework. The GPCs are essential components and have equal weight to the CiPs in the training and assessment of clinical capabilities and responsibilities in the training programme.

The GPC framework has nine domains:

Domain 1: Professional values and behaviours

Domain 2: Professional skills

Practical skills
Communication and interpersonal skills
Dealing with complexity and uncertainty
Clinical skills

Domain 3: Professional knowledge

Professional requirements
National legislative requirements
The health service and healthcare system in the four countries

Domain 4: Capabilities in health promotion and illness prevention

Domain 5: Capabilities in leadership and team working

Domain 6: Capabilities in patient safety and quality improvement

Patient safety
Quality improvement

Domain 7: Capabilities in safeguarding vulnerable groups

Domain 8: Capabilities in education and training

Domain 9: Capabilities in research and scholarship

Simply put, the CiPs and GPCs are the constituent parts of the role of a consultant in Plastic Surgery. Each part is as important as the next, and doctors are required to be capable in all parts of the role in order to be able to practice independently. In order to complete training and be recommended to the GMC for certification and entry to the specialist register, the doctor must demonstrate that they are capable of unsupervised practice in all the CiPs and GPCs. For example, managing the unselected emergency take (CiP 2) requires the integration of knowledge, clinical and diagnostic skills and technical skills described in the syllabus as well as communication and interpersonal skills, time management skills and many other generic skills described in the GPCs in order to be delivered safely, professionally and effectively. This will be assessed using the Multiple Consultant Report (MCR) as described below. The full content of the six CiPs can be found in appendix 1.

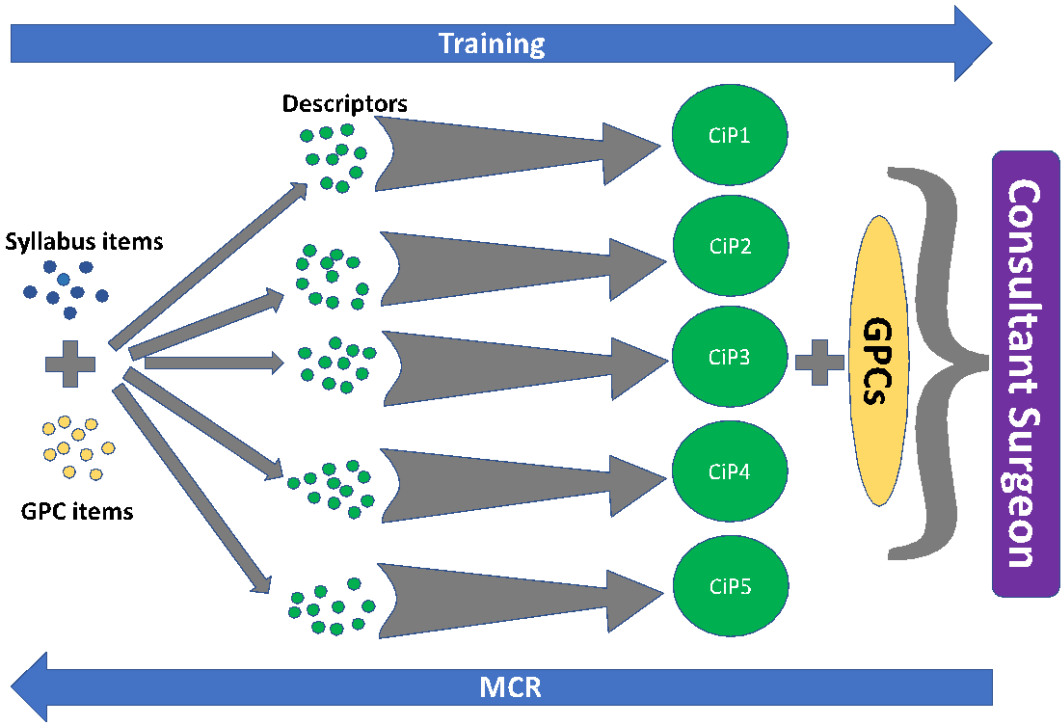


Figure 2- The interrelationship of the GPCs, the syllabus, the CiPs and their descriptors to the role of a consultant surgeon. Items from the syllabus are combined with items taken from the GPC framework to form the small tasks which are the CiP descriptors. When the small tasks of the descriptors are integrated they comprise the constituent parts of the role of a consultant surgeon (the CiPs). When the CiPs are taken together, along with the GPCs, the role of a consultant surgeon, the overall outcome of the curriculum, is described. Each of these CiPs will be developed through training until the level required of a day-one consultant is reached. Assessment in an outcomes-based curriculum through the MCR examines the trainee from the perspective of the outcome (a consultant surgeon), and compares performance in each CiP and in the GPCs to that level. If the outcome level is not reached then targeted feedback and development plans can be made with reference to the CiP descriptors and beyond to the syllabus items and GPC items that combine to form the descriptors.

3.3 Descriptors for CiPs

The six CiPs taken together describe the role of a consultant in Plastic Surgery but more detail is needed to help trainees develop that capability through training via detailed feedback and focused development goals.

We can break the CiPs down into smaller tasks. Each of these smaller tasks is a CiP descriptor. For example, managing the unselected emergency take (CiP 2), includes the need to promptly assess acutely unwell and deteriorating patients and deliver resuscitative treatment and initial management and ensure sepsis is recognised and treated in compliance with protocol (see appendix 1). If a trainee has not yet reached the level required of a new consultant in a CiP then the descriptors can be used to describe in standard language what needs to be improved through learning and training to allow the trainee to get closer towards the outcome of training. By describing the component parts of a CiP, descriptors also aid decisions on assessment of the level of supervision required by a trainee at the time of that assessment, providing prompts for feedback of performance by allowing identification of areas of excellence or specific detail on areas for development, including in behavioural and professional domains. Descriptors can,

therefore, help trainees identify where to focus their efforts to become competent and safe independent practitioners. More detail about assessment and feedback is given in section 5, Programme of Assessment.

Each CiP is judged against a scale that describes the level of supervision required to perform the CiP to the standard of certification. The level of supervision changes in line with the trainee's progression, consistent with safe and effective care for the patient. Typically, there should be a gradual reduction in the level of supervision required and an increase in the complexity of cases managed until the level of competence for independent practice is acquired. In the early years, therefore, it would be normal for trainees to achieve a lower supervision level and progress as experience is gained.

The supervision levels are:

Level I: Able to observe only
Level II: Able and trusted to act with direct supervision:
a) Supervisor present throughout
b) Supervisor present for part
Level III: Able and trusted to act with indirect supervision
Level IV: Able and trusted to act at the level expected of a day-one consultant
Level V: Able and trusted to act at a level beyond that expected of a day-one consultant

3.4 Critical progression points

The training pathway described above (figure 1) shows that after phase 1 all trainees will complete two further phases. There is a single critical progression point at the end of phase 2. To move from phase 2 to phase 3 trainees must demonstrate knowledge, clinical skills and professional behaviours commensurate with certification and, therefore, become eligible to sit the ISB examination in Plastic Surgery. Table 1 shows the indicative supervision levels to be achieved to complete phase 2 and the supervision level required by the end of phase 3. A trainee becomes eligible for certification when supervision level IV has been achieved in each of the shared and specialty-specific CiPs, as well as acquiring all of the GPCs (in addition to the other certification requirements) as confirmed by an ARCP panel.

Capabilities in Practice	Indicative Supervision Level (end of phase 2)	Supervision Level (end of phase 3 and certification)
Manages an out-patient clinic	SL III	SL IV
Manages the unselected emergency take	SL III	SL IV
Manages ward rounds and in-patients	SL III	SL IV
Manages an operating list	SL III	SL IV
Manages multi-disciplinary working	SL III	SL IV

Specialty-specific Capabilities in Practice	Indicative Supervision Level (end of phase 2)	Supervision Level (end of phase 3 and certification)
Safely assimilates new technologies and advancing techniques in the field of Plastic Surgery into practice	SL III	SL IV

Table 1: Supervision levels to be achieved by the end of each phase of training

3.5 Breadth of experience required during training in Plastic Surgery

The curriculum requires trainees to accrue a rich experience that promotes deep learning of knowledge, clinical skills, technical skills, professional behaviour, leadership and all other generic professional skills that are considered necessary to ensure patient safety throughout the training process and specifically at the end of training. The scope of practice of a day-one consultant in Plastic Surgery is described in the syllabus. In addition, there are certain skills and conditions within the syllabus that are of such central and fundamental importance to safe practice of Plastic Surgery that they are highlighted as critical conditions and index procedures.

3.5.1 The syllabus

The syllabus, shown in appendix 2, provides a detailed description of the specialty-specific knowledge, clinical and technical skills required for each phase of training and for certification in Plastic Surgery. The syllabus is organised by topics. Trainees are expected to have exposure to all topics in phase 2 of training.

3.5.2 Critical conditions

From the syllabus, a list of critical conditions has been identified which are of significant importance for patient safety and demonstration of a safe breadth of practice. Across surgery, these are defined as any condition where a misdiagnosis could be associated with devastating consequences for life or limb. These critical conditions are assessed individually by means of the Case Based Discussion (CBD) and Clinical Evaluation Exercise (CEX), which both include an assessment of clinical judgement and decision-making. They provide formative feedback to the trainee and feed into the summative assessment of the Assigned Educational Supervisor (AES) via the AES report for the ARCP. A list of critical conditions for Plastic Surgery is given in appendix 3. These critical conditions were decided following wide consultation with clinicians and trainers in the specialty.

3.5.3 Index procedures

In addition to the critical conditions, a list of Index procedures has been identified. Index procedures are common but important operations central to the specialty, competence in which is essential to the delivery of safe patient care. Taken together they form a representative sample of the breadth of operative procedures in the specialty. Learning in the Index procedures is indicative of learning in the broad range of technical procedures in the syllabus and surgical logbook and is, therefore, of significant importance for patient safety and demonstration of a safe breadth of practice. Each of these index procedures are assessed individually by means of the Procedure Based Assessment (PBA) which provides formative feedback to the trainee and feeds into the summative AES report for the ARCP. A list of index procedures is shown in appendix 4 and in the

certification requirements with indicative numbers of cases necessary before certification as trainees would not normally be expected to have achieved sufficient experience to be able to manage the range of pathology they encounter unless these numbers were met. It is recognised that competence could be achieved with fewer cases, if supported by evidence from other assessments. Meeting the numbers does not, in itself, imply competence. These indicative numbers were decided following wide consultation with clinicians and trainers in the specialty.

The certification requirements, shown in section 5.4, summarise the experience trainees need to achieve by the end of the training programme.

4 Teaching and Learning

4.1 How the Plastic Surgery curriculum is delivered

The curriculum is used to help design training programmes locally that ensure all trainees can develop the necessary skills and knowledge in a variety of settings and situations. The curriculum is designed to ensure it can be applied in a flexible manner, meeting service needs as well as supporting each trainee's own tailored learning and development plan. The requirements for curriculum delivery have not changed as a result of this new curriculum. All training must comply with the GMC requirements presented in *Promoting excellence: standards for medical education and training*[6] (2017). This stipulates that all training must comply with the following ten standards:

Theme 1: learning environment and culture

S1.1 The learning environment is safe for patients and supportive for learners and educators. The culture is caring, compassionate and provides a good standard of care and experience for patients, carers and families.

S1.2 The learning environment and organisational culture value and support education and training, so that learners are able to demonstrate what is expected in Good Medical Practice and to achieve the learning outcomes required by their curriculum.

Theme 2: educational governance and leadership

S2.1 The educational governance system continuously improves the quality and outcomes of education and training by measuring performance against the standards, demonstrating accountability and responding when standards are not being met.

S2.2 The educational and clinical governance systems are integrated, allowing organisations to address concerns about patient safety, the standard of care, and the standard of education and training.

S2.3 The educational governance system makes sure that education and training is fair and is based on the principles of equality and diversity.

Theme 3: supporting learners

S3.1 Learners receive educational and pastoral support to be able to demonstrate what is expected in Good Medical Practice, and to achieve the learning outcomes required by their curriculum.

[6] Promoting excellence: standards for medical education and training

Theme 4: supporting educators

S4.1 Educators are selected, inducted, trained, and appraised to reflect their education and training responsibilities.

S4.2 Educators receive the support, resources and time to meet their education and training responsibilities.

Theme 5: developing and implementing curricula and assessments

S5.1 Medical school curricula and assessments are developed and implemented so that medical students are able to achieve the learning outcomes required for graduates.

S5.2 Postgraduate curricula and assessments are implemented so that doctors in training are able to demonstrate what is expected in Good Medical Practice, and to achieve the learning outcomes required by their curriculum.

It is the responsibility of Health Education England (HEE) and its Local Offices, NHS Education for Scotland (NES), Health Education and Improvement Wales (HEIW), the Northern Ireland Medical and Dental Training Agency (NIMDTA) and the Health Service Executive (HSE) in the Republic of Ireland to ensure compliance with these standards. Training delivery must also comply with the latest edition of the Gold Guide. Appendix 7 outlines the quality management arrangements for the curriculum.

4.2 Learning opportunities

A variety of educational approaches will be used by education providers to help trainees develop the knowledge, clinical and technical skills, professional judgement, values and behaviours required by the curriculum. Taken together, these educational approaches ensure that the CiPs and GPCs are taught appropriately in order that the purpose of the curriculum is met. These educational approaches divide into three areas:

- Self-directed learning
- Learning from practice
- Learning from formal situations

4.2.1 Self-directed learning

The curriculum is trainee-led and self-directed learning is encouraged. Trainees are expected to take a proactive approach to learning and development and towards working as members of a multi-professional team. Trainees are encouraged to establish study groups, journal clubs and conduct peer reviews. They should take the opportunity of learning 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 attending formal and informal teaching. This includes using study materials and publications and reflective practice. Trainees are expected to use the developmental feedback they get from their trainers in learning agreement meetings and from assessments to focus further research and practice.

Reflective practice is an important part of self-directed learning and 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 order to refine and improve them. Reflection in the oral form is very much an activity that surgeons engage in and find useful and developmental. Writing reflectively adds more to the oral process by deepening the understanding

of 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. Whatever the modality of reflection, it is important that it takes place and that there is a record of it having taken place, whether or not the specific subject or content of the reflection is recorded[7]. Self-directed learning permits development in all six CiPs and the GPCs, especially when there is effective reflection on all aspects of learning at the centre of self-directed learning.

4.2.2 Learning from clinical practice

Surgical learning is largely experiential in nature with any interaction in the workplace having the potential to become a learning episode. The workplace provides learning opportunities on a daily basis for surgical trainees, based on what they see and what they do. Trainees are placed in clinical placements, determined locally by TPDs, which provide teaching and learning opportunities. The placements must be in units that are able to provide sufficient clinical resource and have sufficient trainer capacity.

While in the workplace, trainees are involved in supervised clinical practice, primarily in a hospital environment in wards, clinics or theatre. There are strong links to practitioners working in primary care and training environments may include private settings and, where available for training, a variety of community settings where the necessary facilities and governance arrangements are in place. The trainee role in these contexts determines the nature of the learning experience. Learning begins with observation of a trainer (not necessarily a doctor) and progresses to assisting a trainer; the trainer assisting/supervising the trainee and then the trainee managing a case independently but with access to their supervisor. The level of supervision changes in line with the trainee's progression through the phases of the curriculum. As training progresses, trainees should have the opportunity for increased autonomy, consistent with safe and effective care for the patient. Typically, there should be a gradual reduction in the level of supervision required and an increase in the complexity of cases managed until the level of competence for independent practice is acquired.

The CiPs are best taught, particularly in the early phases of training, by a specifically selected trainer directly watching and supervising while the trainee carries out the activity. This type of training is known as Professionalised Training and requires more time (and so, consequently, a reduced clinical workload) than conventional methods. It permits more thorough teaching, more rapid achievement of skill and earlier recognition of difficulties. Continuous systematic feedback and reflection are integral to learning from clinical practice. The CiP and GPC descriptors through the MCR assessment provide detailed feedback and identify specific, timely and relevant goals for development through training. Education providers should make every attempt to ensure that each trainee has exposure to Professionalised Training appropriate to their phase of progression through the curriculum. It is recommended that this be one session per week per trainee in the early years. Trainees are required to keep a surgical logbook to support their reflection and the assessment of their operative skills.

4.2.3 Learning from formal situations

Learning from clinical practice is supplemented by an educational programme of courses and teaching sessions arranged at local, regional and national levels. These should be mapped to the

[7] Improving feedback and reflection to improve learning. A practical guide for trainees and trainers http://www.aomrc.org.uk/reports-guidance/improving-feedback-reflection-improve-learning-practical-guide-trainees-trainers/

CiPs, the GPCs and the Plastic Surgery syllabus and may include a mixture of formal talks including attendance at national conferences relevant to the specialty, small group discussion, case review and morbidity and mortality meetings, literature review and skills teaching. A list of mandatory courses for trainees is given in appendix 5.

4.2.4 Simulation

Teaching in formal situations often involves the use of simulation. In this context simulation can be 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-free environment. Simulation can be used for the development of both individuals and teams. 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 with scenarios.

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 is 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. Simulation training broadly follows the same pattern of learning opportunities offering insight into the development of technical skills, team-working, leadership, judgement and professionalism. Education providers should use all teaching methods available, including simulation teaching, to ensure that the full breadth of the syllabus is covered. Where there is a need for specific intensive courses to meet specific learning outcomes, there may be a number of equivalent providers.

4.3 Supervision

Supervision is fundamental in the delivery of safe and effective training. It takes advantage of the experience, knowledge and skills of expert clinicians and ensures interaction between an experienced clinician and a trainee. 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. A number of people from a range of professional groups are involved in teaching and training with subject areas of the curriculum being taught by staff with relevant specialist expertise and knowledge. Those involved in the supervision of trainees must have the relevant qualifications, experience and training to undertake the role. Specialist skills and knowledge are usually taught by consultants and senior trainees whereas the more generic aspects of practice can also be taught by the wider multidisciplinary team (MDT).

The key roles involved in teaching and learning are the Training Programme Director, Assigned Educational Supervisor, Clinical Supervisor, Assessor and Trainee. Their responsibilities are described in appendix 6 and further information is given in the Gold Guide.

In the UK, the GMC's process for the recognition and approval of trainers[8] enables Deaneries/HEE Local Offices to formally recognise AESs and Clinical Supervisors (CSs) and ensure they meet the specified criteria. Trainees must be placed in approved placements that meet the required training and educational standards of the curriculum. In each placement, trainees have a named AES and one or more CS, responsible for overseeing their education. Depending on local arrangements these roles may be combined into a single role of AES.

All elements of work in training posts must be supervised. The level of supervision varies according to the experience of the trainee, the clinical exposure and the case mix undertaken. As training progresses trainees should have the opportunity for increased autonomy, consistent with safe and effective care for the patient. Achievement of supervision level IV in any of the six CiPs indicates that a trainee is able to work at an independent level, with advice from their trainer at this level being equivalent to a consultant receiving advice from senior colleagues within an MDT. However, within the context of a training system trainees are always under the educational and clinical governance structures of the Health Service.

4.4 Supporting feedback and reflection

Effective feedback is known to enhance learning, and combining self-reflection[7] with feedback promotes deeper learning. Trainees are encouraged to seek feedback on all they do, either informally, through verbal feedback at the end of a learning event, or formally through workplace-based assessments (WBAs). The MCR and use of the CiP and GPC descriptors provide regular opportunities for detailed and specific feedback. Trainee self-assessment of CiPs provides a regular opportunity for focused and structured reflection and development of self-directed goals for learning as well as developing these goals through dialogue with trainers. All the assessments in the curriculum are designed to include a feedback element as well as to identify concerns in multiple ways:

- *Learning agreement:* appraisal meetings with the AES at the beginning, middle and end of each placement
- *WBA:* immediate verbal dialogue after a learning episode
- *CBD:* meeting with a consultant trainer to discuss the management of a patient case
- *MSF:* meeting with the AES to discuss the trainee's self-assessment and team views
- *MCR (mid-point formative):* meeting with the AES or CS to discuss the trainee's self-assessment and CSs' views on CiPs
- *MCR (final formative, contributing to the AES's summative Report):* meeting with the AES or CS to discuss the trainee's self-assessment and CSs' views on CiPs
- *Formal examinations:* summative feedback on key areas of knowledge and skills
- *ARCP:* a feedback meeting with the TPD or their representative following an ARCP.

Constructive feedback is expected to include three elements i) a reflection on performance ii) identification of the trainee's achievements, challenges and aspirations and iii) an action plan.

[8] GMC recognition and approval of trainers

4.5 Academic training

All trainees are required to satisfy the learning outcomes in domain 9 of the GPC framework: *Capabilities in research and scholarship*. Trainees are encouraged to participate in clinical research and collaborative trials to achieve these outcomes, as well as in journal clubs, literature review and systematic review and to make a major contribution to the publication of novel findings in peer reviewed journals. An understanding of the principles of research, its interpretation and safe implementation of evidenced-based new methods, processes and techniques is essential for the modern, progressive practice of surgery and in the interests of patients and the service.

Some trainees choose to take time out of training for a formal period of research, as specified in the Gold Guide. For the majority, this leads to the award of a higher degree in an area related to their chosen specialty. Some also choose to focus a significant part of their training time on academic medicine, but need to complete all the essential elements of their specialty curriculum satisfactorily in order to achieve certification. The rate of progression through the clinical component of their training is determined by the ARCP process to ensure that all clinical requirements are met in keeping with the curriculum. Arrangements for academic training differ in detail across the nations of the UK and Republic of Ireland. Details of arrangements can be found on the webpages of the relevant National Health Education body.

5 Programme of Assessment

5.1 Purpose of assessment

Assessment of learning is an essential component of any curriculum. This section describes the assessment system and the purpose of its individual components which are blueprinted to the curriculum as shown in appendix 9. The focus is on good practice, based on fair and robust assessment principles and processes in order to ensure a positive educational impact on learners and to support assessors in making valid and reliable judgements. The programme of assessment comprises an integrated framework of examinations, assessments in the workplace and judgements made about a learner during their approved programme of training. Its purpose is to robustly evidence, ensure and clearly communicate the expected levels of performance at critical progression points in, and to demonstrate satisfactory completion of, training as required by the curriculum. The programme of assessment is shown in figure 3 below.

Assessments can be described as *helping* learning or *testing* learning - referred to as formative and summative respectively. There is a link between the two; some assessments are purely formative (shown in green in figure 3), others are explicitly summative with a feedback element (shown in blue) while others provide formative feedback while contributing to summative assessment (shown in orange).

The purposes of formative assessment are to:

- assess trainees' actual performance in the workplace.
- enhance learning by enabling trainees to receive immediate feedback, understand their own performance and identify areas for development.
- drive learning and enhance the training process by making it clear what is required of trainees and motivating them to ensure they receive suitable training and experience.
- enable supervisors to reflect on trainee needs in order to tailor their approach accordingly.

The purposes of summative assessment are to:

- provide robust, summative evidence that trainees are meeting the curriculum requirements during the training programme.
- ensure that trainees possess the essential underlying knowledge required for their specialty, including the GPCs to meet the requirements of GMP.
- inform the ARCP, identifying any requirements for targeted or additional training where necessary and facilitating decisions regarding progression through the training programme.
- identify trainees who should be advised to consider changes of career direction.
- provide information for the quality assurance of the curriculum.

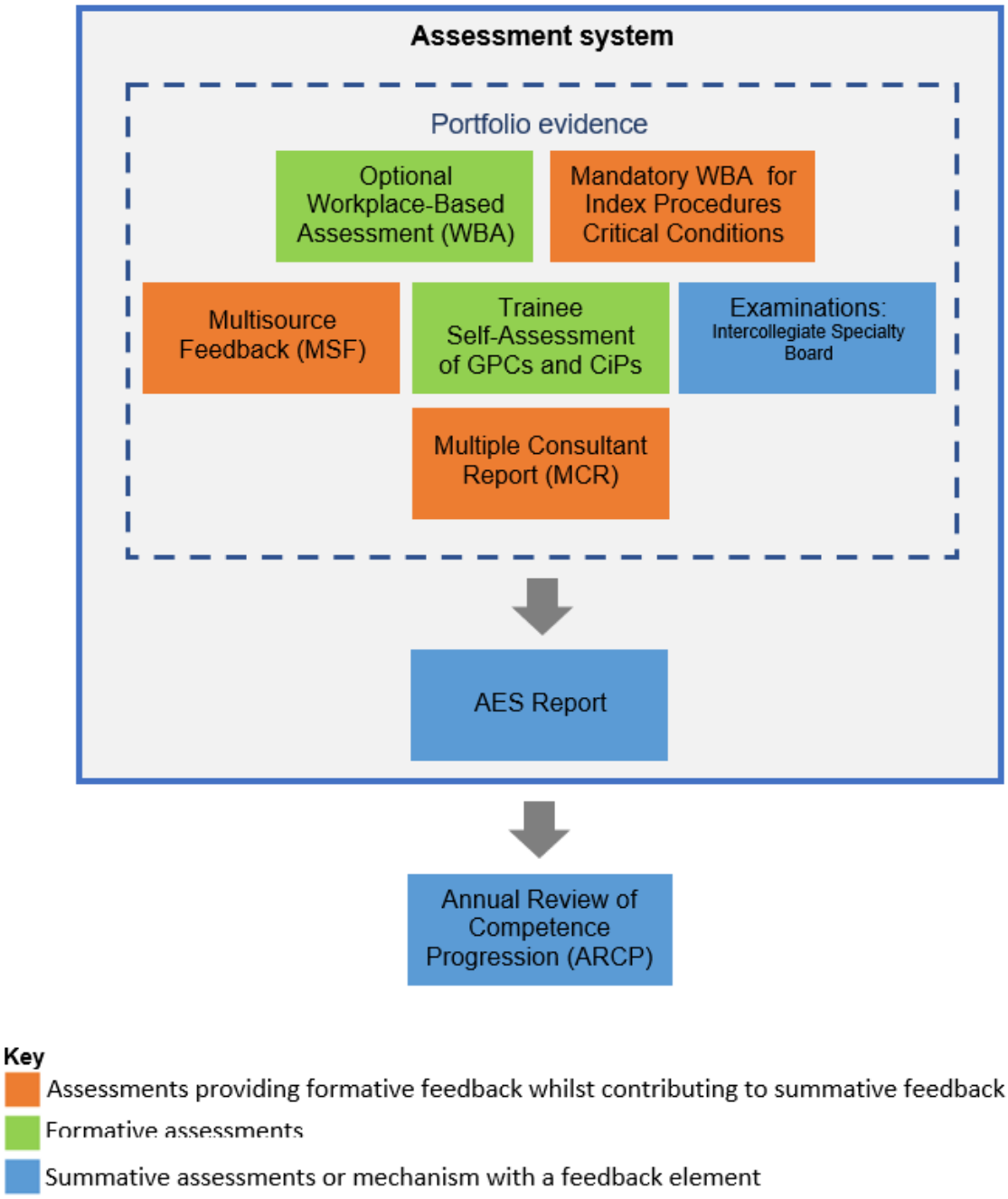


Figure 3: Assessment framework

5.2 Delivery of the programme of assessment

The programme of assessment is comprised of several different types of assessment needed to meet the requirements of the curriculum. These together generate the evidence required for global judgements to be made about satisfactory trainee performance, progression in, and completion of, training. These include the ISB examination and WBAs. The primary assessment in the workplace is the MCR, which, together with other portfolio evidence, contributes to the AES report for the ARCP. Central to the assessment framework is professional judgement. Assessors are responsible and accountable for these judgements and these judgements are supported by structured feedback to trainees. Assessment takes place throughout the training programme to allow trainees to continually gather evidence of learning and to provide formative feedback to the trainee to aid progression.

Reflection and feedback are also integral components of all WBAs. In order for trainees to maximise the benefit of WBA, reflection and feedback should take place as soon as possible after the event. Feedback should be of high quality that should include a verbal dialogue between trainee and assessor in reflection on the learning episode, attention to the trainee's specific questions, learning needs and achievements as well as an action plan for the trainee's future development. Both trainees and trainers should recognise and respect cultural differences when giving and receiving feedback[9]. The assessment framework is also designed to identify where trainees may be running into difficulties. Where possible, these are resolved through targeted training, practise and assessment with specific trainers and, if necessary, with the involvement of the AES and TPD to provide specific remedial placements, additional time and additional resources.

5.3 Assessment framework components

Each of the components of the assessment framework are described below.

5.3.1 The sequence of assessment

Training and assessment take places within placements of six to twelve months' duration throughout each phase (figure 4). Assessments are carried out by relevant qualified members of the trainee's multi-professional team whose roles and responsibilities are described in appendix 6. Trainee progress is monitored primarily by the trainee's AES through learning agreement meetings with the trainee. Throughout the placement trainees must undertake WBAs while specialty examinations are undertaken towards at the higher end of the programme after satisfactory completion of phase 2. The trainee's CSs must assess the trainee on the six CiPs and nine GPC domains using a MCR. This must be undertaken towards the mid-point of each placement in a formative way and at the end of the placement when the formative assessment will contribute to the AES's summative assessment at the final review meeting of the learning agreement. The placement culminates with the AES report of the trainee's progress for the ARCP. The ARCP makes the final decision about whether a trainee can progress to the next level or phase of training. It bases its decision on the evidence that has been gathered in the trainee's learning portfolio during the period between ARCP reviews, particularly the AES report in each training placement.

[9] https://www.iscp.ac.uk/courses/culturalawarenesscourse.aspx

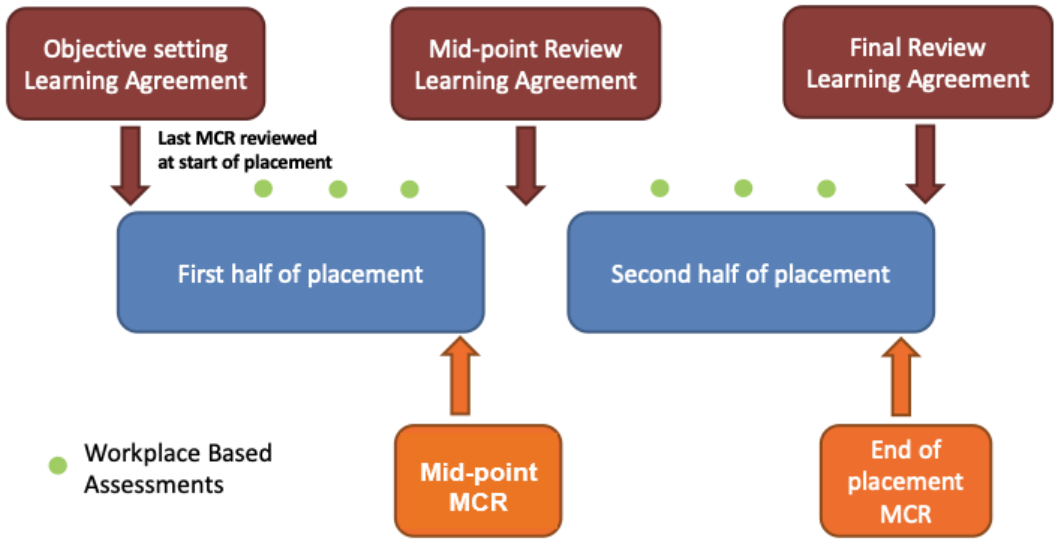


Figure 4: The sequence of assessment through a placement.

5.3.2 The learning agreement

The learning agreement is a formal process of goal setting and review meetings that underpin training and is formulated through discussion. The process ensures adequate supervision during training, provides continuity between different placements and supervisors and is one of the main ways of providing feedback to trainees. There are three learning agreement meetings in each placement and these are recorded in the trainee's learning portfolio. Any significant concerns arising from the meetings should be fed back to the TPD at each point in the learning agreement.

Objective-setting meeting

At the start of each placement the AES and trainee must meet to review the trainee's progress so far, agree learning objectives for the placement ahead and identify the learning opportunities presented by the placement. The learning agreement is constructively aligned towards achievement of the high-level outcomes (the CiPs and GPCs) and, therefore, the CiPs and GPCs are the primary reference point for planning how trainees will be assessed and whether they have attained the learning required. The learning agreement is also tailored to the trainee's progress, phase of training and learning needs. The final MCR from the previous placement will be reviewed alongside the most recent trainee self-assessment and the action plan for training. Any specific targeted training objectives from the previous ARCP should also be considered and addressed though this meeting and form part of the learning agreement.

Mid-point review meeting

A meeting between the AES and the trainee must take place at the mid-point of a placement (or each three months within a placement that is longer than six months). The learning agreement must be reviewed, along with other portfolio evidence of training such as WBAs, the logbook and the formative mid-point MCR, including the trainee's self-assessment. This meeting ensures training opportunities appropriate to the trainee's own needs are being presented in the placement, and are adjusted if necessary in response to the areas for development identified through the MCR. Particular attention must be paid to progress against targeted training objectives and a specific plan for the remaining part of the placement made if these are not yet achieved. There should be a dialogue between the AES and CSs if adequate opportunities have not been presented to the trainee, and the TPD informed if there has been no resolution. Discussion

should also take place if the scope and nature of opportunities should change in the remaining portion of the placement in response to areas for development identified through the MCR.

Final review meeting

Shortly before the end of each placement trainees should meet with their AES to review portfolio evidence including the MCR. The dialogue between the trainee and AES should cover the overall progress made in the placement and the AES's view of the placement outcome.

AES report

The AES must write an end of placement report which informs the ARCP. The report includes details of any significant concerns and provides the AES's view about whether the trainee is on track in the phase of training for completion within the indicative time. If necessary, the AES must also explain any gaps and resolve any differences in supervision levels which came to light through the MCR.

5.3.3 The Multiple Consultant Report

The assessment of the CiPs and GPCs (high-level outcomes of the curriculum) involves a global professional judgement of a range of different skills and behaviours to make decisions about a learner's suitability to take on particular responsibilities or tasks that are essential to consultant practice at the standard of certification. The MCR assessment must be carried out by the consultant CSs involved with a trainee, with the AES contributing as necessary to some domains (e.g. *Quality Improvement*, *Research and Scholarship*). The number of CSs taking part reflects the size of the specialty unit and is expected to be no fewer than two. The exercise reflects what many consultant trainers do regularly as part of a faculty group.

The MCR includes a global rating in order to indicate how the trainee is progressing in each of the six CiPs. This global rating is expressed as a supervision level recommendation described in table 2 below. Supervision levels are behaviourally anchored ordinal scales based on progression to competence and reflect a judgment that has clinical meaning for assessors. Using the scale, CSs must make an overall, holistic judgement of a trainee's performance on each CiP. Levels IV and V, shaded in grey, equate to the level required for certification and the level of practice expected of a day-one consultant in the Health Service (level IV) or beyond (level V). Figures 5 and 6 show how the MCR examines performance from the perspective of the outcome of the curriculum, the day-one consultant surgeon, in the GPCs and CiPs. If not at the level required for certification, the MCR can identify areas for improvement by using the CiP or GPC descriptors or, if further detail is required, through free text. The assessment of the GPCs can be performed by CSs, whilst GPC domains 6-9 might be more relevant to assessment by the AES in some placements.

CSs will be able to best recommend supervision levels because they observe the performance of the trainee in person on a day-to-day basis. The CS group, led by a Lead CS, should meet at the mid-point and towards the end of a placement to conduct a formative MCR. Through the MCR, they agree which supervision level best describes the performance of a trainee at that time in each of the six CiPs and also identify any areas of the nine GPC domains that require development. It is possible for those who cannot attend the group meeting, or who disagree with the report of the group as a whole, to add their own section (anonymously) to the MCR for consideration by the AES. The AES will provide an overview at the end of the process, adding comments and signing off the MCR.

The MCR uses the principle of highlight reporting, where CSs do not need to comment on every descriptor within each CiP but use them to highlight areas that are above or below the expected level of performance. The MCR can describe areas where the trainee might need to focus development or areas of particular excellence. Feedback must be given for any CiP that is not rated as level IV and in any GPC domain where development is required. Feedback must be given to the trainee in person after each MCR and, therefore, includes a specific feedback meeting with the trainee using the highlighted descriptors within the MCR and/or free text comments.

The mid-point MCR feeds into the interim and mid-point learning agreement meeting. At the mid-point it allows goals to be agreed for the second half of the placement, with an opportunity to specifically address areas where development is required. Towards the end of the placement the MCR feeds into the final review learning agreement, helping to inform the AES report (figure 4). It also feeds into the objective-setting meeting of the next placement to facilitate discussion between the trainee and the next AES.

The MCR, therefore, gives valuable insight into how well the trainee is performing, highlighting areas of excellence, areas of support required and concerns. It forms an important part of detailed, structured feedback to the trainee at the mid-point and before the end of the placement and can trigger any appropriate modifications for the focus of training as required. The final formative, together with other portfolio evidence, feeds into the AES report which in turn feeds into the ARCP. The ARCP uses all presented evidence to make the definitive decision on progression.

MCR Rating Scale (CiPs)	**Anchor statements**	**Trainer input at each supervision level**			
		Does the trainee perform part or all of the task?	**Is guidance required?**	**Is it necessary for a trainer to be present for the task?**	**Is the trainee performing at a level beyond that expected of a day one consultant?** [c]
Supervision Level I:	Able to observe only: no execution.	no	n/a	n/a	n/a
Supervision Level IIa:	Able and trusted to act with direct supervision: The supervisor needs to be physically present throughout the activity to provide direct supervision.	yes	all aspects	throughout	n/a
Supervision Level IIb:	Able and trusted to act with direct supervision: The supervisor will need to be physically present for part of the activity.	yes	all aspects	will be necessary for part	n/a

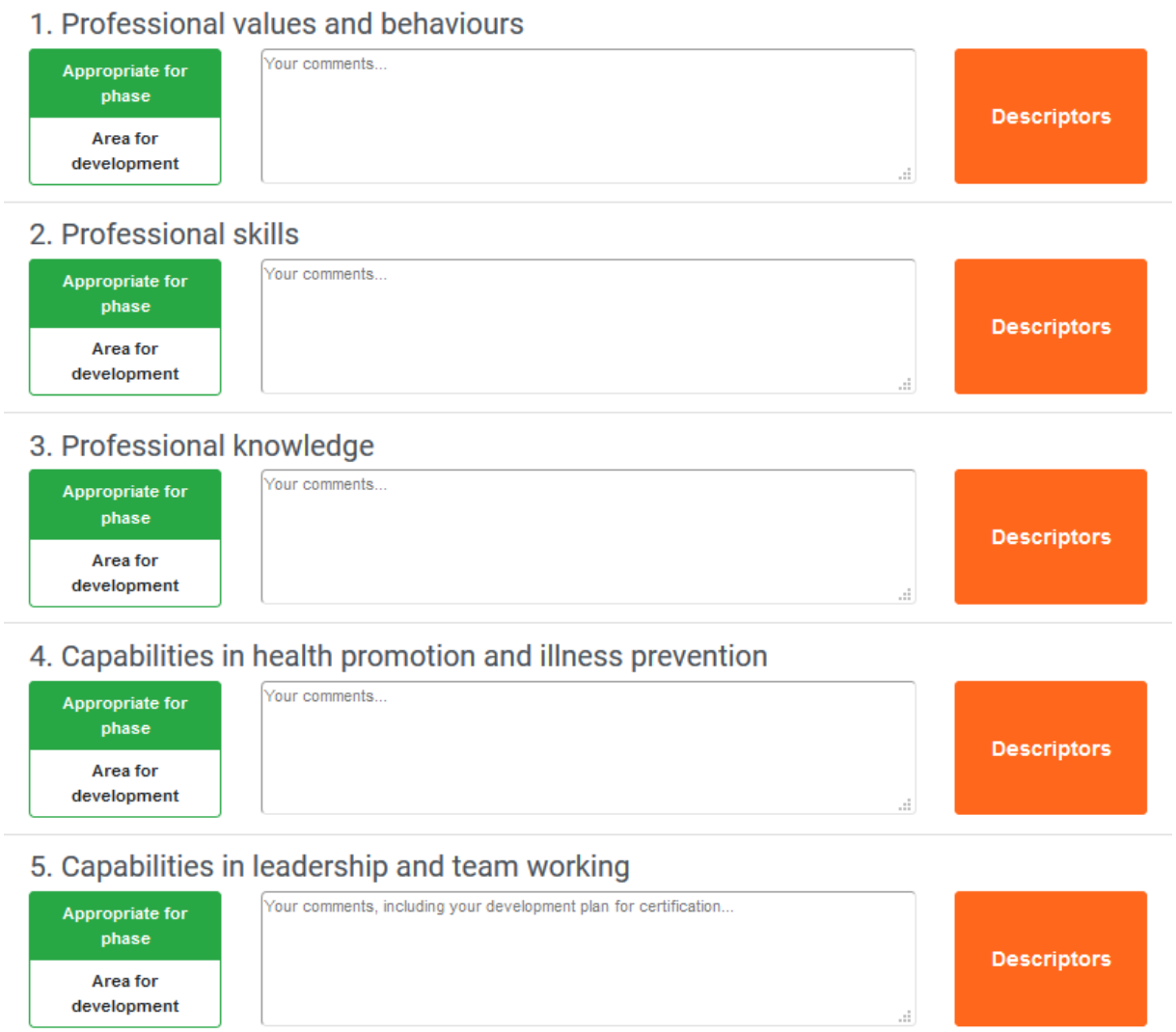
	The supervisor needs to guide all aspects of the activity. This guidance may partly be given from another setting.				
Supervision Level III:	Able and trusted to act with indirect supervision: The supervisor may be required to be physically present on occasion. The supervisor does not need to guide all aspects of the activity. For those aspects which do need guidance, this may be given from another setting.	yes	some aspects	may be necessary for part	n/a
Supervision Level IV:	Able and trusted to act at the level of a day-one consultant.	yes	None [a,b]	None [a, b]	n/a
Supervision Level V:	Able and trusted to act at a level beyond that expected of a day-one consultant.	yes	None[a]	None [a]	yes

Table 2: MCR anchor statements and guide to recommendation of appropriate supervision level in each CiP.

- This equates to the level of practice expected of a day-one consultant in the Health Service. It is recognised that advice from senior colleagues within an MDT is an important part of consultant practice. Achievement of supervision level IV indicates that a trainee is able to work at this level, with advice from their trainer at this level being equivalent to a consultant receiving advice from senior colleagues within an MDT. It is recognised that within the context of a training system that trainees are always under the educational and clinical governance structures of the Health Service.
- Where the PBA level required by the syllabus is less than level 4 for an operative procedure, it would be expected that mentorship is sought for such procedures and this would fall within the scope of being able to carry out this activity without supervision (level IV), i.e. be a level commensurate with that of a day-one consultant.
- Achievement of this level across the entirety of an activity would be rare, although free text could describe aspects of an activity where this level has been reached.

In making a supervision level recommendation, CSs should take into account their experience of working with the trainee and the degree of autonomy they were prepared to give the trainee during the placement. They should also take into account all the descriptors of the activities, knowledge and skills listed in the detailed descriptions of the CiPs. If, after taking all this into account, the CSs feel the trainee is able to carry out the activity without supervision (level IV) then no further detail of this assessment is required, unless any points of excellence are noted. If the trainee requires a degree of supervision to carry out the activity then the CSs should indicate which of the descriptors of the activities, knowledge and skills require further development (to a limit of five items per CiP, so as to allow targets set at feedback to be timely, relevant and achievable). Similarly, if a trainee excels in one or more areas, the relevant descriptors should be indicated. Examples of how the online MCR will look are shown in figures 5 and 6. Figure 7 describes the MCR as an iterative process involving the trainee, CSs, the AES and the development of specific, relevant, timely and achievable action plans.

Multiple Consultant Report – assessment of the GPCs



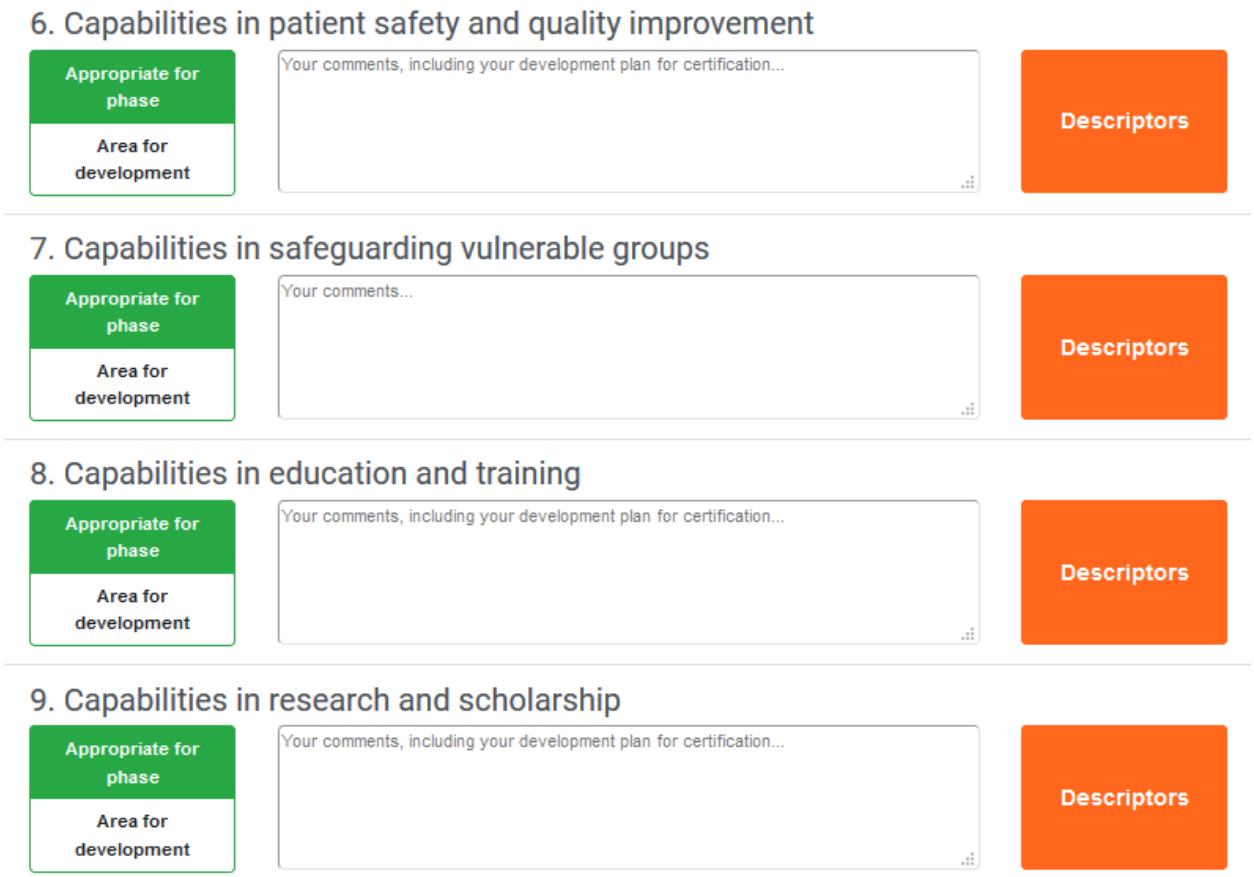


Figure 5: An example of how the GPCs are assessed through the MCR. CSs would consider whether there are areas for development in any of the nine GPC domains. If not, then nothing further need be recorded. If there are areas for development identified, then CSs are obliged to provide feedback through the MCR. This feedback can be recorded as free text in the comments box indicated. The Descriptors box expands to reveal descriptors taken from the GPC framework. These can be used as prompts for free text feedback or verbatim as standardised language used to describe professional capabilities.

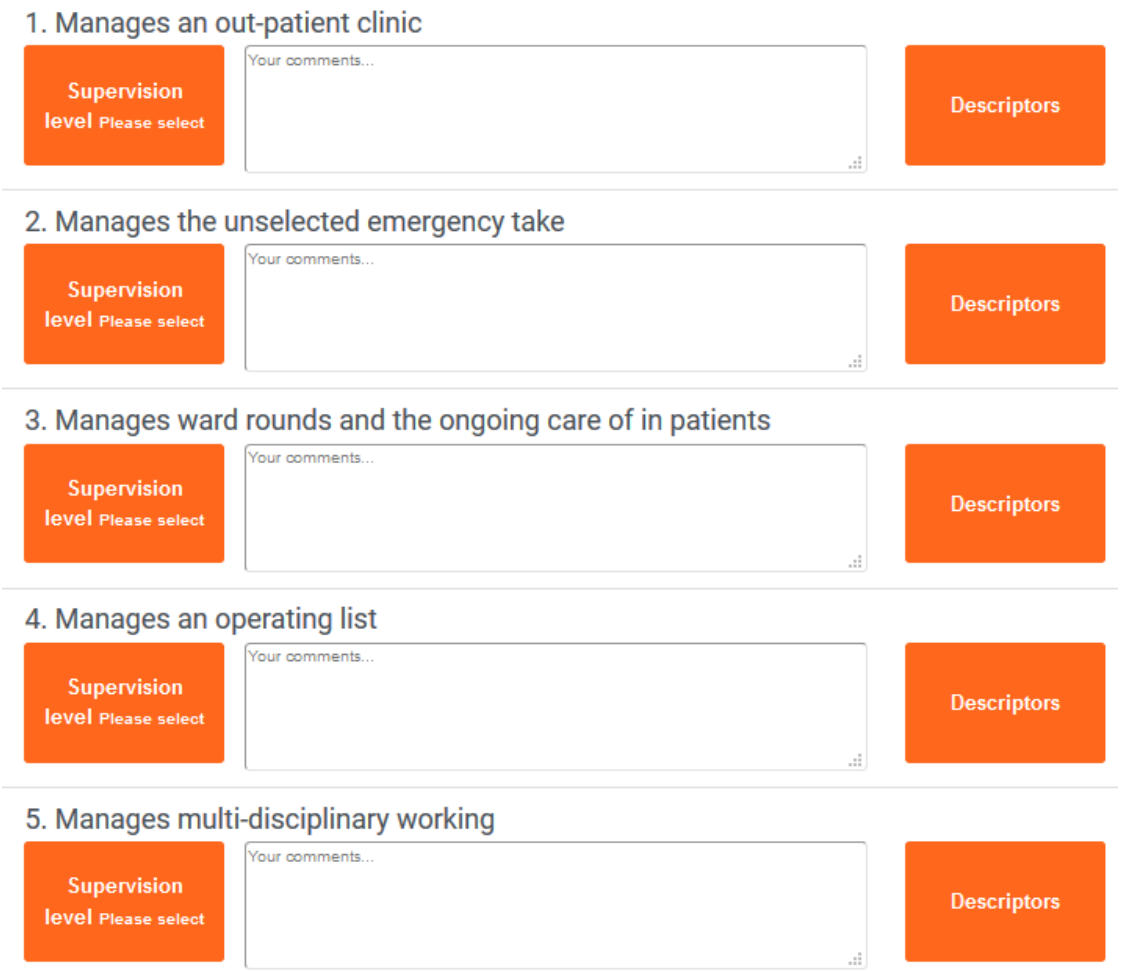


Figure 6: An example of how the CiPs are assessed through the MCR. CSs would decide what supervision level to recommend for each of the CiPs and record this for each through the Supervision level box. If the level recommended is IV or V then no further comment need be recorded, unless the CSs wished to capture areas of particular excellence for feedback. If levels I to III are recommended, then CSs are obliged to provide feedback through the MCR. This feedback can be recorded as free text in the comments box indicated. The Descriptors box expands to reveal CiP descriptors. These can be used as prompts for free text feedback or verbatim as standardised language to describe the clinical capabilities.

5.3.4 Trainee self-assessment

Trainees should complete the self-assessment in the same way as CSs complete the MCR, using the same form and describing self-identified areas for development with free text or using CiP or GPC descriptors. Reflection for insight on performance is an important development tool and self-recognition of the level of supervision needed at any point in training enhances patient safety. Self-assessments are part of the evidence reviewed when meeting the AES at the mid-point and end of a placement. Wide discrepancy between the self-assessment and the recommendation by CSs in the MCR allows identification of over or under confidence and for support to given accordingly.

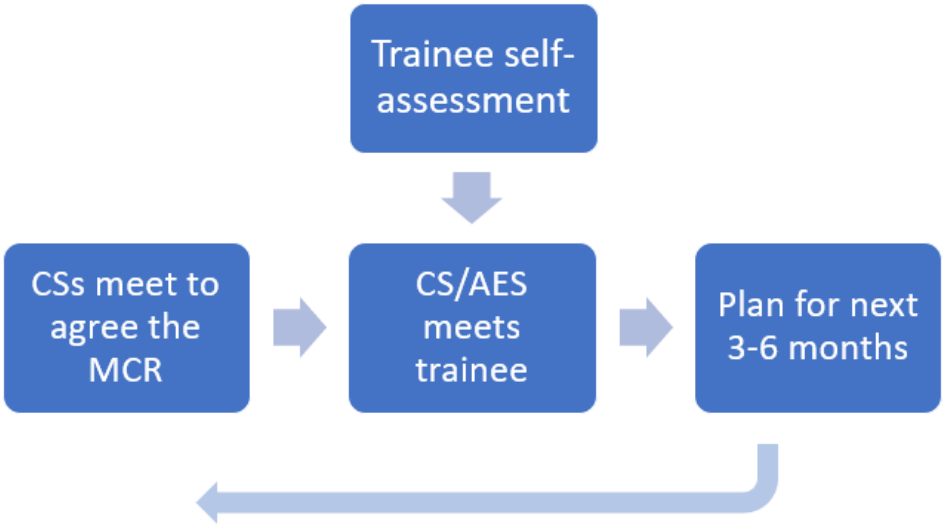


Figure 7: The iterative process of the MCR, showing the involvement of CSs, self-assessment by trainees, face to face meetings between trainees and supervisors and the development of an action plan focused on identified learning needs over the next three to six months of training. Progress against these action plans is reviewed by AES and at the subsequent MCRs.

5.3.5 Workplace-based Assessment (WBA)

Each individual WBA is designed to assess a range of important aspects of performance in different training situations. Taken together the WBAs can assess the breadth of knowledge, skills and performance described in the curriculum. They also constructively align with the clinical CiPs and GPCs (as shown in appendix 9) and will be used to underpin assessment in those areas of the syllabus central to the speciaity i.e. the critical conditions and index procedures, as well as being available for other conditions and operations as determined by the trainee and supervisors and especially where needed in the assessment of a remediation package to evidence progress in areas of training targeted by a non-standard ARCP outcome. The WBAs described in this curriculum have been in use for over ten years and are now an established component of training.

The WBA methodology is designed to meet the following criteria:

- *Validity* – the assessment actually does test what is intended; that methods are relevant to actual clinical practice; that performance in increasingly complex tasks is reflected in the assessment outcome
- *Reliability* - multiple measures of performance using different assessors in different training situations produce a consistent picture of performance over time
- *Feasibility* – methods are designed to be practical by fitting into the training and working environment
- *Cost-effectiveness* – the only significant additional costs should be in the training of trainers and the time investment needed for feedback and regular appraisal, this should be factored into trainer job plans
- *Opportunities for feedback* – structured feedback is a fundamental component
- Impact on learning – the educational feedback from trainers should lead to trainees' reflections on practice in order to address learning needs.

WBAs use different trainers' direct observations of trainees to assess the actual performance of trainees as they manage different clinical situations in different clinical settings and provide more granular formative assessment in the crucial areas of the curriculum than does the more global

assessment of CiPs in the MCR. WBAs are primarily aimed at providing constructive feedback to trainees in important areas of the syllabus throughout each placement in all phases of training. Trainees undertake each task according to their training phase and ability level and the assessor must intervene if patient safety is at risk. It would be normal for trainees to have some assessments which identify areas for development because their performance is not yet at the standard for the completion of that training.

Each WBA is recorded on a structured form to help assessors distinguish between levels of performance and prompt areas for their verbal developmental feedback to trainees immediately after the observation. Each WBA includes the trainee's and assessor's individual comments, ratings of individual competencies (e.g. *Satisfactory*, *Needs Development* or *Outstanding*) and global rating (using anchor statements mapped to phases of training). Rating scales support the drive towards excellence in practice, enabling learners to be recognised for achievements above the level expected for a level or phase of training. They may also be used to target areas of underperformance. As they accumulate, the WBAs for the critical conditions and index procedures also contribute to the AES report for the ARCP.

WBAs are formative and may be used to assess and provide feedback on all clinical activity. Trainees can use any of the assessments described below to gather feedback or provide evidence of their progression in a particular area. WBAs are only mandatory for the assessment of the critical conditions and index procedures (see appendices 3 and 4). They may also be useful to evidence progress in targeted training where this is required e.g. for any areas of concern.

WBAs for index procedures and critical conditions will inform the AES report along with a range of other evidence to aid the decision about the trainee's progress. All trainees are required to use WBAs to evidence that they have achieved the learning in the index procedures or critical conditions by certification. However, it is recognised that trainees will develop at different rates, and failure to attain a specific level at a given point will not necessarily prevent progression if other evidence shows satisfactory progress.

The assessment blueprint (appendix 9) indicates how the assessment programme provides coverage of the CiPs, the GPC framework and the syllabus. It is not expected that the assessment methods will be used to evidence each competency and additional evidence may be used to help make a supervision level recommendation. The principle of assessment is holistic; individual GPC and CiP descriptors and syllabus items should not be assessed, other than in the critical conditions and index procedures or if an area of concern is identified. The programme of assessment provides a variety of tools to feedback to and assess the trainee.

Case Based Discussion (CBD)

The CBD assesses the performance of a trainee in their management of a patient case to provide an indication of competence in areas such as clinical judgement, decision-making and application of medical knowledge in relation to patient care. The CBD process is a structured, in-depth discussion between the trainee and a consultant supervisor. The method is particularly designed to test higher order thinking and synthesis as it allows the assessor to explore deeper understanding of how trainees compile, prioritise and apply knowledge. By using clinical cases that offer a challenge to trainees, rather than routine cases, trainees are 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. The CBD is important for assessing the critical conditions (appendix 3). Trainees are assessed against the standard for the completion of their phase of training.

Clinical Evaluation Exercise (CEX) / CEX for Consent (CEX(C))

The CEX or CEX(C) assesses a clinical encounter with a patient to provide an indication of competence in skills essential for good clinical care such as communication, history taking, examination and clinical reasoning. These can be used at any time and in any setting when there is a trainee and patient interaction and an assessor is available. The CEX or CEX(C) is important for assessing the critical conditions (appendix 3). Trainees are assessed against the standard for the completion of their phase of training.

Direct Observation of Procedural Skills (DOPS)

The DOPS assesses the trainee's technical, operative and professional skills in a range of basic diagnostic and interventional procedures during routine surgical practice in wards, out-patient clinics and operating theatres. The procedures reflect the common and important procedures. Trainees are assessed against the standard for the completion of core surgical training.

Multi-source Feedback (MSF)

The MSF assesses professional competence within a team working environment. It comprises a self-assessment and the assessments of the trainee's performance from a range colleagues covering different grades and environments (e.g. ward, theatre, out-patients) including the AES. The competencies map to the standards of GMP and enable 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, enabling comparison of the self-assessment with the collated views received from the team and includes their anonymised but verbatim written comments. The AES should meet with the trainee to discuss the feedback on performance in the MSF. Trainees are assessed against the standard for the completion of their training level.

Procedure Based Assessment (PBA)

The PBA assesses advanced technical, operative and professional skills in a range of specialty procedures or parts of procedures during routine surgical practice in which trainees are usually scrubbed in theatre. The assessment covers pre-operative planning and preparation; exposure and closure; intra-operative elements specific to each procedure and post-operative management. The procedures reflect the routine or index procedures relevant to the specialty. The PBA is used particularly to assess the index procedures (appendix 4). Trainees are assessed against the standard for certification.

Surgical logbook

The logbook is tailored to each specialty and allows the trainee's competence as assessed by the DOPS and PBA to be placed in context. It is not a formal assessment in its own right, but trainees are required to keep a log of all operative procedures they have undertaken including the level of supervision required on each occasion using the key below. The logbook demonstrates breadth of experience which can be compared with procedural competence using the DOPS and the PBA and will be compared with the indicative numbers of index procedures defined in the curriculum (certification requirements, section 5.4 and appendix 4)

Observed (O)
Assisted (A)
Supervised - trainer scrubbed (S-TS)
Supervised - trainer unscrubbed (S-TU)
Performed (P)
Training more junior trainee (T)

The following WBAs may also be used to further collect evidence of achievement, particularly in the GPC domains of *Quality improvement*, *Education and training* and *Leadership and team working:*

Assessment of Audit (AoA)

The AoA reviews a trainee's competence in completing an audit or quality improvement project. It can be based on documentation or a presentation of a project. Trainees are assessed against the standard for completion of their phase of training.

Observation of Teaching (OoT)

The OoT assesses the trainee's ability to provide formal teaching. It can be based on any instance of formalised teaching by the trainee which has been observed by the assessor. Trainees are assessed against the standard for the completion of their phase of training.

The forms and guidance for each WBA method can be found in the WBA handbook.

5.3.6 Intercollegiate Specialty Board Examination

The ISB examination is governed by the Joint Committee on Intercollegiate Examinations (JCIE, www.jcie.org.uk) on behalf of the four surgical Royal Colleges. The JCIE is served by an Intercollegiate Specialty Board in each specialty. The examination is a powerful driver for knowledge and clinical skill acquisition. It has been in existence for over twenty years and is accepted as an important, necessary and proportionate test of knowledge, clinical skill and the ability to demonstrate the behaviours required by the curriculum. The examination is taken after successful completion of phase 2 and the standard is set at having the knowledge, clinical and professional skills at the level of a day-one consultant in the generality of the specialty and must be passed in order to complete the curriculum. The examination components have been chosen to test the application of knowledge, clinical skills, interpretation of findings, clinical judgement, decision making, professionalism, and communication skills described within the curriculum. The examination also assesses components of the CiPs and GPCs (as shown in appendix 9) and feeds into the same process as WBA for review by the AES and ARCP.

There are two sections to the exam:

- Section 1 is a computer-based assessment comprising two papers taken on the same day. These are both Single Best Answer (SBA) papers designed to test the application of knowledge and clinical reasoning.
- Section 2 comprises the clinical component of the examination. It consists of a series of carefully designed and structured interviews on clinical topics – some scenario-based and others patient-based. The construct of section 2 allows assessment of the application of knowledge, clinical interpretation, decision-making, clinical judgement and professionalism.

Standard setting:

- Section 1 is standard set by the modified Angoff method with one set being added to the Angoff cut score to generate the eligibility to proceed mark. Section 1 is computer marked. Any questions identified as anomalous (possible wrong answers, negative discriminators etc.) are discussed at the standard setting meeting prior to the Angoff and, if necessary, removed.
- The Section 2 clinical and oral components are calibrated prior to the start of each diet. It is independently marked by examiners working in pairs but with reference to the marking descriptors and the standard agreed at the calibration meeting.

Feedback:

Following section 1, candidates will receive a formal letter from the Board Chair confirming the result and a Final Performance Report which shows:

Paper 1 (Single Best Answer) Score %
Paper 2 (Single Best Answer) Score %
Combined Score %

Following section 2, candidates will receive a formal letter from the Board Chair confirming the result. Unsuccessful candidates will also receive a Final Performance Report showing the name of each station and its pass mark, and the mark achieved by a candidate in each of the stations.

Attempts:

Trainees have a maximum of four attempts at each section of the examination with no re-entry. A pass in section 1 is required to proceed to section 2 and must be achieved within two years of the first attempt. The time limit for completion of the entire examination process is seven years. Pro-rata adjustments are permissible to these timescales for LTFT trainees. Trainees in Plastic Surgery become eligible to sit section 1 following an ARCP outcome 1 at the end of phase 2 of specialty training. Further details can be found at:
https://www.jcie.org.uk/content/content.aspx?ID=12

5.3.7 Annual Review of Competence Progression (ARCP)

The ARCP is a formal Deanery/HEE Local Office process overseen and led by the TPD. It scrutinises the trainee's suitability to progress through the training programme. It bases its decisions on the evidence that has been gathered in the trainee's learning portfolio during the period between ARCP reviews, particularly the AES report in each training placement. The ARCP would normally be undertaken on an annual basis for all trainees in surgical training. A panel may be convened more frequently for an interim review or to deal with progression issues (either accelerated or delayed) outside the normal schedule. The ARCP panel makes the final summative decision determines whether trainees are making appropriate progress to be able to move to the next level or phase of training or to achieve certification.

5.4 Completion of training in Plastic Surgery

The following requirements are applied to all trainees completing the curriculum and applying for certification and entry to the specialist register.

All seeking certification in Plastic Surgery must:

a) be fully registered with the GMC and have a licence to practise (UK trainees) or be registered with the Medical Council in Ireland (Republic of Ireland trainees)
b) have successfully passed the ISB examination
c) have achieved level IV or V in all the CiPs
d) have achieved the competencies described in the nine domains of the GPC framework
e) have been awarded an outcome 6 at a final ARCP (if applying for specialist registration through certification).

In order to be awarded an outcome 6 at the final ARCP, trainees must be able to satisfy the following specialty specific certification requirements:

a) Generic requirements shared between surgical specialties

Research - Trainees must provide evidence of having met the relevant requirements for research and scholarship. For UK trainees, this can be found in the GMC's GPC framework. Broadly, this includes capabilities in 4 areas: 1. The demonstration of evidence-based practice. 2. Understanding how to critically appraise literature and conduct literature searches and reviews. 3. Understanding and applying basic research principles. 4. Understanding the basic principles of research governance and how to apply relevant ethical guidelines to research activities.	
Quality Improvement - evidence of an understanding of, and participation in, audit or service improvement as defined in the curriculum	Trainees must complete or supervise an indicative number of three audit or quality improvement projects during specialty training. In one or more of these, the cycle should be completed.
Medical Education and training - evidence of an understanding of, and participation in, medical education and training as defined in the curriculum	Trainees must provide evidence of being trained in the training of others and present written structured feedback on their teaching uploaded to the ISCP portfolio.
Management and leadership - evidence of an understanding of management structures and challenges of the health service in the training jurisdiction	Trainees must provide evidence of training in health service management and leadership and having taken part in a management related activity e.g. rota administration, trainee representative, membership of working party etc. or of having shadowed a management role within the hospital.

b) Requirements specific to Plastic Surgery

Additional courses / qualifications - evidence of having attended specific courses/gained specific qualifications as defined in the curriculum	The Advanced Trauma Life Support® (ATLS®), European Trauma Course, Definitive Surgical Trauma Skills course or equivalent locally provided course(s) meeting the outcomes described
Specialist conferences - evidence of having attended conferences and meetings as defined in the curriculum appropriate to the specialty	It is recommended that trainees attend national or international meetings during training (e.g. annual meetings of specialty associations or major international equivalents).
Clinical experience - evidence of the breadth of clinical experience defined in the specialty syllabus.	Trainees must have completed a training programme rotating through posts in a minimum of 2 centres. Trainees must have been trained in specialty areas across the range of Plastic Surgery (key areas considered are seen below): • Breast surgery • Burns • Cleft lip and palate • Chest wall reconstruction • Pelvic floor reconstruction • Head and neck • Aesthetic • Sarcoma • Ear reconstruction • GU reconstruction • Complex wound • Craniofacial including craniomaxillofacial trauma • Psychological aspects of Plastic Surgery • Vascular anomalies • Skin surgery including skin cancer • Oncoplastic breast surgery • Lower limb • Hand
Operative experience - consolidated logbook evidence of the breadth of operative experience defined in the specialty syllabus	Trainees must have undertaken, either as sole operator or with assistance, and indicative number of 2100 logbook operative procedures during the indicative six years of training (as principal surgeon) in recognised training units. Trainees must be able to demonstrate areas of specialist interest by evidence of experience of advanced surgical procedures in their logbooks, especially in the latter years of training.

	Trainees should demonstrate competence in the range of emergency and elective procedures with indicative numbers as follows: INDICATIVE NUMBERS **Elective** competencies: • Dupuytren's contracture surgery – 24 • Lymph node surgery – 15 • Free tissue transfer - 27 • Breast reconstruction - 40 • Aesthetic (performed/assisted) - 100 • Excision skin lesion – 100 • Cleft surgery (performed/assisted) – 35 **Emergency** competencies: • Zone 1-2 flexor tendon repair – 30 • Microvascular anastomosis – 35 • Burns resuscitation – 18 • Excisional burns surgery - 60 • Hand fracture fixation - 45 • Neurosynthesis - 50 • Lower limb trauma - 50 Trainees should achieve the indicative number of procedures (see below) in the indicative domains. INDICATIVE NUMBERS **Elective** competencies: • Dupuytren's contracture surgery – 15 • Lymph node surgery – 10 • Free tissue transfer - 16 • Breast reconstruction - 20 • Aesthetic (performed/assisted) - 50 • Excision skin lesion – 70 • Cleft surgery (performed/assisted) – 20 **Emergency** competencies: • Zone 1-2 flexor tendon repair – 16 • Microvascular anastomosis – 20 • Burns resuscitation – 16 • Excisional burns surgery - 30 • Hand fracture fixation - 30 • Neurosynthesis - 30 • Lower limb trauma - 25
Index procedures - Index procedures are of significant importance for patient safety and to demonstrate a safe breadth of practice.	For a list of index procedures, please refer to appendix 4. The Index procedures will be assessed individually by means of the PBA. By the end of phase 3, there should be evidence that an indicative number of three or more operations in each

	procedure group has been assessed and recorded at the level of a day-one consultant (level 4 PBA).
Critical conditions - To ensure that trainees have the necessary skills to manage the defined critical conditions.	Please refer to the critical conditions list in appendix 3. There should be documented evidence of performance at the level of a day-one consultant (via CEX / CBD as appropriate at level 4).

Table 3: Requirements for completion of training in Plastic Surgery: a) generic requirements shared between all surgical specialties and b) requirements specific to Plastic Surgery. Attainment of these requirements contribute to evidence that outcomes of training have been met.

Once these requirements have been met, the ARCP panel may consider the award of outcome 6 having reviewed the portfolio and AES report. Award of outcome 6 allows the trainee to seek recommendation for certification and entry onto the specialist register.

6 Recording progress in the ISCP Learning portfolio

This curriculum is available through the JCST's Intercollegiate Surgical Curriculum Programme (ISCP) training management system at www.iscp.ac.uk. Trainees and all involved with training must register with the ISCP and use the curriculum as the basis of their discussion and to record assessments and appraisals. Both trainers and trainees are expected to have a good knowledge of the curriculum and should use it as a guide for their training programme. Each trainee must maintain their learning portfolio by developing learning objectives, undergoing assessments, recording training experiences and reflecting on their learning and feedback.

The ISCP learning portfolio can be used to build a training record of trainee conduct and practice as follows:

- Trainees can initiate the learning agreement and WBAs directly with supervisors. They can record logbook procedures and other evidence using a variety of forms. They can also link WBAs with critical conditions and index procedures.
- TPDs can validate trainees in their placements, monitor training and manage the ARCP.
- Deanery/HEE Local Office administrators can support the TPD, JCST trainee enrolment and ARCP process.
- AESs can complete trainee appraisal through the learning agreement, monitor trainee portfolios and provide end of placement AES reports.
- CSs can complete the MCR at the mid-point and end of each placement.
- Assessors can record feedback and validate WBAs.
- Other people involved in training can access trainee portfolios according to their role and function.

Appendix 1: Capabilities in Practice

In each of the CiPs the word 'manage' is defined as clinical assessment, diagnosis, investigation and treatment (both operative and non-operative) and recognising when referral to more specialised or experienced surgeons is required for definitive treatment. Trainees are expected to apply syllabus defined knowledge and skills in straightforward and unusual cases across the breadth of the specialty across all CiPs.

Shared Capability in Practice 1:

Manages an out-patient clinic

Good Medical Practice Domains 1,2,3,4

Description

Manages all the administrative and clinical tasks required of a consultant surgeon in order that all patients presenting as out-patients in the specialty are cared for safely and appropriately.

Example descriptors:

- Assesses and prioritises GP and inter-departmental referrals and deals correctly with inappropriate referrals
- Assesses new and review patients using a structured history and a focused clinical examination to perform a full clinical assessment, and determines the appropriate plan of action, explains it to the patient and carries out the plan
- Carries out syllabus defined practical investigations or procedures within the out-patient setting
- Adapts approach to accommodate all channels of communication (e.g. interpreter, sign language), communicates using language understandable to the patient, and demonstrates communication skills with particular regard to breaking bad news. Appropriately involves relatives and friends
- Takes co-morbidities into account
- Requests appropriate investigations, does not investigate when not necessary, and interprets results of investigations in context
- Selects patients with urgent conditions who should be admitted from clinic
- Manages potentially difficult or challenging interpersonal situations, including breaking bad news and complaints
- Completes all required documentation
- Makes good use of time
- Uses consultation to emphasise health promotion

Specialty specific requirements:

See critical conditions (appendix 3 of the curriculum)

Supervision levels:

Level I: Able to observe only

Level II: Able and trusted to act with direct supervision:

a) Supervisor present throughout
b) Supervisor present for part

Level III:	Able and trusted to act with indirect supervision
Level IV:	Able and trusted to act at the level expected of a day-one consultant
Level V:	Able and trusted to act at a level beyond that expected of a day-one consultant

Shared Capability in Practice 2:

Manages the unselected emergency take

Good Medical Practice Domains 1,2,3,4

Description

Manages all patients with an emergency condition requiring management within the specialty. Able to perform all the administrative and clinical tasks required of a consultant surgeon in order that all patients presenting as emergencies in the specialty are cared for safely and appropriately.

Example descriptors:

- Promptly assesses acutely unwell and deteriorating patients, delivers resuscitative treatment and initial management, and ensures sepsis is recognised and treated in compliance with protocol
- Makes a full assessment of patients by taking a structured history and by performing a focused clinical examination, and requests, interprets and discusses appropriate investigations to synthesise findings into an appropriate overall impression, management plan and diagnosis
- Identifies, accounts for and manages co-morbidity in the context of the surgical presentation, referring for specialist advice when necessary
- Selects patients for conservative and operative treatment plans as appropriate, explaining these to the patient, and carrying them out
- Demonstrates effective communication with colleagues, patients and relatives
- Makes appropriate peri- and post-operative management plans in conjunction with anaesthetic colleagues
- Delivers ongoing post-operative surgical care in ward and critical care settings, recognising and appropriately managing medical and surgical complications, and referring for specialist care when necessary
- Makes appropriate discharge and follow up arrangements
- Carries out all operative procedures as described in the syllabus
- Manages potentially difficult or challenging interpersonal situations
- Gives and receives appropriate handover

Specialty specific requirements:

- See critical conditions (appendix 3 of the curriculum)
- Trauma course (ATLS or equivalent)

Supervision levels:

Level I:	Able to observe only
Level II:	Able and trusted to act with direct supervision:

a) Supervisor present throughout
b) Supervisor present for part

Level III: Able and trusted to act with indirect supervision

Level IV: Able and trusted to act at the level expected of a day-one consultant

Level V: Able and trusted to act at a level beyond that expected of a day-one consultant

Shared Capability in Practice 3:

Manages ward rounds and the on-going care of in-patients

Good Medical Practice Domains 1,2,3,4

Description

Manages all hospital in-patients with conditions requiring management within the specialty. Able to perform all the administrative and clinical tasks required of a consultant surgeon in order that all in-patients requiring care within the specialty are cared for safely and appropriately.

Example descriptors:

- Identifies at the start of a ward round if there are acutely unwell patients who require immediate attention
- Ensures that all necessary members of the multi-disciplinary team are present, knows what is expected of them and what each other's roles and contributions will be, and contributes effectively to cross specialty working
- Ensures that all documentation (including results of investigations) will be available when required and interprets them appropriately
- Makes a full assessment of patients by taking a structured history and by performing a focused clinical examination, and requests, interprets and discusses appropriate investigations to synthesise findings into an appropriate overall impression, management plan and diagnosis
- Identifies when the clinical course is progressing as expected and when medical or surgical complications are developing, and recognises when operative intervention or re-intervention is required and ensures this is carried out
- Identifies and initially manages co-morbidity and medical complications, referring on to other specialties as appropriate
- Contributes effectively to level 2 and level 3 care
- Makes good use of time, ensuring all necessary assessments are made and discussions held, while continuing to make progress with the overall workload of the ward round
- Identifies when further therapeutic manoeuvres are not in the patient's best interests, initiates palliative care, refers for specialist advice as required, and discusses plans with the patient and their family
- Summarises important points at the end of the ward rounds and ensures all members of the multi-disciplinary team understand the management plans and their roles within them
- Gives appropriate advice for discharge documentation and follow-up

Specialty specific requirements:

See critical conditions (appendix 3 of the curriculum)

Supervision levels:

Level I: Able to observe only

Level II: Able and trusted to act with direct supervision:

a) Supervisor present throughout
b) Supervisor present for part

Level III: Able and trusted to act with indirect supervision

Level IV: Able and trusted to act at the level expected of a day-one consultant

Level V: Able and trusted to act at a level beyond that expected of a day-one consultant

Shared Capability in Practice 4:

Manages an operating list

Good Medical Practice Domains 1,2,3,4

Description

Manages all patients with conditions requiring operative treatment within the specialty. Able to perform all the administrative and clinical tasks required of a consultant surgeon in order that all patients requiring operative treatment receive it safely and appropriately.

Example descriptors:

- Selects patients appropriately for surgery, taking the surgical condition, co-morbidities, medication and investigations into account, and adds the patient to the waiting list with appropriate priority
- Negotiates reasonable treatment options and shares decision-making with patients
- Takes informed consent in line with national legislation or applies national legislation for patients who are not competent to give consent
- Arranges anaesthetic assessment as required
- Undertakes the appropriate process to list the patient for surgery
- Prepares the operating list, accounting for case mix, skill mix, operating time, clinical priorities, and patient co-morbidity
- Leads the brief and debrief and ensures all relevant points are covered for all patients on the operating list
- Ensures the WHO checklist (or equivalent) is completed for each patient at both the beginning and end of each procedure
- Understands when prophylactic antibiotics should be prescribed and follows local protocol
- Synthesises the patient's surgical condition, the technical details of the operation, co-morbidities and medication into an appropriate operative plan for the patient
- Carries out the operative procedures to the required level for the phase of training as described in the specialty syllabus

- Uses good judgement to adapt operative strategy to take account of pathological findings and any changes in clinical condition
- Undertakes the operation in a technically safe manner, using time efficiently
- Demonstrates good application of knowledge and non-technical skills in the operating theatre, including situation awareness, decision-making, communication, leadership, and teamwork
- Writes a full operation note for each patient, ensuring inclusion of all post-operative instructions
- Reviews all patients post-operatively
- Manages complications safely, requesting help from colleagues where required

Specialty specific requirements:

- Trainees must have undertaken, either as sole operator or with assistance, 2100 logbook operative procedures during the indicative six years of training (as principal surgeon) in recognised training units
- Trainees must be able to demonstrate areas of specialist interest by evidence of experience of advanced surgical procedures in their logbooks, especially in the latter years of training
- Trainees should demonstrate competence in the range of emergency and elective procedures with indicative numbers as shown in appendix 4 of the curriculum

Supervision levels:

Level I: Able to observe only

Level II: Able and trusted to act with direct supervision:

a) Supervisor present throughout
b) Supervisor present for part

Level III: Able and trusted to act with indirect supervision

Level IV: Able and trusted to act at the level expected of a day-one consultant

Level V: Able and trusted to act at a level beyond that expected of a day-one consultant

Shared Capability in Practice 5:

Manages multi-disciplinary working

Good Medical Practice Domains 1,2,3,4

Description

Manages all patients with conditions requiring inter-disciplinary management (or multi-consultant input as in trauma or fracture meetings in Trauma and Orthopaedic Surgery) including care within the specialty. Able to perform all the administrative and clinical tasks required of a consultant surgeon in order that safe and appropriate multi-disciplinary decisions are made on all patients with such conditions requiring care within the specialty.

Example Descriptors:

Appropriately selects patients who require discussion at the multi-disciplinary team

Follows the appropriate administrative process

Deals correctly with inappropriate referrals for discussion (e.g. postpones discussion if information is incomplete or out-of-date)

Presents relevant case history, recognising important clinical features, co-morbidities and investigations

Identifies patients with unusual, serious or urgent conditions

Engages constructively with all members of the multi-disciplinary team in reaching an agreed management decision, taking co-morbidities into account, recognising when uncertainty exists, and being able to manage this

Effectively manages potentially challenging situations such as conflicting opinions

Develops a clear management plan and communicates discussion outcomes and subsequent plans by appropriate means to the patient, GP and administrative staff as appropriate

Manages time to ensure the case list is discussed in the time available

Arranges follow up investigations when appropriate and knows indications for follow up

Specialty specific requirements: None

Supervision levels:

Level I: Able to observe only

Level II: Able and trusted to act with direct supervision:

a) Supervisor present throughout
b) Supervisor present for part

Level III: Able and trusted to act with indirect supervision

Level IV: Able and trusted to act at the level expected of a day-one consultant

Level V: Able and trusted to act at a level beyond that expected of a day-one consultant

Specialty-specific Capability in Practice 6:

Safely assimilates new technologies and advancing techniques in the field of Plastic Surgery into practice

Good Medical Practice Domains 1,2,3,4

Description

Able to maintain familiarity with advances in techniques, and to assimilate these into practice as appropriate. Critically evaluates new techniques presented to them, and disseminates any advances that they have been able to achieve.

Example descriptors:

- Critically appraises evidence and published literature
- Demonstrates an open minded approach to new techniques
- Attends and is interested in conferences and courses
- Demonstrates awareness of the processes surrounding the safe introduction of new technologies or techniques
- Demonstrates the ability to appraise the cost-effectiveness of particular techniques

Supervision levels:

Level I: Able to observe only

Level II: Able and trusted to act with direct supervision:

a) Supervisor present throughout
b) Supervisor present for part

Level III: Able and trusted to act with indirect supervision

Level IV: Able and trusted to act at the level expected of a day-one consultant

Level V: Able and trusted to act at a level beyond that expected of a day-one consultant

Appendix 2: Plastic Surgery Syllabus

The syllabus adopts a modular structure that encompasses the competency requirements of Knowledge, Clinical Skills and Technical Skills. The modular format is presented in a hierarchical manner; namely Basic, Intermediate or Advanced levels of complexity. The definition of levels applies to the entirety of the programme and does not vary between phases 2 and 3. Thus an advanced competency is the same whether or not it is retained as an item under phase 2 or 3.

Syllabus standards

A. Basic level competencies
Within each module there are elemental topics that are designed to act as building blocks from which more complex competences can be achieved.

B. Intermediate level competency
These include a list of the more common topics within each module and most of these competencies will have been achieved within phase prior to entry into phase e.

C. Advanced level competency
This third tier of topics includes the most complex topics in each module. Those items that are specified here are for all phase 2 trainees.

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

Summary of Plastic Surgery Syllabus:

Module	Sub-section
Aesthetic	Aesthetic Surgery of Face, Orbit & Neck Rhinoplasty and Otoplasty Rejuvenation/restoration of the trunk, body contouring, liposuction & fat grafting
Breast surgery	Surgery of the Breast Non-Surgical rejuvenation
Burns	Burns classification, primary management and transfer Burns resuscitation and critical care Burns early surgery Burns late surgery Burns infection and other complications Paediatric burns
Chest wall reconstruction	Chest wall reconstruction

Cleft	Primary management of cleft lip and nose Secondary repair of cleft lip and nose Primary repair of cleft palate Secondary speech surgery Dento-alveolar defect including alveolar bone grafting Orthognathic surgery / Working with the Cleft MDT
Complex Wound	Complex wound
Craniofacial	Craniofacial General Principles Craniosynostosis Craniofacial tumours in adults and children Craniofacial syndromes of tissue deficiency Craniofacial overgrowth syndromes Orbital surgery
Craniomaxilliofacial trauma	Craniomaxillofacial trauma
Ear reconstruction	Ear deformities and ear reconstruction
Genitourinary recon.	Hypospadias and allied conditions Epispadias, Anomalies of Female Genitalia, Ambiguous Genitalia and Acquired Perineal Defects Genital Reassignment
Hand	Skin / Soft tissue / Microsurgery / Dupuytren's Disease Fractures and Joint Injuries including Wrist Instability Osteoarthritis and Inflammatory Arthritis Tendon and tendon-related disorders Nerve and nerve-related disorders The Child's Hand, Vascular Disorders and Tumours
Head & Neck	Basic Sciences Skin-related neoplasia of the head & neck Non skin-related neoplasia of the head & neck Techniques for reconstruction of the head & neck Reconstruction of specific head and neck sites Facial Reanimation
Lower Limb	Assessment and primary management lower limb injuries Debridement, stabilisation and compartment syndrome Soft tissue reconstruction Vascular injuries and amputation Complications Paediatric injuries and outcome measures
Oncoplastic breast	Basic Sciences Breast Cancer Benign breast conditions Breast reconstruction – Implant based techniques Reconstruction – Autologous tissue based techniques
Pelvic floor reconstruction	Pelvic reconstruction
Skin surgery	Basic Sciences & Skin Assessment Primary treatment of Skin-related neoplasia Treatment of recurrent and chronic skin tumours Reconstructive techniques for skin surgery

	Scarring, wounds and other surgical conditions of the skin Multidisciplinary team workings, allied professionals, palliative care and follow up regimes, trials, research and national guidelines
Vascular anomalies	Vascular Anomalies
Sarcoma	Sarcoma
Psychological aspect of Plastic Surgery	Dealing with patients impacted by disfigurement and loss of form and function

Aesthetic Surgery of Face, Orbit & Neck
OBJECTIVE
Acquires competence in the diagnosis, aesthetic assessment and safe management of all patients presenting for consideration of avoidance or reversal of the features of physiological aging of the face, brow, neck and orbits.
KNOWLEDGE
BASIC
Should be able to demonstrate knowledge of:
psychology of the desire for anti-aging interventions
features denoting high-risk groups of patients that may present for surgical rejuvenation
normal facial anatomy and its common variants, including clear understanding of the blood supply, sensory and motor innervation
facial musculature and the course and distribution of the facial nerve
the fascial planes of the face and the brow and the pattern of fascial compartments of the brow, face and neck
anatomy of the eyelids
cosmetic units of the face
the effect of sun exposure on the texture and elasticity of the skin and the patterns of aging
effect of various laser/light treatments on the dermis
mechanisms of healing of partial thickness injury in facial skin
formulation and application of chemical peeling agents
INTERMEDIATE
Should be able to demonstrate knowledge of:
accurate assessment and analysis of the pattern of face aging
injectable fillers available, their uses, contraindications and interactions
pharmacology of paralytic agents, the different formulations and the muscle groups to which they may be applied
role of fillers and paralytics in the overall patient management plan
indications for, and design of, endoscopic and open browlift and foreheadplasty
fixation methods in brow lift
indications and contraindications for facelift
anatomy of the SMAS layer and how it may be modified
facial fat pads and how they change with time
variation of designs for facelift incisions
different methods of facelifting
different methods of necklifting
designs and variations of blepharoplasty, upper and lower
role of submental lipectomy and liposuction

management of complications of rejuvenation surgery
ADVANCED
Should be able to demonstrate knowledge of:
applications, indications, limitations and complications of blepharoplasty alone and in combination with other techniques.
CLINICAL SKILLS
BASIC
assess and deliver non-operative management of the acute surgical patient
take history to include features relevant to the assessment and management of the aesthetic features of the head and neck
examine the patient to include relevant aesthetic features of the head and neck
INTERMEDIATE
assessment and analysis of all the features of the aging eyelid
demonstrate knowledge of the management algorithms, combinations and permutations of the rejuvenation procedures covered in this section including appropriate investigations
record accurate assessment of the pattern of symptoms and physical features
ADVANCED
demonstrate skills of analysis and diagnostic synthesis, judgement, surgical planning
prepare an overall management plan for a given patient
assess the psychological suitability for rejuvenation surgery and appropriately refer for expert advice as necessary
undertake risk benefit analysis of non-pathological based surgery
counsel and consent a patient for rejuvenation intervention
define the subgroup of patients that can be managed by nonsurgical intervention
recognise and counsel the unrealistic patient
manage the situation whereby a patient's best interests are served by declining to treat that patient
deal with disappointment and postoperative dissatisfaction
TECHNICAL SKILLS AND PROCEDURES
BASIC
planning, designing and performing excision of facial skin lesions for aesthetic indications
selecting and using injectables for fine rhytids
using paralytics to weaken aging muscle groups
upper lid blepharoplasty
INTERMEDIATE
facelift with plication of the SMAS
MACS lift
submental lipectomy
liposuction for the face and neck areas.
pan or regional facial rejuvenation by laser / chemical peel / dermabrasion
ADVANCED
lower lid blepharoplasty by external or transconjunctival approaches

Rhinoplasty and Otoplasty
OBJECTIVE
Competence in the diagnosis, planning and management of all aspects of aesthetic nasal and aesthetic ear surgery
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
Rhinoplasty
anatomy of the nose including detailed description of the bone, cartilage, soft tissue structures, aesthetic units
blood supply of the nose including ophthalmic artery, facial artery and angular artery as well as nerve supply
physiological functions of the nose and how these may be affected by nasal surgery
facial aesthetics including the psychological implications of rhinoplasty surgery
dysmorphophobia and recognises clinical features of condition
local anaesthesia and the use of topical agents such as cocaine
Otoplasty
anatomy of the ear including embryology and growth (including nomenclature of different elements of the ear)
blood supply of the ear including branches from external carotid artery, posterior auricular artery and superficial temporal artery
nerve supply of the ear including auriculotemporal nerve, great auricular nerve, branches of the vagus nerve and lesser occipital nerve
INTERMEDIATE
Should demonstrate knowledge of:
Rhinoplasty
techniques to manage the nasal dorsum including dorsal hump reduction and dorsal augmentation
different osteotomy techniques including placement of osteotomies
techniques of endonasal and open approaches, including appropriate selection of surgical technique,
management of the alar cartilages and septum including resection, dome suturing and cartilage grafting techniques
endonasal and open approaches to rhinoplasty
techniques for nasal tip adjustment including resection, suturing, control of projection
management of septal trauma
Otoplasty
appropriate age-related considerations in respect of timing of otoplasty. cartilage maturation
non-surgical management including neonatal moulding techniques
anaesthesia including use of local anaesthesia and appropriate infiltration/blocks
classification of prominent ears and definitions of cup ear, lop ear and Stahl's deformity
surgical techniques for prominent ear correction including cartilage scoring e.g. Chongchet and suture-only techniques e.g. modified Mustardé
various dressing techniques with their relative merits
potential complications of prominent ear correction with risk factors for the same, including infection and necrosis of cartilage and skin
ADVANCED
Should demonstrate knowledge of:

Rhinoplasty
complications of rhinoplasty surgery including functional complications
secondary rhinoplasty techniques with indications for same
Otoplasty
the reconstructive techniques available for treatment of significant necrosis or deformity following prominent ear correction
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
Rhinoplasty
arrange appropriate views for clinical photographic record
elicit focussed history in respect of the rhinoplasty patient
examine patient with reference to the nose including preoperative analysis of appearance and function
recognise the need for psychological assessment and identifies dysmorphophobia
Otoplasty
clinically assess the patient with reference to the external ear and demonstrates appropriate communication when dealing with the paediatric patients
arrange appropriate views for clinical photographic record
take consent for primary otoplasty modifying communication when dealing with paediatric patient
recognise the need for psychological assessment and identifies dysmorphophobia
INTERMEDIATE
Should demonstrate ability to:
Rhinoplasty
clinically assess and analyse nasal defects including issues of balance and proportion
make a surgical plan for primary rhinoplasty using skills of analysis and judgement
counsel and consent patient for rhinoplasty surgery
recognise and counsel the unrealistic patient
explain to patient when rhinoplasty not in best interests of patient
Otoplasty
clinically assess and analyse ear deformities including issues of symmetry and proportion
make a surgical plan for primary otoplasty using skills of analysis and judgement
counsel and consent patient for otoplasty surgery
recognise and counsel the unrealistic patient
explain to patient when otoplasty not in best interests of patient
ADVANCED
Should demonstrate ability to:
Rhinoplasty
examine the patient with reference to the nose including preoperative analysis of appearance and function
deal with disappointment and postoperative dissatisfaction
make a surgical plan for secondary using skills of analysis and judgement,
counsel and consent patient needing secondary rhinoplasty surgery
recognise and counsel the unrealistic patient
explain to patient when rhinoplasty not in best interests of patient
Otoplasty

deal with postoperative complications
deal with disappointment and postoperative dissatisfaction
make a surgical plan for secondary otoplasty using skills of analysis and judgement
counsel and consent patient for secondary otoplasty surgery
recognise and counsel the unrealistic patient
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
Rhinoplasty
application of internal and external nasal splints
drainage of septal haematoma
harvesting cartilage graft from ear and costochondral junction
nasal packing for bleeding
infiltrating nose with local anaesthetic and administer topical agents such as cocaine
osteotomies of nasal bones (various patterns)
Otoplasty
infiltration of ears with local anaesthesia including greater auricular nerve blocks
application of prominent ear head dressing
INTERMEDIATE
Should be able to perform:
Rhinoplasty
closed approach to the septum with or without concomitant rhinoplasty
submucous resection of spurs
approach to the septum during open rhinoplasty
enlargement of septal perforation to reduce symptoms
cartilage graft harvest from nasal septum
adjustment of nasal dorsum including dorsal hump, reduction and dorsal augmentation
Otoplasty
primary otoplasty with cartilage-scoring techniques
primary otoplasty with suture-only techniques
management of complications including haemorrhage, infection and necrosis of skin and cartilage
ADVANCED
Should be able to perform
Rhinoplasty
harvesting calvarial bone graft
septoplasty surgery including scoring and SMR techniques
septoplasty with or without cartilage grafting
management of complications including haemorrhage
secondary procedures to correct unsatisfactory results
closure of septal perforation
reconstruction of septum for nasal support
Otoplasty
secondary procedures to correct unsatisfactory results including ear reconstruction techniques (see Ear Reconstruction Module),
techniques to correct other deformities such as cup ear, lop ear and Stahl's deformity

Rejuvenation/restoration of the trunk, body contouring, liposuction & fat grafting
OBJECTIVE
Acquire competence in the assessment, planning correction and management of all aspects of body lifting and contouring
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy of the skin and subcutis
patterns and organisation of the blood and nerve supply of the relevant regions of the skin
pattern of relaxed skin tension lines over the whole body
pathogenesis of thromboembolic disease, and the prophylaxis and management of these disorders
selection of appropriate prophylactic antibiotics
INTERMEDIATE
Should demonstrate knowledge of:
principles of bariatric surgery
metabolic consequences of bariatric surgery
pathogenesis, effects and management of tissue necrosis
appropriate placement of incisions for best aesthetic outcome
complications of skin-tailoring surgery
principles of liposuction and know of the different devices and their relative risks and benefits
effects of postoperative changes in body weight and pregnancy in this group of patients
pathology and principles of fat grafting
ADVANCED
Should demonstrate knowledge of:
psychological condition of dysmorphophobia
condition of monosymptomatic hyperchondriacal psychosis
psychosexual impacts of body image disorder
patterns of acquired skin excess
syndromic abnormalities of skin laxity
forms of lipodystrophy, its patterns and presentations
specific complications of the various techniques of liposuction
techniques, donor sites and morbidity of fat grafting
the developing research into trophic/non-volumetric effects of fat grafts
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
assess and deliver non-operative management of the acute surgical patient
take history to include features relevant to the assessment and management of body contour problems
examine the patient with reference to patterns of skin excess and laxity to include assessment and documentation of symptomatically unpleasing body contours
INTERMEDIATE
Should demonstrate ability to:
undertake clinical assessment for the perceived deformities covered in this module
translate presenting complaints into an appropriate plan for potential intervention
recognise the patient seeking treatment of obesity by body contouring

ADVANCED
Should demonstrate ability to:
make a surgical plan for the individual patient in respect of conditions covered in this module using skills of analysis and judgement
assess the psychological suitability for body contouring surgery and appropriately refers for psychological advice as necessary
perform risk-benefit analysis of non-pathological based surgery
counsel and consent a patient for an episode of body contouring surgery
communicate the range of secondary effects of a given operation and suggest adjuvant procedures or alternative techniques
accurately assess local volume excess and translate that into a plan for liposuction
recognise lipodystrophies
recognise local fat deficiencies which will benefit from fat grafting
recognise and counsel the unrealistic patient
explain to patient when body contouring surgery not in best interests of patient
deal with disappointment and postoperative dissatisfaction
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to undertake:
wound management and dressing care
management of the necrotic wound and its defect
range of wound closure techniques
application of closed suction drainage
INTERMEDIATE
Should be able to perform:
various patterns of abdominoplasty
correction of lax abdominal musculature
regional liposuction
scar revision including management of the ‘dogear’
fat graft harvest and preparation of fat grafts
undertakes local lipofilling with fat graft
ADVANCED
Should be able to perform:
modified abdominoplasty in the presence of unfavourable abdominal scarring
brachioplasty
BELT/body lift
buttock lift
thigh lift
liposuction of the arms or distal to the mid thigh, major circumferential liposuction
complex combination procedures
major staged fat graft for general contour restoration
secondary contouring procedures to correct unsatisfactory results

Non-Surgical rejuvenation
OBJECTIVE
Acquire competence in the management of the aesthetic patient using non-surgical enhancement techniques
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy and physiology of skin including classification of skin types
normal ageing changes of skin including changes related to sun exposure
range of products and non-surgical techniques available for non-surgical rejuvenation
the role of these techniques, the indications for use as sole techniques and as adjuncts to other surgical procedures
INTERMEDIATE
Should demonstrate knowledge of:
specific patterns of ageing in different parts of the body with emphasis on face, neck and hands
biology of scarring, pigmentation changes, and their modulation
factors and conditions that may cause premature ageing including smoking and substance abuse
mechanism of action, effects and duration of action of the products and techniques used for non-surgical rejuvenation. Specifically, the range of preparations of botulinum toxin, dose schedules and how to achieve complete and partial temporary paralysis of selected muscle groups
the various filler injection preparations on the market and the literature regarding outcomes of the same (permanent, semi-permanent and temporary fillers)
different types of lasers available for aesthetic enhancement, their potential applications, mechanism of action, treatment schedules and usage
ADVANCED
Should demonstrate knowledge of:
racial differences in skin type and the differences in response by skin type to the interventions described in this module
complications of use of non-surgical techniques including use of hydoxyquinones, botulinum toxin overuse, scarring from chemical peel, laser
regulatory framework for supply of relevant products on named patient basis. Know about the regulation of non-surgical rejuvenation including the legislation and safety requirements on the use of lasers.
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
elicit relevant features in patient history including the specific concerns of the patient
identify and enumerate the features of facial ageing and examines the skin and underlying tissues to demonstrate those features
INTERMEDIATE
Should demonstrate ability to:
identify evidence of previous treatments including active botulinum toxin, stigmata of laser resurfacing / dermabrasion / microdermabrasion
formulate management plan for the optimal enhancement of the facial aesthetic patient by non-surgical techniques
optimize the sequencing of the recommended treatments
undertake basic functional and psychological assessment of patient’s needs

show ability to take clinical photographs and catalogue within the legislative framework of the Data Protection Act, and offer appropriate explanation to patient regarding the safeguarding and use of their images
ADVANCED
Should demonstrate ability to
record the patient's pretreatment status and progress using charts
formulates management plan for use of techniques in the patient who has previously undergone facial rejuvenation surgery including amelioration of the unsatisfactory result by non-surgical means
demonstrate planning and prescription of dermatological formulations in the form of skin care regimen for skin stimulation and skin lightening (tretinoin based / glycolic acid based)
modify the original prescription of dermatological formulations based on patient response
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
injection techniques to the facial area
steroid injection for hypertrophic or keloidal scar
filler injections for facial rhytids or small depressed scars
INTERMEDIATE
Should be able to administer:
botulinum toxin injections to glabella, forehead, periorbital, perioral and cervical areas for targeted muscle paralysis
ADVANCED
Should be able to perform
laser resurfacing treatment for skin resurfacing including fractionated CO2, erbium, NdYAG (hair removal)
chemical peel for facial rejuvenation using trichoroacetic acid / glycolic acid
micropigmentation techniques for aesthetic enhancement
microneedling for refinement of mature scar
Surgery of the Breast
OBJECTIVE
Acquire competence in the diagnosis, aesthetic assessment and safe management of all deformities and conformations of the breast, developmental and acquired, pathological and physiological.
Acquire proficiency in all aspects of breast reconstruction and subsequent revisional procedures.
Acquire facility in the psychological assessment of patients presenting for breast surgery
KNOWLEDGE
BASIC
Should be able to demonstrate knowledge of:
applied and surgical anatomy of the breast, its blood, nerve supply and function
development of the breast and congenital deformity and variations of breast form and associated structures
hormonal control of the breast and its pathology, when deranged
breast physiology in pregnancy and lactation
benign pathologies of the breast

presentation, clinical features of breast cancer, its staging, prognosis and management pathways
effect of ionizing radiation on the breast and implants
planning incisions on the breast
closure and management of breast wounds
self-perception and self-consciousness in relation to breast conformation and proportion including the social and sexual dimensions
pathology of deranged self-image
INTERMEDIATE
Should be able to demonstrate knowledge of:
content, structure, physical and biological properties of breast implants
spectrum of implants available and their applications
design, principles and applications of tissue expanders
nature, physiology and behaviour of implant capsules
management of capsular contractures
biology, implications, avoidance of and management of implant infection
various designs and approaches to breast augmentation and their applications
the issues surrounding breast size and its assessment
complications of breast augmentation and their management
various designs and patterns of breast reduction and mastopexy
complications and management of breast reduction/remodelling
presentation, management and complications of gynaecomastia
ADVANCED
Should be able to demonstrate knowledge of:
assessment of envelope and volume in relation to breast asymmetry, both developmental and acquired
classification and management pathways of the tuberous breast
management pathways and choices in breast asymmetry
impact of breast reconstruction choices on symmetry
effect of time, ageing and pregnancy on breast asymmetry correction
various techniques of breast reconstruction, their applications, design and planning
complications of breast reconstruction
techniques for salvage of failed breast surgery
techniques for nipple reconstruction, including considerations of sequence and timing
features of dysmorphophobia
psychosexual dimension in aesthetic breast surgery
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
assess and undertake non-operative of the management of the acute surgical patient
take a targeted breast history
perform patient examination including breast examination with reference to aesthetic considerations
INTERMEDIATE
Demonstrate knowledge of the management algorithms for the procedures covered in this section including investigations
ADVANCED

Should be able to:
demonstrate skills of analysis and diagnostic synthesis, judgement, surgical planning
assess and accurately record aesthetic concerns about the breast
formulate management plans in relation to aesthetic interventions
clearly explain, consent and counsel potential patients for aesthetic breast surgery
assess the psychological suitability for aesthetic breast surgery and appropriately refer for expert psychological advice as necessary
undertake risk benefit analysis of non-pathological based surgery
deal with disappointment and postoperative dissatisfaction
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
planning, execution and closing incisions on the breast with reference to aesthetic principles and sub units
designing and conduction of excision of skin lesions of the breast
undertaking an aesthetic approach to removal of benign lesions of the breast
scar revision in aesthetic breast surgery
INTERMEDIATE
Should be able to perform:
correction of the inverted nipple (various techniques)
bilateral breast augmentation by various routes, in various planes
Wise pattern bilateral breast reduction
vertical pattern bilateral breast reduction
bilateral mastopexy of periareolar, vertical and Wise patterns
excision of gynaecomastia, incorporating various forms of liposuction as appropriate
ADVANCED
Should be able to perform
correction of the spectrum of nipple deformities
unilateral or differential breast augmentation to attain symmetry
unilateral or asymmetric breast reduction in pattern or volume to attain symmetry
synchronous mastopexy and breast augmentation in several patterns
correction of tuberous breast by combinations of mastopexy, augmentation or tissue expansion
unilateral or differential mastopexy in pattern or extent to attain symmetry
revision procedures following previous aesthetic surgery of the breast
aesthetic surgery of the breast as above in patients with previous breast cancer or irradiation
fat grafting for minor deformities of the breast
Burns classification, primary management and transfer
OBJECTIVE
Acquire competence in the initial management of patients with burns in the emergency department and their transfer to an appropriate burns facility/unit/centre.
KNOWLEDGE
BASIC
Should be able to describe in detail the knowledge required to manage the acutely unwell adult and child, and the emergency management of acute burns:
Should demonstrate knowledge of:

anatomy of the body surface, physiology, pathophysiology of burn injury
factors influencing burn healing
blood supply of skin
the timing and rationale for antibiotic use
timing of initial surgery
appropriate pre-operative investigations
classification of burn injury
resuscitation options
importance of specialist centres, MDT and interdisciplinary communication, especially with anaesthetic and paediatric colleagues
the role of other members of team including microbiologists, physiotherapy, occupational therapy
paediatric fluid regimes
features and management of toxic shock syndrome
an overview of non-accidental injury
INTERMEDIATE
Should demonstrate knowledge of:
differing roles of burn facilities, units and centres and
integration with Major Trauma Centres
pathophysiology of burns and their classification
management of specific injuries e.g. inhalation, chemical and electrical burns
non-accidental injury
various transfer options available for the burn patient
ADVANCED
Should demonstrate knowledge of:
management of the multiply-injured burn patient
controversies and issues arising as a result of a decision not to resuscitate
other protection issues
the impact of disfigurement, the consequences of an altered appearance, what it involves psychologically and socially, and the impact of an individual's body image on their life and that of their family.
the process by which an individual can successfully adjust to disfigurement and explain how the multidisciplinary team can assist with that process.
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
elicit burn-related history
assess and plan the non-operative management of burn injury
recognise life-threatening injuries
perform examination to including assessment of severity (extent and depth) of injury
assess vascular status of limb
assess the presence of compartment syndrome
INTERMEDIATE
Should demonstrate ability to:
prepare a range of management options for the conditions covered in this module
work with other agencies in non-accidental injury
ADVANCED

Should demonstrate skills of analysis and diagnostic synthesis, judgement, surgical planning relevant to the subjects specified in this module.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
assessment of burn area and depth
adjunctive techniques for depth assessment
escharotomy and fasciotomy
application and change of burn dressings
INTERMEDIATE
Should be able to perform:
Demonstrate ability to use epidermal substitutes
ADVANCED
Should be able to perform:
airway management including performing tracheostomy
stabilising associated injuries and bleeding
Burns resuscitation and critical care
OBJECTIVE
Acquire competence in the initial resuscitation of a burn patient and ongoing critical care.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
options for airway management
pathophysiology of burn shock
resuscitation regimes
wound dressings
pathophysiology of inhalation injury
INTERMEDIATE
Should demonstrate knowledge of:
principles of early burn debridement
principles and management of burns and the relevance to subsequent soft tissue reconstruction
relevance of pharmacological interventions including antibiotics and inotropes
management of inhalation injury including bronchoscopy
metabolic response to the burn injury
palliative care in respect of the burn patient
PHDU practices
ADVANCED
Should demonstrate knowledge of:
microbiology of burns
principles of ventilation
nutritional support
PICU practices
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
assess burn injury

manage large burn wounds
apply temporary dressings e.g. negative pressure
INTERMEDIATE
Should demonstrate ability to:
manage more complex burns
resuscitate burns with TBSA <40%
explain the problems associated with the extremes of age and of polytrauma
prescribe appropriate antibiotics (antibiotic stewardship)
undertake nutritional management of burns patients
provide detailed advice on the treatment pathway within the context of the relevant MDT
ADVANCED
Should demonstrate ability to
recognise injuries that would benefit from primary amputation
manage the metabolic response
resuscitate burns with TBSA >40%
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
endotracheal intubation
appropriate pre-washing and prepping burn during dressing change
escharotomy and fasciotomy
application of a range of burns dressings e.g. Biobrane, Flamazine
INTERMEDIATE
Should be able to perform:
elective tracheostomy
adequate debridement of injured soft tissues to achieve a stable wound approaching elective conditions (including fascial excision)
planning of future soft tissue reconstruction
ADVANCED
Should be able to perform:
endotracheal intubation
bronchoscopy
basic ventilator management,
amputation of non-salvageable limbs
Burns early surgery
OBJECTIVE
Acquires competence in the planning and execution of appropriate early surgery in burns
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy of skin
classification of burn injury by zones
benefits and disadvantages of both early excision and conservative management
INTERMEDIATE
Should demonstrate knowledge of:
options available for early surgery

requirements of special sites
principles of management of more complex injuries, including polytrauma
planning and prioritising treatment within an MDT setting
ADVANCED
Should demonstrate knowledge of:
management of more complex injuries, and polytrauma
surgical management of the burn
principles and use of dermal and epidermal substitutes
principles of cell culture
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
clinically assesses burn injuries and demonstrates recognition of injury patterns
use simple management techniques including use of appropriate dressings
prescribe appropriate antibiotics,
plan burn excision and grafting
use of epidermal substitutes such as Biobrane
INTERMEDIATE
Should demonstrate ability to:
formulate management algorithms for the common patterns of burn injury
plan total and staged burn excision and grafting
apply psychological assessment tools for evaluation of psychological needs (patient questionnaires)
ADVANCED
Should demonstrate ability to
formulate management algorithms for complex burn injuries,
arrange patient-centred care with patient as partner in the process, providing realistic information and guiding patient decision-making regarding choices available and timing of those treatments,
manage and lead the multi-disciplinary teams in respect of provision of psycho-social care
be able to arrange the care pathway that supports an individual to successfully adjust to disfigurement through giving the individual and family specific life-skills. These include the patient being provided with information about their condition and its treatment, developing a positive outlook/belief system, learning to cope with their feelings, exchanging experiences with others who've "been there" and social skills training to manage other people's reactions.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
dressings care
skin grafts of small to moderate areas
INTERMEDIATE
Should be able to perform:
skin grafts of large areas
plan and raise flaps where grafts are not appropriate
early excision of paediatric burns to prevent systemic upset
ADVANCED
Should be able to perform:

resurfacing procedures using temporary skin cover
resurfacing using skin substitutes
limb amputations
Burns late surgery
OBJECTIVE
Acquire competence in later burn management including the planning and execution of reconstructive surgery
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy of skin and soft tissues,
pathophysiology of hypertrophic scars and keloids,
principles of scar management,
effect of growth on burn scars,
use of grafts and local flaps.
INTERMEDIATE
Should demonstrate knowledge of:
indications for use of skin substitutes, distant flaps and free flaps,
stages of bereavement associated with loss of body image and the clinical and psychological supports that can be put in place to assist the patient cope with that loss.
ADVANCED
Should demonstrate knowledge of:
principles of management of more complex injuries
surgical options for late reconstruction
novel therapies.
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
clinically assess burn scars and contractures demonstrating recognition of injury patterns
use simple management techniques including use of splints and pressure garments
plan release of burn scars using grafting and local flaps
INTERMEDIATE
Should demonstrate ability to:
formulate management algorithms for the common patterns of burn scarring
plan for the use of skin substitutes, distant flaps and free flaps
ADVANCED
Should demonstrate ability to
describe detailed management algorithms for complex burn injuries
show understanding of the complexities of burn injury reconstruction in patients with polytrauma and significant co-morbidities
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform burn scar grafting and local flaps including the Z-plasty and its variations
INTERMEDIATE
Should be able to use skin substitutes and distant flaps of small and medium areas

ADVANCED
Should be able to perform
resurfacing with skin substitutes, distant flaps and free flaps of medium and large areas
late major amputations
Burns infection and other complications
OBJECTIVE
Acquire competence in the diagnosis and management of burn infections and other complications
KNOWLEDGE
BASIC
Should demonstrate knowledge of the microbiology of burns
INTERMEDIATE
Should demonstrate knowledge of:
metabolic derangement occurring in the burn patient
concept and practice of antibiotic stewardship
ADVANCED
Should demonstrate knowledge of
antibiotic and antiseptic regimens and their rationale
controversies regarding metabolic management
multi-organ effects and systemic disturbance caused by burns
CLINICAL SKILLS
BASIC
Should demonstrate ability to undertake wound assessment
INTERMEDIATE
Should demonstrate ability for the clinical assessment and management algorithms for the infections and other burn complications
ADVANCED
Should demonstrate ability to
clinically assess the unstable complex burn patient
make decisions on appropriate management issues
interpret the range of investigations in the unstable complex burn patient to formulate management plans
manage the iatrogenic injury
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to undertake surgical management of wound infection
INTERMEDIATE
Should be able to perform radical excision of burn wound for infection.
ADVANCED
Should be able to perform amputation and other life-saving surgery in the case of infection and other complications

Paediatric burns
OBJECTIVE
Acquire competence in the diagnosis and management of paediatric burns and the recognition of the need for multidisciplinary management
KNOWLEDGE
BASIC
The knowledge requirements are as per modules 1-5, in the context of the paediatric patient
Should demonstrate knowledge as defined by PALS/APLS
paediatric fluid regimens
toxic shock syndrome
non-accidental injury
INTERMEDIATE.
As per modules 1-5, in the context of the paediatric patient
Demonstrates knowledge of PHDU practices
ADVANCED
As per modules 1-5, in the context of the paediatric patient.
Should demonstrate knowledge
other child protection issues
PICU practices
CLINICAL SKILLS
BASIC
As per modules 1-5, in the context of the paediatric patient
Works with other agencies in the event of non-accidental injury
INTERMEDIATE
As per modules 1-5, in the context of the paediatric patient
Works with the paediatric elements of the MDT
Applies the law in respect of non-accidental injury and communicates with appropriate parties
ADVANCED
As per modules 1-5, in the context of the paediatric patient
TECHNICAL SKILLS AND PROCEDURES
BASIC
As per modules 1-5, in the context of the paediatric patient
Should be able to apply Biobrane and similar dressings
INTERMEDIATE
As per modules 1-5, in the context of the paediatric patient
Should be able to perform early excision of burns to prevent systemic upset
ADVANCED
As per modules 1-5, in the context of the paediatric patient
Chest wall reconstruction
OBJECTIVE
Acquire competence in the diagnosis and management of congenital and acquired defects of the chest wall.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy and physiology of the chest wall and respiratory mechanics

common cardiothoracic procedures, their access (e.g. median sternotomy, lateral thoracotomy) and potential complications (e.g. mediastinitis, empyema, bronchopleural fistula)
indications for skeletal reconstruction in chest wall defects
INTERMEDIATE.
Should demonstrate knowledge of:
congenital chest wall deformities e.g. Poland's syndrome, pectus carinatum and pectus excavatum
local and regional flaps utilised in chest wall reconstruction and their anatomy
pathophysiology of median sternotomy breakdown and a classification for median sternotomy wounds
ADVANCED:
Should demonstrate knowledge of:
potential impact of chest wall defects on respiratory physiology
strategies for management of noncollapsible chest cavity dead space and bronchopleural fistula
prosthetic materials used in chest wall reconstruction
the effects of radiation on the chest wall and the pathophysiology of osteoradionecrosis
omental flap in chest wall reconstruction
free tissue transfer in chest wall reconstruction
techniques for repair of congenital pectus deformities
techniques for salvage of failed chest reconstruction
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
communicate and plan with other specialties to organise patient care
undertake clinical assessment of a median sternotomy wound
undertake clinical assessment of a chest wall soft tissue tumour
INTERMEDIATE
Should demonstrate ability to:
formulate a holistic management plan for an individual with a chest wall defect
undertake clinical assessment of a congenital chest wall deformity
consent a patient for chest wall reconstruction, discussing advantages and disadvantages of reconstructive options and detailing possible complications
manage complications of chest wall reconstructive surgery appropriately
ADVANCED:
Should demonstrate ability to:
clinically assess complex reconstructive cases, including salvage reconstruction, and formulate an appropriate multi-disciplinary management plan
formulate a care pathway for an individual with a congenital chest wall deformity, including provision of psycho-social care as well as a holistic management plan that considers the aesthetic as well as functional consequences of the condition and subsequent treatment
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to:
apply a negative pressure dressing to a chest wall defect
perform skin grafting to a chest wall defect
perform a range of local skin flaps for a chest wall defect
INTERMEDIATE

Should be able to perform:
primary debridement of a chest wall wound
pectoralis major and rectus abdominis pedicled muscle flaps for median sternotomy coverage
ADVANCED
Should be able to perform:
1. fasciocutaneous / musculocutaneous / muscle-only flap reconstruction for thoracic defects (e.g. serratus anterior, trapezius, latissimus dorsi or parascapular flaps).
2. reconstruction of defect with omental flap (in concert with general surgery colleague)
Primary management of cleft lip and nose
OBJECTIVE
Acquire competence in the management of the unrepaired cleft lip and nose deformity
KNOWLEDGE
BASIC
Should be able to demonstrate knowledge of:
surgical anatomy, pathological anatomy, embryology and basic genetics of facial clefting and associated anomalies
past and current and protocols for repair of cleft lip and palate
content of the Paediatric Intermediate Life Support Course or equivalent course as currently approved by the Resuscitation council of the UK, and ability to resuscitate a child
criteria that would constitute grounds for admission to Intensive Care Unit
issues of non-accidental injury and child protection. Know the referral pathways for protection of the 'at-risk' child
INTERMEDIATE
Should demonstrate knowledge of:
the different techniques for cleft lip and nose repair
timelines and sequence of operative procedures
ADVANCED
Should demonstrate knowledge of:
history of cleft lip and nose repair, and the outcomes as well as the means of measurement of outcomes for cleft lip and nose repair
characteristic anatomical elements of the neonatal airway, and basis for tracheostomy in emergency circumstances where airway cannot be maintained mechanically
alternatives for timing of different sequences and operations for repair of the cleft lip and nose
CLINICAL SKILLS
BASIC
Should demonstrate ability to
take care of the pre and post-operative patient/child undergoing cleft surgery including assessment for anaesthetic risk factors, postoperative fluid management, antibiotic prescribing,
manage a naso-pharyngeal airway both in the peri-operative environment, and post-operatively,
take informed consent for the procedures covered in this module,
use the operating microscope,
present cases within the Cleft MDT.
INTERMEDIATE
Should demonstrate ability to:
counsel parents of new patients including those following ante-natal scan diagnosis,

plan appropriate treatment schedule within the context of the cleft MDT.
ADVANCED
Should demonstrate ability to:
formulate a management plan within the MDT as a fully integrated member of the team,
communicate with patients/families,
maintain and demonstrate the skills articulated in APLS/PALS,
recognise signs of non-accidental injury, risk factors, and family pathology
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to mark up a cleft lip repair according to one of the currently accepted techniques
INTERMEDIATE
Should be able to mark a cleft lip and nose repair. Should be able to perform some of the muscle dissection and elevation of a vomerine flap
ADVANCED
Should be able to repair the cleft lip and nose according to one of the currently accepted techniques, vary a standard marking plan for subtle differences in the types of cleft lip or palate, perform (in order) nasal dissection, repair of mucosa and muscle, repair of ala base, placement of sutures for nasal suspension, lip closure, use of lengthening flaps, vermilion flap and mucosal balancing.
Secondary repair of cleft lip and nose
OBJECTIVE
Acquire competence in the management of the previously repaired cleft lip and nose deformity.
KNOWLEDGE
BASIC
Should be able to demonstrate knowledge of:
surgical anatomy, pathological anatomy and physiology of the cleft nose
rhinoplasty techniques for reconstruction of cleft nasal deformity
INTERMEDIATE
Should demonstrate knowledge of:
facial morphology and aesthetics
basic cephalometric planning techniques
surgical approaches to the nose
rhinoplasty techniques relevant to cleft nose deformity
ADVANCED
Should be able to demonstrate:
detailed knowledge of soft tissue flap and composite graft techniques for contour and scar modification.
understanding of muscle dissection methods and transposition to correct functional and aesthetic abnormalities,
Knowledge of cleft nasal defect to include familiarity with current literature on the same, and
detailed knowledge of elements of aesthetic rhinoplasty where applicable to cleft rhinoplasty.
CLINICAL SKILLS
BASIC
Should demonstrate ability to correctly elicit patients' concerns and their perceptions of the conditions.

INTERMEDIATE
Should demonstrate ability to:
assessment lip and nose disability including alveolar fistula.
Should demonstrate ability to:
determine the optimum timing of surgery and decide on priorities for treatment
communicate with the MDT,
know when to recruit help of a clinical psychologist.
ADVANCED
Should be able to demonstrate skill in formulating plan for surgical correction of secondary deformities of the cleft lip and nose within the context of the integrated (MDT) care of the patient.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able perform:
formulation of a design for correction of secondary deformities of the lip and nose
skin markings
dissection of the lip
closure of rhinoplasty incisions
management of the cleft airway
INTERMEDIATE
Should be able to perform:
formulation of designs for correction of secondary deformities of the lip and nose
dissection and suture of lip, degloving of nose, and ala reduction
ADVANCED
Should be able to perform:
design and execute complete revision of complex cleft deformity, including total lip revision and more subtle deformities in later years
(in order) the previous elements specified and proceeding to hump reduction with rasp, management of the septum, infracture, application of splint
full cleft rhinoplasty
Primary repair of cleft palate
OBJECTIVE
Competence in the assessment, surgical management and aftercare of primary cleft palate.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy, embryology and basic genetic of facial clefting and associated anomalies (as for Module 1)
knowledge of sequencing of procedures for cleft palate repair
INTERMEDIATE
Should demonstrate knowledge of:
anatomical basis for surgical correction of palatal abnormalities
ADVANCED
Should be able to explain:
detailed mechanisms of speech production, along with implications of various genetic conditions on speech (including Stickler's, 22q11 deletion, and other common disorders

surgical procedures for correction cleft palate with historic and common internationally-performed variations
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take informed consent for the procedures specified in this module
care skilfully for the pre and post-operative cleft palate patient/child
use the operating microscope
manage a naso-pharyngeal airway
INTERMEDIATE
Should be able to demonstrate proficiency in managing the child undergoing cleft palate repair of average complexity
ADVANCED
Should be able to demonstrate proficiency to manage a child undergoing complex cleft palate repair including cases with associated disorders (syndromic cases), and cases with wide defects which generate significant postoperative potential airway and wound healing problems.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
marking up a cleft palate repair
(in order) closure of oral layer, elevation of the oral layer in patients with isolated cleft palate
INTERMEDIATE
Should be able to perform:
(in order) elevation of the oral layer in patients with unilateral and bilateral cleft lip and palate, closure of the nasal layer
suturing of the oral layer in patients with cleft lip and palate.
ADVANCED
Should be able to perform
repair of the palate and associated involved structures according to one of the currently accepted techniques (complete within timely manner)
muscle dissection, and demonstrate the vascular pedicle in repeated fashion
adaptations of the standard procedure for anatomical variation
Secondary speech surgery
OBJECTIVE
To develop competence in the management of speech disorders associated with cleft palate and related disorders
KNOWLEDGE
BASIC
Should be able to demonstrate knowledge of:
the surgical anatomy, pathological anatomy and physiology of palatal function and abnormalities after cleft closure, including the pathophysiology of velopharyngeal incompetence (VPI)
the feeding mechanisms and relationship of infant feeding patterns to later speech development
the physiology of the middle ear, Eustachian tube and causes of deafness in the cleft patient
the clinical and investigative tools for examining speech development

the place of surgical and orthodontic assistance to treatment of speech disorder
INTERMEDIATE
Should be able to describe:
the range of normal speech development mechanisms and how these are at risk in cleft disorders
the impact of chronic otitis media on speech skills at school entry
the techniques used by speech and language therapists inputting into cleft management
the operations available for the amelioration of speech disorders including VPI
ADVANCED
Should be able to describe:
the indications for investigation of speech disorder, methods and limitations
the radiation protection protocols linked to such investigations
adult communication problems related to previous cleft palate repair and previous surgery for VPI
CLINICAL SKILLS
BASIC
Should have ability to:
elicit speech disorders
liaise with Speech Therapists
INTERMEDIATE
Should have ability to:
interpret findings of nasendoscopy,
assess likelihood of patient co-operation with nasendoscopy,
formulate a treatment plan based on the nasendoscopy findings
ADVANCED
Should demonstrate ability to:
interpret an audiogram and tympanometry study
describe the principles of brain stem evoked response audiometry
formulate an appropriate referral based on clinical history and audiogram
TECHNICAL SKILLS AND PROCEDURES
BASIC
Not applicable
INTERMEDIATE
Should be able to perform:
nasendoscopy in the diagnosis of speech disorder
ADVANCED
Should be able to perform:
skilful dissection of a previously repaired cleft palate as part of a correction for speech disorder
pharyngoplasty (various techniques)
Dento-alveolar defect including alveolar bone grafting
OBJECTIVE
To develop competence in the management of alveolar defects associated with cleft lip and palate.
KNOWLEDGE
BASIC:
Should be able to demonstrate knowledge of:

the evolution of secondary dentition
the clinical and investigative tools available to the orthodontist
the related investigations and the basis for treatment of the secondary dentition
the anatomy of various potential sites for cancellous bone graft harvesting
INTERMEDIATE
Should be able to describe:
options for orthodontic treatment
indications for pre-surgical orthodontic treatment
the role of Paediatric Dentists including the basics of oral and dental hygiene
the use of synthetic substitutes in dento-alveolar surgical practice
the methods of assessment of success of bone grafting
ADVANCED:
Should be able to describe:
overview of surgical aspects of stomatological practice
principles of restorative dentistry, and role of such care within the holistic management of patients
CLINICAL SKILLS
BASIC
Should be able to make clinical assessment of the secondary dentition
Should demonstrate ability to function and communicate within the framework of the Cleft MDT
INTERMEDIATE
Should be able to:
liaise appropriately with Orthodontic colleagues
liaise with and refer to Paediatric and Restorative Dental colleagues
ADVANCED
Should be able to devise complete management plan for the preoperative and postoperative care of the patient undergoing alveolar bone grafting
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform harvest of iliac bone graft.
INTERMEDIATE
Should be able to perform low scar access when harvesting iliac bone graft
ADVANCED
Should be able to perform closure of an alveolar fistula with appropriate technique.
Orthognathic surgery / Working with the Cleft MDT
OBJECTIVE
To acquire knowledge of the management of residual cleft deformity in adults including principles of orthognathics and related assessment / investigation
To develop skills in participation in the Cleft MDT, including working with allied disciplines as a team member and team leader.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
the range of residual deformities that pertain at the cessation of facial growth
the nasal septal deformities associated with clefting

the self-image problems extending into adult life
National guidelines for the diagnosis, treatment and follow up of cleft patients
INTERMEDIATE
Should demonstrate understanding of:
Principals of orthognathics including distraction osteogenesis
the role of the orthodontist in cleft care
the surgical principles of orthognathic appliances and their use in practice, and
NICE Improving Outcomes guidance and Peer review.
ADVANCED
Should demonstrate knowledge of:
the surgical anatomy and pathological anatomy of the residual deformities of facial growth,
the principal methods of use in orthognathics including distraction osteogenesis,
methodology for research and audit with respect to cleft practice in local, national and international settings.
Should demonstrate knowledge of:
impact of disfigurement and altered appearance, what it involves psychologically and socially, and the impact of an individuals' body image on their life and that of their family,
the processes by which an individual can successfully adjust to disfigurement and explain how the multidisciplinary team can assist with that process.
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
assemble appropriate professionals to solve adults, concerns
communicate and refer within the specialist MDT
INTERMEDIATE
Should demonstrate ability to:
undertake orthodontic measurement of mid-facial growth
develop and record management plan for the patient and discuss rationale for management of common scenarios with patients and colleagues
analyse and develop diagnostic and surgical planning within the context of an MDT
lead clinical discussion of cleft-related disorders for neonate, infant, pre-school, and later ages following consultations
ADVANCED
Should demonstrate ability to:
undertake appropriate referral and liaison with Orthodontists
to plan a program of orthognathic surgery including distraction osteogenesis
to discuss complex treatment scenarios with patients including discussion of all options, advantages and disadvantages and take informed consent
to lead whole clinic process for an entire MDT session
TECHNICAL SKILLS AND PROCEDURES
BASIC
Not applicable
INTERMEDIATE
Not applicable
ADVANCED
Not applicable

Complex wound
OBJECTIVE
Overall competence in the diagnosis and management of the complex wound excluding burn injury
KNOWLEDGE
BASIC
Should be able to describe:
the principles of management of non-burn conditions managed by the burn team (including cold injuries, TENS and purpura fulminans)
INTERMEDIATE
Should demonstrate knowledge of detailed management of non-burn conditions managed by the burn team (including cold injuries, TENS and purpura fulminans)
ADVANCED
Should be able to discuss the controversies regarding the management of non-burn conditions managed by the burn team
CLINICAL SKILLS
BASIC
Should demonstrate proficiency in:
clinical assessment of the non-burn injury
liaison with other specialities
working and communicating within the relevant multidisciplinary team (MDT)
INTERMEDIATE
Should be able to:
devise management plans and treatment algorithms for the conditions covered in this module
apply psychological assessment tools for evaluation of psychological needs (patient questionnaires).
ADVANCED
Should be able to
deploy skills of analysis and diagnostic synthesis, judgement, and surgical planning to the complex wound patient
advise regarding timing of reconstruction and effect of growth on reconstructive surgery in paediatric cases,
provide detailed advice on the treatment pathway, including interpretation of special investigations, within the context of the relevant MDT,
demonstrate skills needed to arrange patient-centred care with patient as partner in the process, providing realistic information and guiding patient decision-making regarding choices available and timing of those treatments.
manage and lead the multi-disciplinary teams in respect of provision of psycho-social care, to arrange the care pathway that supports an individual to successfully adjust to disfigurement through giving the individual and family specific life-skills. These include the patient being provided with information about their condition and its treatment, developing a positive outlook/belief system, learning to cope with their feelings, exchanging experiences with others who've "been there" and social skills training to manage other people's reactions.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to stabilise the complex wound patient for safe transfer to specialist centre
Should be able to apply negative pressure dressing
INTERMEDIATE

Should be able to perform primary debridement and application of temporary wound dressings in theatre
ADVANCED
Should be able to
debride complex wound

Craniofacial General Principles
OBJECTIVE
Principles of the MDT and the 'Craniofacial Assessment'
e.g. Psychology of facial difference and speech and language assessment
Anatomy & Embryology of the craniofacial complex
Cephalometrics and facial analysis
Trauma
Emergency procedures
Surgical approaches to the craniofacial complex
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
embryology of the pharyngeal arch development and syndromes arising from developmental pathology, and should be to demonstrate proficiency in the descriptive anatomy of head and neck
multidisciplinary assessment of 'The Craniofacial Patient' (parameters including visual, audiological, airway, speech, feeding, psychological and neurological)
content of the Paediatric Intermediate Life Support Course or equivalent course as currently approved by the Resuscitation council of the UK. Know how to resuscitate a child
criteria that would constitute grounds for admission to Intensive Care Unit
issues of non-accidental injury and child protection, and the referral pathways for protection of the 'at-risk' child
emergency diagnosis of elevated intracranial pressure (ICP) and/or intracranial haemorrhage
Should be able to describe the management of extravasation injuries
INTERMEDIATE
Should be able to demonstrate knowledge of:
technique of intermaxillary fixation
cephalometrics: skeletal and dental occlusal relationships, SNA angle, SNB angle, facial reference points
cephalometric characteristics of craniofacial syndromes e.g. Crouzon syndrome, Treacher Collins syndrome (TCS) and hemifacial microsomia (HFM), definition of anterior open bite, cross bites etc.
distraction osteogenesis: history and application: mandible, alveolus, midface, orbit and cranium
ADVANCED
Should be able to demonstrate knowledge of:
anatomy of surgical approaches to craniofacial skeleton and relevant local flaps (temporalis, superficial temporal etc)
facial analysis: choice of camera systems, CT, MRI and software analysis in surgical planning
Craniofacial Radiology – recognition of tumour and threats to neurological function

the multidisciplinary assessment of 'The Craniofacial Patient': specific tests – VEPs, sleep studies and psychological assessment scales
impact of disfigurement, the consequences of an altered appearance, what it involves psychologically and socially, and the impact of an individual's body image on their life and that of their family
the processes by which an individual can successfully adjust to disfigurement, and how the multidisciplinary team can assist with that process
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
care for the pre and post-operative patient/child undergoing craniofacial surgery including assessment for anaesthetic risk factors, postoperative fluid management, antibiotic prescribing,
manage the airway both in the peri-operative environment, and post-operatively.
take informed consent for the procedures covered in this module,
present cases within the Craniofacial MDT
INTERMEDIATE
Should demonstrate ability to:
counsel parents of new patients including those following antenatal scan diagnosis for relevant syndromes.
apply psychological assessment tools for evaluation of psychological needs (patient questionnaires),
plan appropriate treatment schedule within the context of the craniofacial MDT
ADVANCED
Should demonstrate ability to:
formulate a management plan within the MDT as a fully integrated member/leader of the team and be able to communicate with patients/families
manage and lead the multi-disciplinary teams in respect of provision of psycho-social care
arrange the care pathway that supports a child and his/her family to successfully adjust to disfigurement through giving the individual and family specific life-skills. These include, where appropriate, the patient being provided with information about their condition and its treatment, developing a positive outlook/belief system, learning to cope with their feelings, exchanging experiences with others who've "been there" and social skills training to manage other people's reactions
maintain and demonstrate the skills articulated in APLS/PALS
recognise signs of non-accidental injury, risk factors, family pathology
TECHNICAL SKILLS AND PROCEDURES
BASIC
Trauma:
Should be able perform tracheostomy (emergency and percutaneous) and nasal packing for epistaxis
INTERMEDIATE
Should be able to perform
intermaxillary fixation
emergency management of retrobulbar haemorrhage
emergency management of elevated ICP and/or intracranial haemorrhage,
various surgical approaches to the craniofacial skeleton: coronal and upper and lower buccal sulcus incisions.
ADVANCED

Should be able to perform
Orthognathic surgery relating to craniofacial syndromes.
How to perform a Le Fort I +/- distraction osteogenesis, the sagittal split osteotomy, bimaxillary surgery, segmental orthognathic surgery, palatal expansion and segmental alveolar transport.
Distraction osteogenesis of the craniofacial skeleton.
Indications compared to traditional techniques.
Device selection and application of chosen distraction device at all levels of the craniofacial skeleton. Knowledge of outcome studies.
Implants and prostheses.
Choice of alloplast for inlays and onlays. Osseointegrated implant choice, sites and design in conjunction with maxillofacial prosthetist.
Surgical approaches to the craniofacial skeleton: McCord lid swing, transconjunctival, transbleph, transcaruncular, Weber-Ferguson and open rhinoplasty, transbuccal. Levels of Craniofacial access.
Craniofacial aesthetic surgery.
Endoscopic techniques, subperiosteal surgery, genioplasty, advanced rhinoplasty.
Craniosynostosis
OBJECTIVE
Management of single suture and syndromic craniosynostosis
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
surgical anatomy, pathological anatomy and pathophysiology of craniosynostosis
common phenotypes and head shapes
positional vs synostotic plagiocephaly: torticollis
INTERMEDIATE
Should demonstrate knowledge of:
basic clinical genetics of craniosynostosis syndromes
recognition of different syndromic craniosynostoses (Apert, Crouzon)
strategies for the management of intracranial hypertension and its multifactorial influences
ADVANCED
Should demonstrate detailed knowledge of:
protocols of surgical management (Multidisciplinary: ENT, Ophthalmology, Neurosurgery etc)
indications for intervention: crisis, urgent, elective, aesthetic – both functional and psychological
indications and applications of distraction osteogenesis
indications for FOR/Le Fort III, Monobloc and bipartition osteotomies, distraction vs bone graft techniques
CLINICAL SKILLS
BASIC
Should be able to:
explain to parents the challenges of these conditions at different stages of life from birth to adolescence
describe the impact on the family of the birth of a child with a craniofacial anomaly and provide or arrange support
INTERMEDIATE
Should have ability to

manage globe subluxation
manage the compromised airway
recognise elevated ICP
recognise complications of transcranial surgery
apply psychological assessment tools for evaluation of psychological needs (patient questionnaires)
ADVANCED
Should demonstrate ability to
formulate plan for surgical correction of problems arising in patients with craniosynostosis
deploy the skills of the MDT appropriately
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to:
close a coronal incision
INTERMEDIATE
Should be able to perform:
harvesting techniques for autologous grafts including iliac crest bone, rib, costochondral and cranial bone.
canthopexies, canthoplasties and eyelid balance, and
coronal flaps
ADVANCED
Should be able to perform:
major segmental osteotomies and advancements of the craniofacial complex,
distraction osteogenesi,
cranioplasties,
fronto-orbital surgery,
frontofacial surgery
Craniofacial tumours in adults and children
OBJECTIVE
Acquire competence in the management of adults with transcranial tumours (orbital, nasal, frontofacial, skull base) including SCC, BCC, melanoma.
Acquire competence in the basic principles of management of children with transcranial tumours
Acquire competence in the management of adults with transcranial tumours (orbital, nasal, frontofacial, skull base) including SCC, BCC, melanoma and olfactory neuroblastoma.
Acquire competence in the management of children with transcranial tumours (orbital, nasal, frontofacial, skull base) including orbitofacial NF, fibrous dysplasia / Cherubism /McCune Albright, teratomas, vascular lesions and anomalies , juvenile nasopharyngeal angiofibroma, haemangiomas, vascular malformations, dermoid cysts, nasal gliomas, ossifying fibromas, sarcomas including nerve and nerve sheath tumours
KNOWLEDGE
BASIC
Should be able to describe common adult tumours e.g. BCC, SCC, melanoma, and their pathology, natural history and treatment protocols
INTERMEDIATE
Should demonstrate knowledge of:

other adult tumours – e.g. neurofibromatosis, neuroblastoma with their pathology, natural history and treatment protocols,
common paediatric tumours e.g. neurofibromatosis, fibrous dysplasia, teratomas and their pathology, natural history and treatment protocols,
differences in clinical behaviours between adult and paediatric tumours
adjunctive techniques e.g. interventional radiology and IMRT and chemo-irradiation,
complex craniofacial vascular anomalies and malformations
role of the surgeon in the MDT
role of palliation in adults and children
management of end of life
ADVANCED
Should demonstrate knowledge of:
applied surgical anatomy, segmental resection and reconstruction (alloplastic, autologous, microsurgical), functional preservation, aesthetic techniques,
rare transcranial tumours and related contemporary literature
management of the facial nerve in adult and paediatric tumours with indications for facial nerve sacrifice and rehabilitation
CLINICAL SKILLS
BASIC
Should be able to present cases to the MDT
INTERMEDIATE
Should demonstrate ability to diagnose, investigate the conditions covered in this module
Should demonstrate ability to counsel patients and deliver bad news concerning adult and paediatric patients
ADVANCED
Should demonstrate ability to:
formulate treatment plans for the conditions covered in this module
lead decision making in the MDT
co-ordinate the patient treatment pathway
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform reconstructive techniques including grafts and local flaps
INTERMEDIATE
Should be able to perform
elevation ‘workhorse’ free flaps including latissimus dorsi and radial forearm flap (includes these exercises performed as surgical simulation)
manage Le Fort I down-fracture for skull base access
ADVANCED
Should be able to perform:
accessing craniofacial skeleton via various approaches (see module 1)
planning and resecting of craniofacial vascular lesions
various approaches to the orbit (tumours)
reconstruction with free perforator flaps or composite free tissue transfer
operating within a multidisciplinary team

Craniofacial syndromes of tissue deficiency
OBJECTIVE
Acquire competence in the recognition and principles of management of hemifacial microsomia, Treacher Collins syndrome, mandibular deficiencies - Pierre Robin, Romberg's disease, morphoea, craniofacial clefts & encephalocoeles, Binder's syndrome, holoprosencephaly, arrhinia
KNOWLEDGE
BASIC
Should demonstrate knowledge of (with their aetiology, developmental pathology & embryology, natural history)
hemifacial microsomia (HFM)
Treacher Collins syndrome (TCS)
Romberg's disease
Morphoea
Tessier's classification of craniofacial clefts
classification of encephalocoeles
INTERMEDIATE
Should demonstrate knowledge of
principles of intervention (crisis, urgent, elective and aesthetic)
treatment protocols for mandibular deficiencies - Pierre Robin
impact of the tissue deficiency syndromes on the child and the family at different stages of maturity
use of the MDT in the 'craniofacial assessment'
ADVANCED
Should demonstrate knowledge of:
other tissue deficiency syndromes e.g. Craniofacial clefts & encephalocoeles
Binder's syndrome
holoprosencephaly
arrhinia
CLINICAL SKILLS
BASIC
Not applicable
INTERMEDIATE
Should have ability to
manage the compromised airway
undertake 'defensive' surgical treatment planning (allowing for effect of growth on surgical results in children)
ADVANCED
Should have ability to formulate treatment plans for secondary procedures for the conditions covered in this module
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform excision of accessory auricles
INTERMEDIATE
Should be able to perform:
tissue expansion in the head and neck
tarsorrhaphy techniques

fat transfer
Le Fort I or Le Fort II advancements of maxilla
ADVANCED
Should be able to perform
eyelid rebalancing and reconstruction,
mandibular distraction and reconstruction
ear reconstruction – autologous and osseointegrated implant
nasal reconstruction and rhinoplasty
orbital translocation
soft tissue free flaps e.g. dipotassium flaps
Craniofacial overgrowth syndromes
OBJECTIVE
Acquire competence in the management of hemifacial hypertrophy, facial infiltrating lipomatosis, tissue overgrowth secondary to vascular malformations (Beckwith Wiedemann Syndrome, proboscis)
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
hamartomas, teratomas, and dysplasias
INTERMEDIATE
Should demonstrate knowledge of:
planes of facial resuspension
differential diagnosis of overgrowth asymmetries
radiological diagnosis
ADVANCED
Should demonstrate knowledge of
techniques for facial nerve preservation
indications for surgery within the MDT setting
Should demonstrate knowledge of the planes of facial resuspension.
CLINICAL SKILLS
BASIC
Should demonstrate ability to manage patients with reference to:
maintenance of vital functions including airway, feeding etc
preservation of oral, nasal, palpebral sphincters
INTERMEDIATE
Should demonstrate ability to undertake a clinical assessment of the craniofacial conditions covered in this module.
ADVANCED
Should demonstrate ability to
formulate a treatment plan for the conditions covered in this module.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Not applicable
INTERMEDIATE
Should be able to perform emergency procedures (see module 1)
ADVANCED

Should be able to perform
resectional surgery in the absence of malignancy including segmental osteotomies of maxilla and mandible, functional wedge resection of tongue, tarsorrhaphy, eyelid rebalancing with preservation of balanced facial function and aesthetics
tissue reduction with preservation of neuromuscular function

Orbital surgery
OBJECTIVE
Acquire competence in the principles of management of hypertelorism, microphthalmos, frontonasal dysplasia, craniofrontonasal dysplasia, orbital malpositions and dystopias, vertical orbital dystopia, late plagiocephaly and hemifacial microsomia.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
applied anatomy of the orbit and contents
examination of the eye and basic vision
eyelid anatomy and eyelid malposition
growth of the orbit
definition of terms e.g. hypertelorism, dystopia, telecanthus
differential diagnosis/genetics of hypertelorism syndromes
MDT assessment of hypertelorism syndromes
INTERMEDIATE
Should demonstrate knowledge of:
visual physiology, squint & principles of strabismus surgery
medial and lateral canthal fixation methods
orbital Prostheses – types, indications
superior orbital fissure syndrome
orbital apex syndrome
relative afferent papillary defect
retrobulbar haemorrhage
reasons and timing for orbital translocation
ADVANCED
Should demonstrate knowledge of
orbital osteotomies
microphthalmos – orbital expansion (expanders & osteomies)
impact on orbital translocation on vision
use of Box, Bipartition and advancement osteotomies of the orbit
CLINICAL SKILLS
BASIC
Emergencies – see module 1
INTERMEDIATE
Should demonstrate ability to
plan orbital osteotomies
formulate a management plan with respect to both techniques and timing
ADVANCED
Should demonstrate ability to

formulate management plans with Ophthalmology and Neurosurgery in the context of the MDT
plan minimal access and endoscopic approaches
TECHNICAL SKILLS AND PROCEDURES
BASIC
Not applicable
INTERMEDIATE
Should be able to perform split calvarial bone graft harvest and fixation of bone graft
ADVANCED
Should be able to perform
minimal access incisions
box osteotomies
facial bipartition
vertical orbital dystopia correction
orbital reconstruction – autologous or alloplastic
transcranial and subcranial orbital expansion
Mommaerts osteotomies
orbital access approaches (tumours)
Craniomaxillofacial trauma
OBJECTIVE
Acquire competence in the assessment of a patient who has sustained injury and or fractures of the Craniomaxillofacial region.
Develop ability to assess an injured patient presenting either acutely or in the outpatient clinic.
Be alert for the potential for this class of injuries to occur and impact on the patient's airway, and vision.
Awareness of consequences of change in orbital volume.
Understand fracture patterns of the mandible, middle third of the face and orbits including multiple fractures.
To be able to formulate a differential diagnosis and an investigation and management plan.
To be able to treat the patient appropriately up to and including operative intervention if appropriate
Understand the principles of surgical management of these injuries.
Understand the principles of intermaxillary fixation techniques, principles of plate osteosynthesis and bone healing.
Understand the principles of extraoral cranial fixation.
Be able to carry out these procedures safely and competently or understand the need to refer to allied disciplines.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy of scalp, face, nose, ears, eyelids, orbit and contents
anatomy of craniofacial skeleton and temporomandibular joint (TMJ)
anatomy and physiology of parotid and lacrimal apparatus
bone healing
aetiology of facial trauma
priorities of management
assessment of airway and level of consciousness (Glasgow coma scale)

assessment of head injury and cranial nerve function
pharmacology and therapeutics of post-operative analgesia
INTERMEDIATE
Should demonstrate knowledge of:
anatomy of trigeminal nerve and infiltration / nerve block anaesthesia
signs and symptoms of fractures of cranium and facial skeleton
signs and symptoms of TMJ dislocation and fracture dislocation
other fracture complexes
classification of fractures of the craniofacial skeleton
appropriate investigations of facial nerve and duct injury
appropriate investigations of lacrimal apparatus injury
significance of dental occlusion
importance of disruption of the canthal ligaments
ADVANCED
Should demonstrate knowledge of:
physiology of nasal cavity, sight and oculomotor
function
classification of craniofacial fractures
potential complications of cranial, nasal, orbital, middle-third and mandibular fractures
available open and closed techniques of surgical management including intermaxillary fixation
principles of nerve repair and stenting of ducts
understanding the benefits and indications of both open and closed treatments
surgical approaches to the orbit
awareness of need for urgent orbital decompression or release of ocular muscles
available techniques/materials for orbital wall reconstruction
potential complications early / intermediate and late
role of the maxillofacial technician
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
undertake general assessment of the traumatised patient
airway management and emergency treatment of facial trauma
assessment and examination of patient with facial trauma
awareness of additional factors affecting timing of surgery
INTERMEDIATE
Should demonstrate ability to:
assess the nasal bones, cartilages and septum
assess the orbits and contents and ears
assess dental occlusion
perform clinical examination of ears, orbit, eyelids and lacrimal apparatus, teeth, oral cavity, facial skeleton and cranial nerves
ability to correctly interpret physical signs
arrange investigations, selection and interpretation of relevant radiographic imaging of craniofacial fractures
manage epistaxis and septal haematoma
formulate a treatment plan and prioritise management
exercise clinical judgment appropriate to injury and patient needs

liaise as appropriate with Ophthalmology, Oral and Maxillofacial and Neurosurgery colleagues where appropriate
ADVANCED
Should demonstrate ability to:
manage frontal sinus fractures
assess need for removal of damaged teeth/retained roots
prescribe appropriate pain control /prevention of infection
perform local anaesthetic infiltration for pain control / nerve block anaesthesia
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
intra/extra-oral soft tissue handling and suturing techniques
INTERMEDIATE
Should be able to perform:
surgical repair of nerve injury under magnification
techniques of intermaxillary fixation
techniques for approach to the orbital walls
ADVANCED
Should be able to perform:
manipulation of nasal bones and septum
nasal packing and splintage
ability to stent and repair duct
techniques for management of displaced canthal ligaments
safe exposure of fracture sites and reduction of fragments
plate handling skills
selection and use of appropriate allograft materials
bone grafting (variety of donor sites)
approach and expose frontal bone fractures
Ear deformities and ear reconstruction
OBJECTIVE
Competence in the diagnosis and principles of management of all aspects of ear deformities and ear reconstruction
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy and embryology of the external, middle and inner ear,
pathophysiology of skin and cartilage wound healing, soft tissue tumours of the ear including haemangioma, problem scarring including keloid and principles of management of scarring
various classifications of ear deformities including acquired ear deformities
INTERMEDIATE
Should demonstrate knowledge of:
principles of osseointegration
local and regional flaps around the ear including the scalp
development of the mandible and syndromes associated with ear deformities
different techniques of correcting the prominent ear
principles of tissue expansion

ADVANCED
Should demonstrate knowledge of:
various techniques of reconstructing microtia, macrotia, complex ear deformities such as constricted ears, sports induced trauma, different techniques of ear reconstruction following partial/total loss, with and without cartilage loss, timing of microtia surgery
techniques to correct ear lobe deformities
CLINICAL SKILLS
BASIC
Should demonstrate ability to undertake:
clinical assessment of the ear and identifying anatomical variations from the norm
clinical assessment of problem scarring and soft tissue tumours and formulating a plan of management
INTERMEDIATE
Should demonstrate ability to:
differentiate and classify the various ear deformities and identify the anatomical deficiencies or variations of the ear
plan surgical procedures for prominent ear, cryptotia, deformities of the ear with minimal loss of the auricular tissue
plan and interpret relevant investigations for the ear sinus, congenital ear deformities
ADVANCED
Should demonstrate ability to
assess complex ear deformities including those of the earlobe and syndromic patients, formulate a plan of management
assess the soft tissue cover and need for tissue expansion/flap cover
assess facial nerve function and mandibular deformities as well as occlusion of teeth
assess the suitability of patient for autogenous versus prosthetic ear reconstruction
assess and manage complications of ear corrections and ear reconstructive procedures
communicate effectively with patient and carer
communicate with other team members of the MDT to integrate a time line for reconstruction
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
excision of simple accessory auricles, cysts and small tumours on the ear with direct closure or skin grafting, intralesional steroid injection
repair of split earlobes with local flaps
repair of simple lacerations of the ear with or without cartilage repair
excision of Darwen's tubercle
INTERMEDIATE
Should be able to perform:
correction of prominent ear with and without cartilage mutilation
correction of cryptotia
excision of tumours and repair of defects with local/regional flaps
excision of auricular sinuses
management of complications of corrective surgery
insertion of tissue expander
ADVANCED
Should be able to perform:

correction of complex ear deformities: spectrum of constricted ears, “crumpled” ears, cauliflower ears, acrobatic ears with calcified cartilage framework, macrotia and autogenous reconstruction of ears for anotia/microtia
harvesting rib cartilage, carving cartilage to design framework for ear reconstruction
dissecting skin envelope, temporalis fascial flap raising and insetting, raising other local flaps for skin cover of framework, conchal cartilage graft harvest, carving and insetting into defect
various operations for ear lobe reconstruction
Hypospadias and allied conditions
OBJECTIVE
Acquire competence in the principles of management of hypospadias and allied conditions including management of the family in addition to all aspects of the surgical management and complications.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
embryology of the external genitalia, endocrinology pathology, anatomy of the male genitalia
wound healing
aetiological factors
investigations
management of the family
INTERMEDIATE
Should demonstrate knowledge of:
classification of hypospadias
classification of surgical procedures
surgical techniques available for correction of hypospadias
cause and management of ventral curvature
timing of surgery
management of foreskin
principles of surgical management, post operative management and complications
ADVANCED
Should demonstrate knowledge of hypospadias and allied conditions *including*
recent theories on aetiology.
assessment of outcome, flow rate.
management of complications.
management of salvage patient.
management of BXO including aetiology.
management of buried penis.
management of cryptohypospadias (ventral curvature without hypospadias)/Peyronies disease
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
assess presence and severity of hypospadias, presence of ventral curvature
asses whether foreskin is suitable for reconstruction
manage the child/family unit so that all are comfortable with the reconstructive process
discuss the pro/cons of timing of surgery and reasons for operating
INTERMEDIATE

Should demonstrate ability to:
assess which operative technique is appropriate for the degree of deformity
analyse outcome including identification of complications
assess the child with foreskin anomaly
ADVANCED
Should demonstrate ability to
identify those patients with suboptimal outcome or complication requiring further investigation or surgery and develop a management plan
assess a patient with foreskin and/or urethral BXO requiring further investigation and/or surgery
assess an hypospadias salvage/cripple patient with a view to surgical correction and develop a management plan
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
meatotomy
circumcision.
trimming of skin envelope following hypospadias repair.
harvesting of foreskin/buccal mucosal full thickness graft, preparation and closure of the donor site.
artificial erection test
closure of GAP hypospadias repair.
foreskin reconstruction.
INTERMEDIATE
Should be able to perform:
meatotomy
trimming of skin envelope following hypospadias repair
closure of GAP hypospadias repair
foreskin reconstruction
distal hypospadias reconstruction
dissection of GAP hypospadias repair
Snodgrass repair – dissection, closure of urethra, raising and inset of waterproofing layer, closure
Snodgraft repair – dissection, inset of graft, and closure as above
reconstruction of midshaft and proximal hypospadias
1st stage Bracka repair – dissection of urethral plate, removal of fibrous bands, dissection of glans wings, inset of graft, application of dressing and post-op management of dressing
2nd stage Bracka – dissection and closure as per Snodgrass
ADVANCED
Should be able to perform:
Snodgrass repair – dissection, closure of urethra, raising and inset of waterproofing layer, closure
Snodgraft repair – dissection, inset of graft, and closure as above
2nd stage Bracka – dissection and closure
closure of simple fistula
closure of complex fistula
operative management of fistula with distal urethral stenosis
operative management of distal/meatal stenosis
operative management of cryptohypospadias/Peyronies

management of BXO – steroids, circumcision, 2 stage recon with buccal mucosal graft
management of complex salvage/cripple patient – Snodgraft, 2 stage Bracka repair with buccal and/or bladder mucosa
harvesting bladder mucosal graft
Epispadias, Anomalies of Female Genitalia, Ambiguous Genitalia and Acquired Perineal Defects
OBJECTIVE
Acquire competence in the principles of management of epispadias, anomalies of female genitalia, ambiguous genitalia and acquired perineal defects.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy of epispadias/bladder extrophy, incidence, aetiology, MDT principles of management
defects of female genitalia – congenital/acquired
Congenital. Aims of surgical correction – restoration of urinary / faecal and sexual function
age at presentation
Acquired - causes – tumour, infection, trauma, previous DXT, scarring secondary to birth tear / episiotomy
INTERMEDIATE
Should demonstrate knowledge of:
epispadias – aims of management, principles of treatment, principles of two main surgical repairs
female genitalia – congenital absence of vagina (Meyer-Rokitansky Syndrome), incidence, presents with primary amenorrhoea diagnostic test, principles of reconstruction – length, width vagina, durability, sensation
male genitalia reconstruction in Fournier's disease, cancer, trauma, vascular malformation, BXO with emphasis on preservation of adequate length, sufficient skin for unrestricted erection, durability and sensation, preservation of erection and adequate urinary stream
reconstruction of urethra – staged BUMG, bladder mucosa
skin – SSG
scrotum – SSG, Flaps
ADVANCED
Should demonstrate knowledge of:
Methods of female reconstruction post acquired defect – local pedicled flaps – lotus, gracillis, SSG, muscle flaps – gracillis myocutaneous flaps, distant flaps – VRAM
Male reconstruction post acquired defects
Urethra – 2 stage Bracka with BUMG with or without bladder mucosa grafts
Glans – glansectomy and quilted thick SSG for reforming glans over existing corpora
Scrotum – tissue expansion, SSG, flaps – gracillis, Singapore technique
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
arrange appropriate investigations for conditions described in this module
perineal defects including assessment of patient with Fournier's and initial management, identification of potential defect following resection of perineal tumour
INTERMEDIATE

Should be able to plan primary flaps for reconstruction of perineal defect e.g. lotus, gracillis, VRAM
epispadias, female genitalia anomalies and ambiguous genitalia incorporating expectations of the child and the family, analysis of the specific congenital problem and what may be required during reconstruction,
perineal defects
Should be able to
consent patients for reconstruction of perineal defects including graft and flap reconstruction.
ADVANCED
Should demonstrate ability to formulate treatment plan for
ambiguous genitalia – incidence, causes, associated features, investigations – chromosome profile, testosterone / sex steroid profile and approach to parents.
absence of vagina – reconstruction, Frank method – dilators, fasciocutaneous flaps, colonic or intestinal flaps.
SSG – McIndoe method.
Should demonstrate ability to manage:
epispadias, female genital anomalies and ambiguous genitalia
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
SSG, full thickness graft, jumping man, application of topical negative pressure dressing
BASIC
Should be able to perform
SSG, full thickness graft, jumping man, application of topical negative pressure dressing.
INTERMEDIATE
Should be able to perform
reconstruction of perineal defects – local flap reconstruction of vagina/labia including lotus and gracillis, resurfacing penile shaft, groin dissection, coverage of exposed testes
ADVANCED
Should be able to perform:
surgical correction of epispadias, female genital anomalies and ambiguous genitalia be inaccessible to many trainees
reconstruction of perineal defects – external pudendal flap, posterior thigh flap, VRAM for abdominoperineal resection, glansectomy for cancer, free flaps for major perineal defects
Genital Reassignment
OBJECTIVE
Acquire competence in the principles of management of gender reassignment
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
definition of transsexualism
aetiology sex ratio
diagnosis of gender dysphoria
problems associated with gender dysphoria - psychosocial, physical support for surgery, financial support for surgery
MDT

Requirement for NHS Management:
1. Live as other gender for two years
2. Hormones
3. Surgery
INTERMEDIATE
Should demonstrate knowledge of techniques available for male to female reassignment:
penile flap – glans reduced as clitoris, penile skin as flap for vagina, scrotum for labia / clitoral hood – usually two stage
modified McIndoe – SSG or FTSG from penis for vagina
others – bowel for vagina
ADVANCED
Should demonstrate knowledge of techniques available for female to male reassignment
mastectomy
phallus construction with internal urethra and ability to become erect, non hair bearing, sensate, size, erectability and arousability by deep pudendal nerve. Specific options for phallus reconstruction
random pattern abdominal tube pedicle
groin flap
SIEA flap
gracillis flap
radial forearm flap
urethral reconstruction options:
SSG
FTSG
transplantation of urethra
tubed bladder wall
ancillary procedures:
testicular implants
vaginectomy
facial feminising techniques
breast augmentation
CLINICAL SKILLS
BASIC
Ability to demonstrate:
working within an MDT and the ability to assess the psychological state of the patient
INTERMEDIATE
Ability to demonstrate:
develop the skills to arrange patient-centred care with patient as partner in the process (depending on age of patient), providing realistic information and guiding patient decision-making regarding choices available and timing of those treatments
ADVANCED
Ability to manage and lead:
multi-disciplinary teams in respect of provision of psycho-social care. Be able to arrange the care pathway that supports an individual and his/her family to successfully adjust to disfigurement through giving the individual and family specific life-skills. These include the patient being provided with information about their condition and its treatment, developing a positive

outlook/belief system, learning to cope with their feelings, exchanging experiences with others who've "been there" and social skills training to manage other people's reactions
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
raising local flaps
assessment of size of prosthesis needed
insertion of testicular prosthesis
INTERMEDIATE
Should be able to perform
elevation of complex flaps including, groin flap, radial forearm flap, abdominal tubed pedicle, SIEA flap and gracillis flap
ADVANCED
Should be able to perform
specific operations for gender reassignment
Skin / Soft tissue / Microsurgery / Dupuytren's Disease
OBJECTIVE
Acquire competence in the diagnosis and management of soft tissue problems around the hand and upper limb including traumatic loss
Acquire competence in all aspects of care of Dupuytren's disease
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy, embryology, physiology of skin, blood supply and blood flow
models of skin blood supply
mechanism of action of pharmacology on the microcirculation
elements of wound healing
organisms causing soft tissue infection including, microbiology of infecting organisms, surgical pathology and spread of infection
surgical and pathological anatomy of Dupuytren's disease in the palm and digits
INTERMEDIATE
Should demonstrate knowledge of:
range, indications and principles of operations to treat conditions listed in this module
post-operative complications and their management
hand therapy interventions for wound & scar management, reduction of swelling and management of stiffness
levels of amputation for the upper limb
principles of microvascular surgery
principles of replantation including macroreplantation
sciences of pathogenesis of Dupuytren's disease
ADVANCED
Should demonstrate knowledge of:
recent advances in wound healing including wound healing technology such as vacuum-assisted closure

ancillary investigations including those pertinent to vascular compromise of limb, life or limb-threatening infections
techniques to raise vascularised free tissue transfers including lateral arm flap, latissimus dorsi flap, gracilis flap, toe transfer
management of the mutilating hand injury including rollover injury, gunshot injury
management of extravasation and high-pressure injection injury to the hand
management of thermal injury to the hand including local treatment of scald, flame, chemical & electrical burns and frostbite

CLINICAL SKILLS
BASIC
Should perform:
assessment and non-operative management of the acute surgical patient including targeted hand-related history and hand examination
INTERMEDIATE
Should demonstrate ability to:
devise management algorithms for the conditions covered in this section including investigations
ADVANCED
Should demonstrate abilities of:
analysis and diagnostic synthesis, judgement, surgical planning.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
nail bed repair
different types of skin grafts including split skin/full thickness skin graft
palmar fasciectomy for Dupuytren's disease
fasciocutaneous flaps around the forearm
variety of flap reconstructions
local flap (transposition, rotation, island),
microsurgical techniques
arterial and venous repair – small and medium vessels
INTERMEDIATE
Should be able to perform:
fingertip reconstruction : heterodigital flap reconstruction including cross-finger flap, thenar flap, Foucher flap, and homodigital neurovascular island flaps
application of mechanical vacuum suction device for appropriate wounds
debridement of complex wounds
fasciectomy for MCPJ contracture (Dupuytren's disease)
fasciectomy with correction of PIPJ contracture
ADVANCED
Should be able to perform:
planning and execution of flap reconstruction
distant flap e.g. groin, posterior interosseous artery flap, radial forearm flap
free tissue transfer – flap elevation
elevation of variety of free tissue transfers e.g. lateral arm flap, latissimus dorsi muscle flap, second toe transfer etc.

includes cadaver based flap elevation as part of simulation exercises
microsurgical techniques
microsurgical free tissue transfer
revascularisation digit or upper limb part
replantation of digit or upper limb segment
fasciectomy for recurrence of Dupuytren's disease
dermofasciectomy for Dupuytren's disease

Fractures and Joint Injuries including Wrist Instability
OBJECTIVE
Acquire competence in the diagnosis and management of all types of fractures of the phalanges, metacarpals, carpus and distal radius.
Acquire competence in the diagnosis and management of the unstable wrist including distal radioulnar joint.
KNOWLEDGE
BASIC
Should be able to demonstrate knowledge of:
pathophysiology of fracture healing including non-union and malunion
principles of operative and non-operative management of hand and wrist fractures
detailed anatomy of:
radio-carpal/DRUJ/MCP/PIP/DIP joints and CMC joint of the thumb
ligamentous anatomy of these joints and how it influences treatment
available imaging techniques and their interpretation:
plain and stress radiographs of the wrist and hand.
other specific views relevant to particular situations
role of: MRI/bone scan / ultrasound / arthrography / arthroscopy for investigating the hand and wrist
INTERMEDIATE
Should be able to demonstrate knowledge of:
detailed management of fractures and dislocations of bones and joints of hand and wrist including carpus and distal radioulnar joint,
normal biomechanics of the osseoligamentous structures of the hand and wrist.
ADVANCED
Should be able to demonstrate knowledge of:
detailed wrist anatomy,
pathophysiology of wrist instability / recognised patterns of instability and their clinical presentation,
investigations for complex joint disorders and wrist instability,
appropriate interventions for wrist instability through knowledge of indications,
indications for diagnostic and therapeutic wrist arthroscopy.
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
clinically assess fractures, dislocations and ligamentous injuries of the hand and wrist,
assess the unstable wrist,
manage common fractures of the hand and wrist,

apply a range of plaster splints.
INTERMEDIATE
Should demonstrate ability to:
manage more complex fractures of the hand and wrist,
manage distal radius and scaphoid fractures by standard techniques.
ADVANCED
Should demonstrate ability to:
clinically assess and manage complex fractures of the distal radius and scaphoid,
manage ligamentous injury of the carpus and distal radioulnar joint,
manage malunion and non-union of fractures of the phalanges, carpus and distal radius.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
simulation-based exercises of the techniques for fracture fixation: closed reduction with application splint or cast, K-wiring and interosseous wiring, plate and screws, and lag screw
INTERMEDIATE
Should be able to perform:
closed K-wiring for CMC/PIP joint dislocations, phalangeal/metacarpal fractures, distal radius fractures (pins & plaster)
open fixation of metacarpal fractures
open fixation of uncomplicated distal radius fractures
repair of ulnar collateral ligament of MCPJ of thumb (Gamekeeper's thumb)
application of external fixator to upper limb
ADVANCED
Should be able to perform:
open fixation of phalangeal fractures
operative treatment of intra-articular fractures of the PIP joint
open fixation of complex distal radius fractures
scaphoid fracture fixation (acute and for non-union)
vascularised bone grafting for scaphoid non-union
operative stabilisation of acute carpal disruptions, ligament stabilisation procedures for chronic problems of the, scapholunate, lunotriquetral CMC joints and midcarpal instability
ligament stabilisation procedures for chronic problems of the, scapholunate, lunotriquetral CMC joints and midcarpal instability
bone transport
Should be able to use bone substitutes
Osteoarthritis and Inflammatory Arthritis
OBJECTIVE
Acquire competence in the diagnosis and management of all aspects of management of osteoarthritic joints of the hand and wrist. Acquire competence in the diagnosis and management of all aspects of management of inflammatory arthritis of the hand and wrist.
KNOWLEDGE
BASIC
Should be able to demonstrate knowledge of:
pathophysiology of osteoarthritis, inflammatory arthritis and septic arthritis including appreciation of patterns of disease.

imbalances and deformities associated with inflammatory arthritis
pathomechanics of common rheumatoid hand deformities including:
distal radioulnar joint subluxation and carpal translocation
MCPJ subluxation and ulnar drift
digital boutonnière and swan neck
thumb deformity and CMC disease
principles of arthroplasty.
INTERMEDIATE
Should be able to demonstrate knowledge of:
principles and detailed management of the common osteoarthritic disorders of the hand and wrist including the basal joint of the thumb
principles and detailed management of rheumatoid arthritis in the hand and wrist
aetiology, pathomechanics of deformity in inflammatory arthritides including understanding disease patterns
biomechanics of small joint replacement
place of soft tissue reconstruction, joint fusion, replacement, interposition and excision arthroplasty in the treatment of the rheumatoid hand and wrist
planning and prioritising treatment within an MDT setting
ADVANCED
Should be able to demonstrate knowledge of:
principles and detailed management of more complex and osteoarthritic disorders of the hand including secondary osteoarthritis,
surgical and non-surgical management of the wrist, tendons, small joints and imbalance disorders (swan neck and boutonnière) occurring in rheumatoid arthritis,
pathology, mechanisms of deformity and management of other inflammatory conditions (non-rheumatoid) affecting the hand and wrist,
management of Kienbőch's disease and Madelung's deformity.
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
clinically assess the arthritic patient and recognise the typical patterns of disease
demonstrate conservative management techniques including splinting, exercises and understanding of occupational therapy assessment and provision of aids to daily living
undertake external K-wire removal
INTERMEDIATE
Should demonstrate ability to:
undertake detailed examination of the patient with inflammatory arthritis to demonstrate the features of:
distal radioulnar joint subluxation and carpal translocation
MCPJ subluxation and ulnar drift
digital boutonnière and swan neck
thumb deformity and CMCJ disease
diagnose pathology through local anaesthetic joint injection techniques,
undertake treatment by joint injection,
includes simulation-based exercises for joint injection techniques
ADVANCED

Should demonstrate knowledge of detailed management algorithms for the conditions covered in this module including complex conditions.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
harvesting of iliac bone graft / radius bone graft,
simulation-based exercises of wrist arthroscopy
INTERMEDIATE
Should be able to perform:
arthrodesis of DIPJ / PIPJ/ MCPJ,
trapeziectomy plus/minus soft tissue ligamentous reconstruction,
total wrist arthrodesis
Darrachs procedure
Suave-Kapandje procedure
diagnostic wrist arthroscopy
ADVANCED
Should be able to perform:
therapeutic wrist arthroscopy e.g. TFCC debridement
limited arthrodesis including STT, 4-corner, radiolunate
variety of procedures for rheumatoid arthritis including MCPJ arthroplasty e.g. Swanson silicone spacer replacement, surface replacement arthroplasty, soft tissue arthroplasty with ligament reconstruction for instability, soft tissue correction for swan neck/boutonnière deformities
joint replacement arthroplasty: PIP / CMCJ / Wrist / DRUJ
Tendon and tendon-related disorders
OBJECTIVE
Acquire competence in the diagnosis and management of all aspects of flexor and extensor tendon injuries and associated reconstruction. Detailed knowledge of the hand therapy and rehabilitation regimens for the same.
KNOWLEDGE
BASIC
Should be able to demonstrate knowledge of:
mechanisms of tendon injury and healing
pathophysiology of related tendon disorders
INTERMEDIATE
Should be able to demonstrate knowledge of:
principles of tendon transfer
biomechanics of the tendons and tendon sheath / pulleys
available suture techniques for repair of the divided tendon including multistrand repair
rehabilitation regimens for flexor and extensor tendon repair
ADVANCED
Should be able to demonstrate knowledge of:
recent advances in basic sciences of tendon injury and repair
basic science and evidence base informing use of different techniques of tendon repair and rehabilitation regimens
the role of the intrinsic muscles in facilitating co-ordinated tendon function
CLINICAL SKILLS

BASIC
Should demonstrate ability to:
clinically assess the injured tendon and other tendon disorders
select use of relevant specialist imaging techniques such as ultrasound
INTERMEDIATE
Should demonstrate ability to:
clinically assess and manage algorithms for the conditions covered in this module
examine the stiff finger and distinguish flexor/extensor adhesions / primary or secondary joint stiffness
ADVANCED
Should demonstrate ability to:
undertake detailed assessment of and advise on complex tendon problems including reconstruction and reanimation of the hand in cases of tendon loss and nerve palsy using individualised tendon transfers
analyse and advise on modifications needed to standard therapy regimens to correct specific problems such as joint contracture
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
extensor tendon repair
flexor tendon repair (Zones III-V)
tendon graft harvest
extensor / flexor synovectomy
trigger digit release
Includes simulation-based exercises related to tendon surgery
INTERMEDIATE
Should be able to perform:
De Quervain's release
flexor tendon repair (multistrand)(Zones I & II)
flexor or extensor tenolysis
tendon transfer (EI-EPL)
tenodesis (EDC replacement in partial EDC rupture)
ADVANCED
Should be able to perform:
late reconstruction of flexor and extensor tendons:
tendon grafting 1 and 2-stage
tendon transfer
radial nerve set
opponensplasty for opposition
intrinsic replacement for claw hand
adductorplasty for key pinch

Nerve and nerve-related disorders
OBJECTIVE
Acquires competence in the diagnosis and management of all aspects of nerve related disorders including nerve compression, nerve palsy and nerve injuries along with associated reconstructive techniques. Acquires detailed knowledge of the rehabilitation regimens for the same.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
topographic anatomy of peripheral nerve including brachial plexus
response of peripheral nerve to injury and repair
pathophysiology of nerve compressive disorders
appropriate outcome assessment instruments
INTERMEDIATE
Should demonstrate knowledge of:
techniques of nerve repair
mechanisms of brachial plexus injury, the patterns of injury and outline treatment options
pathophysiology and classification of CRPS and neuropathic pain problems
ADVANCED
Should demonstrate knowledge of:
appropriate use of nerve grafts and other conduits
techniques of nerve reconstruction, neurotisation, and muscle transfers for reanimation of the upper limb
principles of management and classification systems pertinent to cerebral palsy and tetraplegia
pharmacological and non-pharmacological methods for the relief of nerve-related pain problems
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
clinically assess nerve-related disorders including brachial plexus
apply relevant specialist imaging techniques such as electrophysiological investigation and ultrasound
prevent iatrogenic nerve injury
INTERMEDIATE
Should demonstrate knowledge of:
clinical assessment and management algorithms for the conditions covered in this module
assessment of nerve function using specific equipment used in rehabilitation and assessment (such as Semmes Weinstein filaments)
ADVANCED
Should demonstrate ability to:
clinically assess brachial plexus and obstetrical brachial plexus injury including acute and interval treatment
clinically assess the spastic and tetraplegic upper limb
define the management algorithm of the iatrogenic nerve injury
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:

peripheral nerve repair including digital nerve including simulation-based exercises for microsurgical peripheral nerve repair
nerve graft harvest
carpal tunnel release
cubital tunnel release (simple decompression)
INTERMEDIATE
Should be able to perform:
nerve decompression : cubital tunnel release (transposition / medial epicondylectomy), revision carpal tunnel release
nerve grafting for segmental nerve defect
ADVANCED
Should be able to perform:
nerve decompression
ulna nerve in Guyon's canal
submuscular transposition of ulna nerve (cubital tunnel)
radial nerve in radial tunnel
median nerve in pronator tunnel
transposition of neuroma
wrist denervation
brachial plexus exploration (including OBP)
nerve grafting
neurotisation
intercostal nerve grafting
muscle transfer for reanimation
The Child's Hand, Vascular Disorders and Tumours
OBJECTIVE
Acquire overall competence in the diagnosis and management of children's hand problems with emphasis on congenital hand conditions.
Acquire competence in the management of vascular disorders and neoplastic conditions of the upper limb in both children and adults. Demonstrate knowledge of the aetiology, classification, risk factors and surgical management of these conditions.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
principles of management of children's hand disorders including classification, reconstructive principles and timing of operations for congenital difference
embryology of the upper limb and the mechanisms of malformation
patterns of normal growth and development
management of vascular injury including compartment syndrome
principles of management of soft tissue and bony tumours particularly the more common swellings found around the hand
management of upper limb tumours with reference to surgical oncology including biopsy techniques, excision margins, management of regional lymph nodes, formal amputations
INTERMEDIATE
Should demonstrate knowledge of:

the following conditions of the Child's Hand: trigger digits, polydactyly including thumb duplication, simple syndactyly, epiphyseal injury (Salter Harris)
management of vascular insufficiency syndromes, - haemangiomas and vascular malformations
management of soft tissue and bony tumours including formal amputations, reconstructions
principles of management of skin cancer occurring in the upper limb and management of the regional lymph nodes
ADVANCED
Should demonstrate knowledge of:
the following conditions of the Child's Hand:
complex syndactyly (e.g. Apert's hand)
radial dysplasia (radial club hand), ulnar dysplasia
thumb hypoplasia
upper limb malformations in arthrogryposis
Madelung's deformity
Constriction band syndrome
cerebral palsy, spasticity
use of prosthetics
vascular lesions including vascular malformations
management of acute and chronic vascular insufficiency syndromes including compartment syndrome / Volkmann's ischaemic contracture
classification systems and histopathology relevant to neoplasms of the upper limb including skin cancer, sarcoma and bone tumours
modalities of treatment including non-surgical and surgical options
surgical margins for the commoner tumours
options for reconstruction of the surgically excised defect
adjuvant treatments used in combination with surgery for malignant neoplasms
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
clinically assess and deliver non-operative management of the Child's Hand disorder,
in respect of cancer diagnoses demonstrates the skill set necessary to advise a patient of such diagnosis.
work and communicate within the relevant multidisciplinary team (MDT)
INTERMEDIATE
Should demonstrate ability to apply a working knowledge of the management algorithms to the conditions covered in this module
ADVANCED
Should demonstrate:
skills of analysis and diagnostic synthesis, judgement, and surgical planning
in respect of the Child's Hand, the ability to advise regarding timing of reconstruction and effect of growth on reconstructive surgery previously performed
in respect of vascular disorders shows the ability to advise regarding conservative, non-surgical and surgical treatment options
in respect of neoplastic conditions of the upper limb the shows the ability to provide detailed advice on the treatment pathway, including interpretation of specialist imaging, within the context of the relevant MDT

TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
surgery for uncomplicated traumatic conditions of the Child's Hand
excision of small superficial vascular malformations
ganglion excision (dorsal wrist, volar wrist, DIPJ)
safe biopsy for suspected tumours of the upper limb
INTERMEDIATE
Should be able to perform:
trigger thumb/finger release
simple syndactyly separation
correction of duplicate thumb
correction of polydactyly
reconstruction of vascular defects by vein grafting,
excision of vascular malformations involving multiple tissue layers,
fasciotomies for compartment syndrome,
excision of giant cell tumour of tendon sheath,
excision/curettage enchondroma,
removal of swellings from nerves e.g. Schwannoma
excision of other benign tumours of bone and soft tissue.
ADVANCED
Should be able to perform:
complex syndactyly correction
radialisation radial club hand
application external distraction devices for radial club hand
pollicisation
cleft hand correction
recreation of first web space (various conditions)
excision of major vascular malformations and reconstruction resultant defects
excision of malignant tumours of bone and soft tissue including compartmentectomy and reconstruction of resultant defects.
axillary lymphadenectomy
Basic Sciences – embryology, development, anatomy and physiology / Head & Neck assessment – examination, investigations including imaging and biopsy techniques
OBJECTIVE
To understand the development, anatomy and physiology of the head and neck in relation to its surgery
Competence in the diagnosis, use of imaging and management of head and neck disorders
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
embryology of head & neck
topographical and segmental anatomy of the head & neck
vascular, neuronal and lymphatic supply / drainage of the head & neck
appropriate use of diagnostic imaging
aesthetic units of the face and neck

anatomy of the skin-epidermal and dermal layers and appendigeal structures,
embryology of the skin
histopathological appearance of skin
anatomy of the body surface, in particular the head and neck, hands, nails and feet
vascular, neuronal and lymphatic supply / drainage of the head & neck, trunk and limbs, blood supply of the skin
diagnostic imaging of skin neoplasia X-rays, CT, MRI, USS, PET-CT, and imaging assisted diagnostic biopsy
histology of the skin standard stains
immunocytochemistry and cytogenetic techniques
common benign skin disorders-hidradenitis suppurativa, epidermal cysts, lipomas, vascular and congenital malformations
melanocytic naevi including giant, actinic lesions and epidermal/dermal lesions etc., risks of malignant transformation in chronic lesions, giant melanocytic naevi and Marjolin's ulcers
specific history and diagnostic features (clinical and non-clinical) of benign skin lesions (pigmented and non-pigmented), dysplastic naevi, lentigo maligna, melanoma and non-melanoma skin cancers (basal cell carcinoma and squamous cell carcinoma), dermatofibroma, keratoacanthoma, pilomatrixomata, actinic keratoses, Bowen's disease
clinical features of dermatitis artefacta, folliculitis, pyogenic granuloma, inflammatory skin conditions (hidradenitis and acne vulgaris), fungal skin lesions, lentigines, angiomata
difference between telangiectasia and spider naevi
chronic wounds and pressure sores
INTERMEDIATE
Should demonstrate knowledge of:
range, indications and principles of surgical options for surgical ablation of tumours of the head & neck.
range, indications and principles of surgical options for soft tissue defect reconstruction of the head & neck.
range, indications and principles of surgical options for reconstruction of particular units of the head & neck (nose / eyelids / ears / lips)
concepts and limitations of diagnostic techniques
aetiology and assessment of facial palsy
assessment of facial aesthetics
role and use of the head & neck MDT
anatomy of special sites, the pelvis, epitrochlear and popliteal fossa, the triangular space of the back, the axilla, head and neck lymph node basins
anatomy and access for diagnostic biopsies when required
concepts and limitations of diagnostic techniques, dermoscopy, mapping biopsies, frozen sections
range, indications and principles of surgical options for surgical ablation of tumours of the skin
Mohs' micrographic surgery
sentinel node biopsy
the role of the skin multidisciplinary team
diagnosis of lesions at difficult sites, subungual, large facial lesions, mucosal lesions, metastatic lesions
the range of dressings for open skin lesions/wounds
ADVANCED
Should demonstrate knowledge of:
factors determining appropriate surgical ablation techniques

factors determining decision making in choice of flaps and tissue for soft tissue defect reconstruction
factors determining decision making in choice of flaps and tissue for reconstruction of particular units of the head & neck (nose / eyelids / ears / lips).
fange, indications and principles of surgical options and non-operative techniques in facial reanimation
anatomy in particular for block dissections of the axilla, inguinal, iliac and ilioinguinal regions,
functional and surgical anatomy of the face, head and neck
the surgical options for reconstruction of particular units of the head & neck (nose / eyelids / ears / lips), the trunk, the upper lower and lower limb
the range of dressings available for complex wounds/ulcers
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take a focused head & neck history related to any head & neck symptom
assess and non-operatively manage acute injury
recognise life-threatening injuries of the airway and major blood vessels
undertake competent examination of the head & neck.
undertake competent examination of cervical lymph nodes.
record diagnostic findings accurately
organise discussion of cases at head & neck MDT meetings.
take focused skin history related to any skin lesion and skin symptoms
use the magnifying glass, lighting, dermoscopy using polarised and non-polarised light
plan non-operative management of small open wounds
use non-operative methods of hemostasis in the acutely bleeding wound/ulcer
recognise life threatening injuries both airway and vascular
undertake resuscitation skills as laid out in ATLS
examine of the head & neck, upper limb, lower limb, abdomen and pelvis
assess lesions on the face, head and neck, hand, arm, trunk and lower limb
examine regional lymph nodes
organise discussion of cases at clinical meetings
accurately record diagnostic findings
use the current minimum dataset for skin cancers
use current databases and audit and peer review tools according to published requirements and guidelines
INTERMEDIATE
Should demonstrate ability to:
interpret significance of cytological and histological biopsy reports
interpret CT and MRI scans of the head and neck.
plan appropriately for further non-standard investigations of head & neck symptoms following inconclusive initial test results
assess the chronic ulcer/wounds
recommend additional investigations to assess symptoms following inconclusive initial results
interpret and discuss cytological and histological biopsy reports
ADVANCED
Should demonstrate skills of analysis and diagnostic synthesis, judgement and surgical planning pertaining to the topics covered in this module

interpret of any scans performed in particular PET, PET-CT and lymphoscintigraphy,
assess and formulate management plan for the large complex wound
formulate appropriate and timely management, investigations, treatment and follow up plan for a patient all types of benign and malignant skin lesions
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
airway management with the skill detailed in ATLS
circulatory support with the skills detailed in ATLS
free-hand and ultrasound guided lesion FNA of the head & neck
free-hand and ultrasound guided core biopsy of the head & neck
airway management using the techniques specified by ATLS
provide circulatory support using the techniques specified by ATLS
free-hand and ultrasound guided lesion biopsy
FNA of suspected lesions, punch biopsy
harvesting of cells for cytological examination for fungus or malignancy
aspiration of seromas or cystic skin lesions
excision biopsy of undiagnosed skin lesions smaller than 1cm in size including those suspicious for malignancy and direct closure techniques
application of the appropriate dressings in open wounds
application of the appropriate dressings in infected skin wounds
INTERMEDIATE
Should be able to perform:
surgical incision / excision biopsy of intra-oral lesions
direct and indirect pharyngolaryngoscopy
examination of head & neck under anaesthesia
surgical incision / excision biopsy of lesions at difficult sites (any size if periorbital, nasal, sole of the foot or hands and larger lesions on the pretibial region),
biopsy of subungual lesions
use of Mohs micrographic surgery
application of a negative pressure dressing
ADVANCED
Should be able to perform
sentinel lymph node biopsy
surgical incision / excision biopsy of intra-oral / laryngeal / pharyngeal lesions
sentinel lymph node biopsy to include interpretation of result
surgical incision / excision biopsy of large suspicious skin lesions (greater than 1cm in size) including large facial lesions
surgically debride and dress large complex wounds
Skin-related neoplasia of the head & neck
OBJECTIVE
Competence in the diagnosis, assessment and management of all types of skin related cancer of the head and neck.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:

epidemiology
histological classification (BCC / SCC / Melanoma / adnexal)
staging of skin cancer
prognostic factors (tumour and patient-related) and implications for patient treatment recommendations
principles of screening programmes within a population.
NICE guidelines in treatment of non-melanoma skin cancers
understanding the MDT
knowledge of reconstructive options
INTERMEDIATE
Should demonstrate knowledge of:
indications for non-surgical treatment
adjuvant therapies including chemotherapy, radiotherapy, endocrine therapy and biological therapies particularly for melanoma.
cancer biology – specifically with regards to hormonal and growth factors / receptors and tumour metastasis
palliative treatment options for skin cancer.
ADVANCED
Should demonstrate knowledge of:
association between specific high risk benign skin conditions with associated increased skin cancer risk
melanoma biology
important adjuvant and neo-adjuvant historical and current trials (clinical/surgical, chemotherapy, radiotherapy, hormonal and biological)
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take focused skin-related history, eliciting factors associated with benign and malignant skin neoplasia
undertake competent head & neck examination
examine for head & neck lymphadenopathy
initiate appropriate investigations
undertake pre-op. skin prep and draping and prescribe antibiotic prophylaxis
work effectively within the skin cancer multidisciplinary team.
INTERMEDIATE
Should demonstrate ability to:
assess and manage patients presenting with locally advanced disease
interpret CT, MRI & PET scans,
recognise where further pathology or imaging studies may be required and request these appropriately,
develop and record management plan for the patient and discuss rationale for management of common scenarios with patients and colleagues.
ADVANCED
Should demonstrate skills of:
communication of a cancer diagnosis with patients
discussion of complex treatment scenarios with patients including discussion of all options, advantages and disadvantages and take informed consent

analysis and diagnostic synthesis, judgement and surgical planning pertaining to conditions described in this module
communication within the MDT
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
incision biopsy of lesion
excision biopsy of lesion
FNA / core sample of lymph node
Lymph node sampling [in centres where SNB not available]
local flap reconstruction (rotation / transposition / advancement)
split and full thickness skin grafts.
INTERMEDIATE
Should be able to perform:
sentinel lymph node biopsy, dual modality and blue dye only
selective / modified radical neck dissection.
elevation of regional flaps
ADVANCED
Should be able to perform:
radical or extended neck dissection
reconstruction with regional flaps
free flap surgery
reconstruction of specific aesthetic units (nose / eyelids / ears / lips) – see also Module 4 Reconstructive techniques of the head and neck : Advanced technical skills and procedures
Non skin-related neoplasia of the head & neck
OBJECTIVE
Competence in the diagnosis, assessment and management of all types of non-skin related cancer of the head and neck.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
epidemiology
types of cancer – oral cavity, nasopharynx, oropharynx, larynx,
reconstructive options
TNM Staging of skin cancer
prognostic factors (tumour and patient related) and implications for patient treatment recommendations
cancer network guidelines in treatment of non-skin cancers of the head & neck
understanding the MDT
INTERMEDIATE
Should demonstrate knowledge of:
indications for non-surgical treatment
adjuvant therapies including chemotherapy, radiotherapy, endocrine therapy and biological therapies.
cancer biology – specifically with regards to hormonal and growth factors / receptors and tumour metastasis.

palliative treatment options for head & neck cancer.
hospice care
ADVANCED
Should demonstrate knowledge of:
association between specific high risk benign skin conditions with associated increased skin cancer risk
important adjuvant and neo-adjuvant historical and current trials (clinical/surgical, chemotherapy, radiotherapy, hormonal and biological)
role of HPV virus in cancer aetiology
CLINICAL SKILLS
BASIC
Should to be able to:
take focused history related to non-skin tumours of the head & neck eliciting relevant factors,
undertake competent head & neck examination particularly of oral cavity, pharynx and larynx
undertake competent examination of head & neck lymphadenopathy
initiate appropriate investigations
work effectively within the head and neck cancer multidisciplinary team
INTERMEDIATE
Should demonstrate ability to:
assess and manage patients presenting with locally advanced disease
interpret CT, MRI & PET scans,
recognise where further pathology or radiology may be required and request these appropriately
develop and record management plan for the patient and discuss rationale for management of common scenarios with patients and colleagues
ADVANCED
Should demonstrate ability to:
discuss a cancer diagnosis with patients
discuss a cancer diagnosis with patients
discuss complex treatment scenarios with patients including discussion of all options, advantages and disadvantages and take informed consent
communicate effectively and skilfully
use skills of analysis and diagnostic synthesis, judgement and surgical planning pertaining to the conditions described in this module
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
incision biopsy of lesion (oral cavity / pharynx / larynx)
excision biopsy of lesion (oral cavity / pharynx / larynx)
FNA / core sample of cervical / parotid lymph node
local flap reconstruction (rotation / transposition / advancement)
examination under anaesthesia
INTERMEDIATE
Should be able to perform:
selective / modified radical neck dissection
regional flaps
ADVANCED

Should be able to perform
radical or extended neck dissection
free flap surgery
reconstruction of aesthetic units (nose / eyelids / ears / lips) – see module 4 Reconstructive techniques of the head and neck : Advanced technical skills and procedures
Techniques for reconstruction of the head & neck
OBJECTIVE
Acquire competence in the planning, execution and management of appropriate soft tissue reconstruction of head & neck defects.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
classification of flaps (random versus axial / muscle flap - Mathes and Nahai classification / type of tissue being transferred)
factors affecting outcome in flap surgery (patient related, operative, adjuvant therapy related),
principles of flap surgery (replace “like with like”, reconstructive units, back-up plan and “life boat”, donor site considerations)
principles of microsurgery
anatomy of perforators and angiosomes – relevant to planning of local, regional and distal flaps
anatomy of local, regional and free flaps suitable for head & neck reconstruction
advantages and disadvantages of local, regional and free flaps in the head & neck
appropriate use of local, regional and free flaps in the head & neck
INTERMEDIATE
Should demonstrate knowledge of:
relevant surgical anatomy and neurovascular supply of flaps used in head & neck reconstruction
pre-operative investigations for specific flaps
ability to interpret angiographic abnormalities when planning reconstruction
complications of autologous tissue reconstruction including donor site morbidity
post-operative flap monitoring techniques
airway management of the head & neck
stages of bereavement associated with loss of body image and the clinical and psychological supports that can be put in place to assist the patient cope with that loss
planning and prioritising treatment within the head & neck MDT setting.
ADVANCED
Should demonstrate knowledge of
assessment of outcome
long term outcomes of head & neck reconstruction
flap salvage and options following failure
outline the impact of disfigurement, the consequences of an altered appearance, what it involves psychologically and socially, and describe the impact of an individual’s body image on their life and that of their family
outline the process by which an individual can successfully adjust to disfigurement and explain how the multidisciplinary team can assist with that process

CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take focused history eliciting factors important for decisions regarding suitability / type of reconstruction
clinically assess the soft tissue defect
keep contemporaneous and appropriate record
demonstrate simple management techniques including use of appropriate dressings
plan both local and free flaps appropriately for defect
co-ordinate soft tissue reconstruction in conjunction with ablative team
INTERMEDIATE
Should demonstrate ability to:
counsel patient regarding advantages and disadvantages of reconstruction - specifically setting realistic expectations, reconstruction as a process, template in-patient stay and complications,
take informed consent and participate in joint decision-making
manage patients in post-operative period
manage complications of surgery applicable to the clinic setting
use psychological assessment tools for evaluation of psychological needs (patient questionnaires)
ADVANCED
Should demonstrate ability to
clinically assess complex reconstructive requirements and make decisions on appropriate management
interpret investigations and formulate management plans
undertake patient-centred care with patient as partner in the process, providing realistic information and guiding patient decision-making regarding choices available and timing of those treatments
manage and lead multi-disciplinary teams in respect of provision of psycho-social care
arrange the care pathway that supports an individual to successfully adjust to disfigurement through giving the individual and family specific life-skills. These include the patient being provided with information about their condition and its treatment, developing a positive outlook/belief system, learning to cope with their feelings, exchanging experiences with others who've "been there" and social skills training to manage other people's reactions
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
exposure of vessels
positioning of patient on operating table
protection of pressure areas
prevention of nerve injuries / neurapraxia
skin preparation, draping, antibiotic prophylaxis and thromboprophylaxis.
selection / arrangement of appropriate level of post-operative care.
INTERMEDIATE
Should be able to perform:
pre-operative marking of patient
raising range of pedicled autologous flaps
in-setting of flap

harvesting vein graft
ADVANCED
Should be able to perform:
microvascular anastomoses
flap salvage for failing flaps
flap shaping techniques
flap revision techniques
Reconstruction of specific head and neck sites
OBJECTIVE
Acquire competence in the planning, execution, management and reconstruction of specific head and neck sub-units including eyelids, nose, lips, ears and scalp.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy of tissues suitable for planning of local, regional and distal flaps to specific sites in the head & neck
vascular anatomy relevant to planning of local, regional and distal flaps to specific sites in the head & neck
recognise the appropriate use, advantages and disadvantages of local, regional and free flaps in reconstruction of specific sites in the head & neck
factors affecting outcome in flap surgery (patient-related, operative, adjuvant therapy-related)
INTERMEDIATE
Should demonstrate knowledge of:
airway management of the head & neck
ability to interpret angiographic abnormalities when planning reconstruction of specific sites in the head and neck
pre-operative investigations for specific flaps
complications of autologous tissue reconstruction including donor site morbidity
post-operative flap monitoring techniques
planning and prioritising treatment within the head & neck MDT setting
ADVANCED
Should demonstrate knowledge of:
long-term outcomes of head & neck reconstruction
assessment of outcome
flap salvage and options following failure
use of osseointegrated implants and head and neck prosthetics
effects of radiotherapy
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take focused history eliciting factors important for decisions regarding suitability / type of reconstruction for a specific head and neck site
clinically assess specific head and neck defects
keep contemporaneous and appropriate records
effect simple wound management techniques including use of appropriate dressings
plan both local, regional and free flaps appropriate for specific defect

demonstrate soft tissue reconstruction in conjunction with ablative team
INTERMEDIATE
Should demonstrate ability to:
discuss advantages and disadvantages of reconstruction - specifically setting of realistic expectation, reconstruction as a process, template in-patient stay and complications
understand importance of informed consent and joint decision making
take informed consent and joint decision making
manage complications of surgery in pre, peri and post-operative phases
ADVANCED
Should demonstrate ability to
clinically assess complex reconstructive requirements and make decisions on appropriate management for specific sites in the head and neck
interpret investigations to formulate management plan
manage tissues previously treated with radiotherapy
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
exposure of vessels
positioning of patient on operating table
protection of pressure areas
prevention of nerve injuries / neurapraxia
skin preparation, draping, antibiotic prophylaxis and thromboprophylaxis regimens
selection / arrangement of appropriate post-operative care
INTERMEDIATE
Should be able to perform:
pre-operative marking of patient
raising local, regional and pedicled autologous flaps relevant to specific sites of the head and neck
in-setting of flap
ADVANCED
Should be able to perform:
treatment of specific sites of the head and neck following previous radiotherapy
salvage surgery of specific sites of the head and neck
microvascular anastomoses
flap salvage for failing flaps
flap revision techniques
use of osseointegrated implants and facial prosthetics
Facial Reanimation
OBJECTIVE
Competence in the diagnosis of facial palsy and management by both static and dynamic procedures as well as non-surgical treatments
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
epidemiology
anatomy of the facial nerve
aetiological causes of facial palsy

prognostic factors and implications for patient treatment recommendations
range of reconstructive options
INTERMEDIATE
Should demonstrate knowledge of:
non-surgical treatments (Botox, biofeedback, electrical stimulation of facial musculature)
static sling procedures (tendon, fascia, artificial)
dynamic sling procedures (temporalis, masseter)
principles of facial nerve reconstruction (direct suturing, nerve grafting, cross facial nerve grafting)
ADVANCED
Should demonstrate knowledge of:
free muscle transfer techniques (cross facial nerve grafting, gracilis, pectoralis minor, rectus abdominis)
reconstructive aesthetic techniques (endoscopic browlift, facelift, upper & lower blepharoplasties)
use of ancillary surgical techniques (autologous fat transfer, re-positioning parotid ducts etc)
cranial nerve transfers (hypoglossal, accessory)
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take focused facial nerve related history eliciting factors localising site of injury
undertake competent facial nerve examination
initiate appropriate investigations (CT, MRI, EMG, nerve conduction studies)
INTERMEDIATE
Should demonstrate ability to:
interpret CT, MRI, EMG& nerve conduction studies,
assess and manage patients presenting with locally advanced disease
recognise where further investigations may be required and request these appropriately
develop and record management plan for the patient and discuss rationale for management of common scenarios with patients and colleagues
ADVANCED
Should demonstrate ability to:
undertake analysis and diagnostic synthesis, judgement and surgical planning pertinent to facial palsy
discuss complex treatment scenarios with patients including discussion of all options, advantages and disadvantages and take informed consent
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
exploration, protection and identification of facial nerve branches
direct repair of facial nerve
nerve grafting of facial nerve
techniques of Botox injection of face, techniques of biofeedback and electrical stimulation of facial musculature,
surgical access and identification of deep layers of the face
INTERMEDIATE
Should be able to perform

cross facial nerve grafting
insertion of static slings
dynamic slings (Temporalis, masseter)
ADVANCED
Should be able to perform
free muscle tissue transfer techniques (gracilis, pectoralis minor, rectus abdominis)
cranial nerve transfers (hypoglossal, accessory)
ancillary reconstructive techniques (autologous fat transfer, re-positioning parotid ducts etc)
reconstructive aesthetic techniques (endoscopic browlift, facelift, upper & lower blepharoplasties)

Assessment and primary management lower limb injuries
OBJECTIVE
Acquire competence in the initial combined management of patients with open lower limb fractures in the emergency department.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
resuscitation principles as defined by ATLS
applied anatomy, physiology, pathology and mechanisms of limb injury, blood supply of skin, fat and muscle
angiosomes of lower limb
classification of open fractures, including Gustilo classification
factors influencing fracture healing
timing and rationale for antibiotic use and timing of initial debridement
appropriate pre-operative investigations
role of other members of team including microbiologists, physiotherapy, occupational therapy
importance of specialist centres, MDT and interdisciplinary communication, especially with orthopaedic colleagues
INTERMEDIATE
Should demonstrate knowledge of:
pathophysiology of degloving injuries and their classification
management of specific injuries e.g. crush and degloving
range, indications and principles of surgical options for soft tissue reconstruction: direct closure, skin graft, local and free flaps
options of bone fixation, including internal versus external fixation
ADVANCED
Should demonstrate knowledge of:
role of major trauma centres
management of multiply injured patient
factors determining decision making in choice of flaps and tissue for soft tissue reconstruction
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take a focused history for lower limb injury
clinically assess and undertake non-operative management of acute injury

recognise life-threatening injuries
examine to including assessment of severity of injury
assess vascular status
assess for the presence of compartment syndrome
INTERMEDIATE
Should demonstrate ability to:
examine neurological status of limb
apply the management algorithms pertinent to the conditions covered in this module
ADVANCED
Should be able to demonstrate skills of analysis and diagnostic synthesis, judgement, surgical planning pertaining to lower limb injury
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
application of appropriate dressings in emergency room
reduction of fracture in emergency department
application of a plaster cast
INTERMEDIATE
Should be able to measure compartment pressures and interpret results
ADVANCED
Should be able to stabilise associated injuries and bleeding
Debridement, stabilisation and compartment syndrome
OBJECTIVE
Acquire competence in the debridement, stabilisation and assessment of wounds and the ability to make a surgical plan for future management. Management of compartment syndrome.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
principles of fracture management
anatomy of lower limb
on-table imaging techniques and their interpretation
safe access incisions
the importance of tissue sampling
temporary wound dressings
pathophysiology of compartment syndrome
INTERMEDIATE
Should demonstrate knowledge of:
anatomy of perforators
principles and management of fractures and the relevance to subsequent soft tissue reconstruction
monitoring and interpretation of results of raised compartment pressures
ADVANCED
Should demonstrate knowledge of:
principles of bone debridement
microbiology of open fracture injuries

characteristics of defects that can be closed primarily at the initial debridement and the techniques available
controversies of delayed diagnosis of compartment syndrome
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
assess fractures clinically
manage wounds in various locations on the lower limb
apply plaster splints
apply temporary dressings – negative pressure and antibiotic bead pouch
measure compartment pressures
INTERMEDIATE
Should demonstrate ability to:
manage more complex fractures
formulate treatment plan for degloving injuries, especially multiplanar degloving
ADVANCED
Should demonstrate ability to recognise those injuries that would benefit from primary amputation
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
appropriate pre-wash and prep
systematic wound debridement under tourniquet control
wound extension along fasciotomy lines
application of temporary dressing
INTERMEDIATE
Should be able to perform:
identification of tissues that can be preserved
adequately debride injured soft tissues to achieve a stable wound approaching elective conditions
release four muscle compartments in leg in cases of compartment syndrome
intraoperative planning of future soft tissue reconstruction in conjunction with orthopaedic team and ensure appropriate bone fixation to facilitate this
ADVANCED
Should be able to perform amputation of non-salvageable limbs
Soft tissue reconstruction
OBJECTIVE
Acquire competence in the planning and execution of appropriate soft tissue cover of open tibial fractures
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy of perforators and angiosomes – relevant to planning of local flaps
zone of injury
anatomy of free flaps suitable for lower limb reconstruction with the advantages and disadvantages of each, and the appropriate use of each option

INTERMEDIATE
Should demonstrate knowledge of:
options available for fracture fixation and tailoring soft tissue management accordingly,
planning and prioritising treatment within an MDT setting.
ADVANCED
Should demonstrate knowledge of:
principles and detailed management of more complex injuries, including multilevel and bilateral lower limb injuries
the surgical management of bone and soft tissue reconstruction
principles of circular frames and bone transport
controversies of fasciocutaneous versus muscle flaps for soft tissue coverage of open fractures
angiographic abnormalities when planning reconstruction
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
clinically assess soft tissue defects demonstrating recognition of injury patterns
use simple management techniques including use of appropriate dressings
use appropriate antibiotics at definitive wound closure
plan both local and free flap reconstruction appropriately for defect
co-ordinate soft tissue reconstruction in conjunction with orthopaedic team
INTERMEDIATE
Should be able to:
plan management algorithms for the common injuries covered in this module
plan logical step-by-step planning of complex cases in conjunction with orthopaedic surgeons
ADVANCED
Should demonstrate ability to:
plan management algorithms for the injuries covered in this module including complex injuries
plan management and reconstruction for the more complex soft tissue defect in patients requiring distraction lengthening of the skeleton
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
direct closure
skin graft
temporary dressings – negative pressure and antibiotic bead pouch
exposure of recipient vessels in leg
INTERMEDIATE
Should be able to perform:
nerve repair (direct)
planning and raising appropriate fasciocutaneous flaps, both proximally and distally-based
raising gastrocnemius muscle flap for proximal third/knee defects
performing most steps in the raising and anastomosing of free flaps
harvesting of vein graft
exposure of recipient vessels in leg
ADVANCED
Should be able to perform:
raising and anastomosing ALT, LD and radial forearm free flaps under supervision

harvesting a free fibula flap
nerve repair using sural nerve graft
using interposition vein grafts to perform anastomoses outside zone of injury
Vascular injuries and amputation
OBJECTIVE
Acquire competence in the diagnosis and management of all vascular injuries to the lower limb.
Acquire competence in the recognition and management of patients requiring early and delayed amputations.
Acquire understanding of the impact of amputation level on subsequent rehabilitation and detailed knowledge of the rehabilitation regimens for patients requiring amputation.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy of vasculature, including well-known variations e.g. peronea magna
response of vessels to injury and repair
primary management of vascular injuries and the devascularised limb
appropriate use of investigations
timing of surgery for acutely ischaemic limb
indications for amputation and the levels
rehabilitation of amputation patients
INTERMEDIATE
Should demonstrate knowledge of:
role of vascular shunts
role of angiography
techniques of vessel repair
challenges for primary amputation
how to deal with the nerves during amputation and the need for a myodesis
role of adductor myodesis for transfemoral amputation
ADVANCED
Should demonstrate knowledge of
methods for secondary amputation for infection, failed reconstruction etc.
how to manage the revascularised limb post-operatively
pharmacological and non-pharmacological methods for the relief of pain, including phantom limb and neuropathic pain
requirements of a good amputation stump to allow proper prosthesis fitting
role of fillet of limb (foot) technique
knowledge of need to reconstruct large veins proximal to trifurcation
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
control bleeding
interpret angiograms
INTERMEDIATE
Should demonstrate ability to:
clinically assess and prepare management algorithms for the conditions covered in this module
counsel a patient for limb amputation

ADVANCED
Should demonstrate ability to
clinically assess complex injuries and make decisions on subsequent management
interpret investigations and formulate management plan in secondary amputation e.g. CT, angiography etc.
manage iatrogenic vessel injury
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
exposure of vessels
insertion of shunts
harvesting vein graft
application of skin graft to amputation stump if required
INTERMEDIATE
Should be able to perform:
vein graft for vascular injury
uncomplicated transtibial amputation
-uncomplicated through knee and transfemoral amputation.
ADVANCED
Should be able to perform
repair of complex vessel defect
continuation to suitable reconstruction of revascularised limb if appropriate
modification of skin flaps for amputation due to complex soft tissue injury
fillet of foot for amputation where soft tissue is deficient
Complications
OBJECTIVE
Acquire competence in the diagnosis and management of both bone and soft tissue complications and recognition of the need for multidisciplinary management
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
consequences of infection following trauma and surgery
complications of free flap surgery
complications following the use of local flaps
those complications which require referral to specialist centres
INTERMEDIATE
Should demonstrate knowledge of the management of all complications following soft tissue reconstruction including recognition of skeletal complications.
ADVANCED
Should demonstrate knowledge of:
basic science and evidence-base underpinning the management of complications
orthopaedic principles of managing delayed union and non-union
CLINICAL SKILLS
BASIC
Should demonstrate ability to:

undertake clinical assessment of complications and in particular recognise a compromised free or local flap, in conjunction with general patient parameters
use relevant adjunctive techniques such as ultrasound
INTERMEDIATE
Should demonstrate ability to:
clinically assess and plan management algorithms for the conditions covered in this module
use a range of free flap monitoring techniques
ADVANCED
Should demonstrate ability to
undertake detailed assessment of, and advise on, complex problems including reconstruction/salvage of the limb if primary reconstruction has failed
analyse and advise on modifications needed to standard therapy regimens to address specific complications
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
washout of haematoma/collection
application of leeches to flap tip with venous congestion
simple debridement of non-viable flap and appropriate application of temporary dressing
INTERMEDIATE
Should be able to take back free flap to theatre with consultant assistance.
ADVANCED
Should be able to perform:
salvage or amputation of limb following flap failure
bone debridement in conjunction with orthopaedic surgeons
raising flaps to assist orthopaedic team for skeletal revision surgery including cancellous bone graft
Paediatric injuries and outcome measures
OBJECTIVE
Acquire competence in the diagnosis and management of children with lower limb injuries
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
principles of management of children's injuries – skeletal and soft tissue – and appreciate differences from adults
normal growth and development, in particular the importance of growth plates
outcome measures such as Sickness Impact Profile (SIP),
short form-36 (SF36) and Enneking score. Recognition of the need for specialist centres for revision surgery
INTERMEDIATE
Should demonstrate knowledge of:
management of open lower limb injuries in children
how to apply outcome measures to practice and interpret published work, including limitations
ADVANCED
Should demonstrate knowledge of:

management of paediatric lower limb injuries and the specific bone and soft tissue considerations needed with regard to growth
controversies regarding paediatric open lower limb injuries
how to plan and undertake an outcome study and audit outcomes for lower limb trauma
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
clinically assess the injured child
communicate and liaise with parents
work and communicate within the relevant multidisciplinary team (MDT)
recognise non-accidental injury
INTERMEDIATE
Should demonstrate ability to plan management algorithms for the paediatric patient with lower limb injury.
ADVANCED
Should demonstrate ability to:
use skills of analysis and diagnostic synthesis, judgement, and surgical planning
in respect of the child, to advise regarding timing of reconstruction and effect of growth on reconstructive surgery previously performed
provide detailed advice on the treatment pathway, including interpretation of specialist imaging, within the context of the relevant MDT
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to stabilise the child with lower limb injury for safe transfer to specialist centre
INTERMEDIATE
Should be able to perform primary debridement and application of temporary wound dressings in theatre
ADVANCED
Should be able to perform appropriate reconstruction of soft tissue defect including all the techniques available
Basic Sciences – including embryology, development, anatomy, physiology and genetics, stem cell biology, biology of scarring and wound healing. Management of abnormal scars Breast assessment – examination, investigations : including imaging and biopsy techniques.
OBJECTIVE
Acquire competence in basic sciences pertinent to the breast and competence in clinical diagnosis and investigation
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
topographical and segmental anatomy of the breast, vascular neural and lymphatic supply/drainage of breast, anatomy of chest wall, abdomen and axilla
lymphatic system physiology
embryology of breast
endocrine physiology and endocrine effects on the breast at puberty, pregnancy, lactation, menopause and in mastalgia
effect of hormonal therapeutics on the breast (OCP, HRT, selective estrogen-receptor modulators & aromatase inhibitors)

INTERMEDIATE
Should demonstrate knowledge of:
developmental abnormalities - accessory nipples, accessory breast tissue
concept and limitations of triple assessment
ADVANCED
Should demonstrate knowledge of:
breast aesthetics (including breast measurements), breast asymmetry, breast hyperplasia, hypoplastic breast syndromes including Poland's syndrome, chest wall deformities, associated limb abnormalities
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take a focused breast history related to any breast symptom
examine the breast and axilla
request component investigations of triple assessment, and ensure that results are discussed at breast MDT
accurately record diagnostic findings
INTERMEDIATE
Should demonstrate ability to:
arrange non-standard investigations required to assess breast symptoms following inconclusive initial results
interpret mammogram and ultrasound findings
interpret significance of cytological and histological biopsy reports
plan treatment algorithms for conditions in this module
ADVANCED
Should demonstrate skills of analysis and diagnostic synthesis, judgement, and surgical planning
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
free-hand and ultrasound guided lesion FNA
free-hand core biopsy
punch biopsy of skin / nipple
INTERMEDIATE
Should be able to perform:
surgical excision biopsy
ultrasound guided core biopsy
ADVANCED
Should be able to perform vacuum assisted mammatome biopsy
Breast Cancer
OBJECTIVE
Acquire competence in the diagnosis, assessment and management of all types of breast cancer. Includes management of premalignant conditions of the breast and screening for breast cancer.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
epidemiology, histological classification and sub-types of invasive disease and DCIS

staging of breast cancer (UICC – TNM)
prognostic factors (tumour and patient-related) and implications for patient treatment recommendations Breast cancer MDT dataset
male breast cancer,
development of the NHSBSP and current structure
breast screening delivery, patient flow, quality assurances and criticisms/limitations associated with the NHSBSP
principles of screening programmes within a population
INTERMEDIATE
Should demonstrate knowledge of:
indications for primary medical therapy
rationale for neo-adjuvant chemotherapy / endocrine therapy including evidence and limitations
indications and contraindications for mastectomy and BCS and appropriate selection of axillary surgery (SLNB versus ALND)
oncoplastic techniques (therapeutic mammoplasty / IBR/SSM & NSM)
complications of surgery and their management
adjuvant therapies including chemotherapy, radiotherapy, endocrine therapy and biological therapies (NICE clinical guidelines 80 & 81), specifically common regimes, indications, complications and side effects and supporting evidence
cancer biology – specifically with regards to hormonal and growth factors / receptors and tumour metastasis
palliative treatment options for breast cancer
ADVANCED
Should demonstrate knowledge of
breast cancer genetics, specifically identified gene abnormalities and conditions associated with breast cancer (e.g. BRCA 1&2, TP53, Cowdens syndrome, Bananyan Zonanan Syndrome, CHEK2, HNPCC etc)
relevance of family history in breast cancer, the role of the family history clinic and specific referral criteria. (NICE clinical guideline 41)
models for estimating individual risk (Gail model, Bodicea, Klaus, Tyrer-Cuzick)
non-surgical and surgical risk reduction strategies and supporting evidence
management and follow-up of non-malignant high risk breast lesions
current and important adjuvant and neo-adjuvant historical trials (clinical/surgical, chemotherapy, radiotherapy and hormonal)
pregnancy associated breast cancer and its management
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take a focussed breast history including presenting complaint, family history, elicit risk factors and identify co-morbidities important in treatment planning
examine the breast, nodal basins and relevant distant sites where metastasis suspected
initiate appropriate initial investigations as part of triple assessment
recognise the importance of, and work effectively within, the breast multidisciplinary team
INTERMEDIATE
Should demonstrate ability to:
interpret mammogram and sonographic findings
recognise uncommon presentations of breast cancer (Pagets disease, inflammatory carcinoma)

assess and manage patients presenting with locally advanced disease
recognise where further mammographic views or MRI may be required and request these appropriately
develop and record management plan for the patient and discuss rationale for management of common scenarios with patients in conjunction with dedicated Breast Care Nurse
ADVANCED
Should demonstrate ability to
interpret MRI findings and use these in treatment planning
undertake skilful discussion of cancer diagnosis with patients
discuss complex treatment scenarios with patients including discussion of all options, advantages and disadvantages and take informed consent
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
appropriate pre-op skin prep and draping and antibiotic prophylaxis
palpable excision biopsy, palpable wide local excision
sentinel lymph node biopsy, dual modality and blue dye only
node sample in centres where SNB not employed
simple mastectomy
INTERMEDIATE
Should be able to perform:
wire/radiologically-localised excision of impalpable lesion
skin-sparing mastectomy
axillary lymph node dissection (level 3) both primary and delayed
ADVANCED
Should be able to perform
axillary lymph node dissection for disease recurrence
skin and nipple preserving mastectomy
therapeutic mammoplasty, IBR procedures appropriate to parent specialty
Benign breast conditions
OBJECTIVE
Acquire competence in the diagnosis and management of benign breast conditions
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
pathophysiology and presentation of mastalgia, fibroadenoma, breast cysts, papilloma, benign nipple discharge, duct ectasia, periductal mastitis, mammary duct fistula and breast sepsis (lactational and non-lactational) including microbiology
Phylloides tumour
gynaecomastia
involutional change of the breast
INTERMEDIATE
Should demonstrate knowledge of
relationship between systemic disorders, medication and lifestyle factors with breast symptoms (hyper-prolactinaemia, gynaecomastia, OCP, smoking),
benign pregnancy and lactational lesions of the breast (lactational adenoma, galactocoele).

ADVANCED
Should be able to describe association between specific high-risk benign breast conditions with associated increased breast cancer risk
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take focussed breast history, eliciting factors associated with benign breast disease
examine breast and axilla
examine systems associated with benign breast disease (endocrine, abdominal)
initiate appropriate investigations / triple assessment where indicated
INTERMEDIATE
Should demonstrate ability to:
formulate management plan of benign breast pathology included in this module
interpret investigation findings and understand how they differ from findings in malignant disease
ADVANCED
Should demonstrate skills of analysis and diagnostic synthesis, judgement and surgical planning for the conditions specified in this module.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
free hand aspiration / surgical drainage of breast abscess
aspiration of cyst
benign lump excision
INTERMEDIATE
Should be able to perform:
nipple eversion techniques
wire / image guided excision of lesion,
ultrasound guided aspiration abscess,
microdochectomy,
major duct excision,
fistula surgery.
ADVANCED
Should be able to perform
ductoscopy,
minimal access surgery,
nipple eversion techniques.
Breast reconstruction – Implant based techniques
OBJECTIVE
Acquire competence in implant based reconstruction including indications, technique and management of complications
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
indications and contraindications to implant based reconstruction
surgical anatomy of implant / expander based reconstructive procedures

alloplastic materials and tissue interface
dermal xenografts
INTERMEDIATE
Should demonstrate knowledge of:
advantages and disadvantages in comparison to autologous based reconstruction
range of devices available
implant infection and management
implant extrusion
capsular contracture
aetiology, classification, role of DXT and management, - historical development and controversies
ADVANCED
Should demonstrate knowledge of:
staged procedures – single and two stage: advantages and disadvantages
adjunctive biological technologies
outcome of implant based reconstruction
relevant literature
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
assess suitability for implant based reconstruction and alternatives
identify pre-operative factors which can be optimized prior to surgery (smoking, systemic disease)
INTERMEDIATE
Should demonstrate ability to consent patients describing full range of potential complications, and set realistic expectations.
ADVANCED
Should demonstrate ability to select appropriate implants / expanders for patients, recognise post-operative complications and formulate associated management plans.
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to:
orient devices and prepare appropriately
explain issues regarding antibiotics, drains, changing gloves
use electric operating tables
protect pressure areas
prevent nerve injuries / neurapraxia
INTERMEDIATE
Should be able to perform:
creation and closure of sub-pectoral pocket
subpectoral pocket including total sub-muscular cover
two stage reconstruction using TEX and subsequent exchange for FVI.
ADVANCED
Should be able to perform:
preoperative marking of patient
single staged reconstruction using FVI and dermal xenograft sling
inferior dermal sling to achieve implant cover

identification and correction of aesthetic deficiencies as secondary procedures
nipple reconstruction techniques (see under Module 5)
Reconstruction – Autologous tissue based techniques
OBJECTIVE
Acquire competence in autologous tissue based breast reconstruction including indications, technique and management of complications.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
classification of flaps (random versus axial / muscle flap - Mathes and Nahai / type of tissue being transferred)
factors affecting outcome in flap surgery (patient related, operative, adjuvant therapy related)
principles of flap surgery (replace “like with like”, reconstructive units, back-up plan and “life boat”, donor site considerations)
principles of microsurgery
INTERMEDIATE
Should demonstrate knowledge of:
relevant surgical anatomy and neurovascular supply of flaps used in breast reconstruction (LD, Abdominal wall, I/S GAP, TUG, TDAP),
concept of angiosomes, specifically in reconstructions using abdominal free flaps,
indications and contraindications for IBR and DBR – pre-operative factors to be considered in decision making,
tissue effects of DXT.
psychological impact of IBR and DBR, - advantages and disadvantages in comparison with implant based reconstruction,
pre-operative investigations for specific flaps,
complications of autologous tissue reconstruction including donor site morbidity.
ADVANCED
Should demonstrate knowledge of:
long term outcomes of breast reconstruction
assessment of outcome (clinical / PROMs)
reconstruction in prophylactic surgery
partial breast reconstruction
nipple reconstruction techniques
flap salvage and options following failure
lipomodelling in reconstruction (indications, complications and controversies – stem cells, mammographic follow-up)
relevant literature
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take history eliciting factors important for decisions regarding suitability / type of autologous reconstruction
maintain clear documentation in the notes in the post-operative period
INTERMEDIATE
Should demonstrate ability to:

assess suitability for IBR vs DBR
discuss advantages and disadvantages of reconstruction - specifically setting of realistic expectation, reconstruction as a process, template in-patient stay and complications
describe importance of informed consent and joint decision making
manage complications of surgery in clinic (wound, seroma)
manage patients appropriately in post-operative period
ADVANCED
Should demonstrate ability to:
identify patients not suitable for autologous reconstruction (physical and psychological contraindications)
undertake appropriate post-operative assessment of (free) flaps
plan algorithms for managing complications
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
positioning of patient on operating tissue
protection of pressure areas
prevention of nerve injuries / neurapraxia
skin preparation, draping and antibiotic prophylaxis
selection / arrangement of appropriate level of post-operative care
use of electric operating tables
INTERMEDIATE
Should be able to perform:
pre-operative marking of patient
raising pedicled autologous flaps including latissimus dorsi
in-setting of flap
ADVANCED
Should be able to perform:
preoperative marking up of patient
nipple reconstruction techniques (nipple sharing procedures, local flaps, tattooing)
raising pedicled autologous TRAM or DIEP flap
free-flap techniques
microvascular anastomoses
flap salvage for failing flaps
flap shaping techniques
flap revision techniques
lipomodelling for correction of resectional defects
lipomodelling in breast reconstruction
Pelvic reconstruction
OBJECTIVE
Acquire competence in the principles of management including reconstruction of the pelvic defect.
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
types and basic management of various types of pelvic/genito-urethral malignancy.

effects of gender on defect
principle of management of malignancy of pelvic origin
role of the MDT
range of flaps and techniques available for reconstruction
INTERMEDIATE
Should demonstrate knowledge of techniques available for pelvic defect reconstruction including:
assessment of the nature of the commoner partial defects and the most appropriate flaps
assessment of total perineal defect and the main types of flap.
pros and cons of various flaps for various defects
ADVANCED
Should demonstrate knowledge of techniques available for specific aspects of pelvic and perineal reconstruction such as:
penile amputation for carcinoma
vulval reconstruction with fasciocutaneous flaps
coverage of exposed testis following Fourniers
urethral reconstruction options following malignancy
trauma, including flap, FTSG, transplantation of urethra, tubed bladder wall
CLINICAL SKILLS
BASIC
Ability to demonstrate:
working within an MDT and the ability to assess the psychological state of the patient and possible size/nature of the defect prior to resection
INTERMEDIATE
Ability to demonstrate:
the skills to arrange patient-centred care with patient as partner in the process (depending on age of patient), providing realistic information and guiding patient decision-making regarding choices available and timing of those treatments
ADVANCED
Ability to manage and lead:
multi-disciplinary teams in respect of provision of psycho-social care. Be able to arrange the care pathway that supports an individual and his/her family to successfully adjust to disfigurement and functional problems through giving the individual and family specific life-skills. These include the patient being provided with information about their condition and its treatment, developing a positive outlook/belief system, learning to cope with their feelings, exchanging experiences with others who've "been there" and social skills training to manage other people's reactions
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
raising local flaps
use of quilted SSG for penile amputation
raise and deal with donor site for SSG and FTSG including BUMG
INTERMEDIATE
Should be able to perform:
elevation of complex flaps including, Lotus flap, Singapore flap, Inferiorly based TRAM and VRAM, SIEA flap and gracillis flap

ADVANCED
Should be able to perform specific operations for perineal reconstruction such as:
penile amputation for carcinoma
urethral reconstruction for stricture or trauma
vaginal reconstruction following malignancy
Basic Sciences & Skin Assessment
OBJECTIVE
Acquire competence in the development, anatomy and physiology of the skin in relation to its surgery
Acquire competence in the diagnosis, use of imaging and management of suspicious skin lesions
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy of the skin-epidermal and dermal layers and appendigeal structures
embryology of the skin
histopathological appearance of skin
anatomy of the body surface, in particular the head and neck, hands, nails and feet
vascular, neuronal and lymphatic supply / drainage of the head & neck, trunk and limbs, blood supply of the skin
diagnostic imaging of skin neoplasia X-rays, CT, MRI, US, PET-CT, and imaging assisted diagnostic biopsy
standard skin stains used for histology
origin of stains used and for what purpose
immunocytochemistry and cytogenetic techniques
common benign skin disorders-hidradenitis suppurativa, epidermal cysts, lipomas, vascular and congenital malformations
melanocytic naevi including giant, actinic lesions and epidermal/dermal lesions etc., risks of malignant transformation in chronic lesions, giant melanocytic naevi and Marjolin's ulcers
specific history and diagnostic features (clinical and non-clinical) of benign skin lesions (pigmented and non-pigmented), dysplastic naevi, lentigo maligna, melanoma and non-melanoma skin cancers (basal cell carcinoma and squamous cell carcinoma), dermatofibroma, keratoacanthoma, pilomatrixoma, actinic keratoses, Bowen's disease
clinical features of dermatitis artefacta, folliculitis, pyogenic granuloma, inflammatory skin conditions (hidradenitis and acne vulgaris), fungal skin lesions, lentigines, angiomata,
difference between telangiectasia and spider naevi,
chronic wounds and pressure sores.
INTERMEDIATE
Should demonstrate knowledge of:
anatomy of special sites, the pelvis, epitrochlear and popliteal fossa, the triangular space of the back, the axilla, head and neck lymph node basins
anatomy and access for diagnostic biopsies when required
concepts and limitations of diagnostic techniques, dermoscopy, mapping biopsies, frozen sections
range, indications and principles of surgical options for surgical ablation of tumours of the skin
staged histological clearance
sentinel node biopsy

the role of the skin MDT
diagnosis of lesions at difficult sites, subungual, large facial lesions, mucosal lesions, metastatic lesions
the range of dressings for open skin lesions/wounds
ADVANCED
Should demonstrate knowledge of:
anatomy in particular for block dissections of the axilla, inguinal, iliac and ilioinguinal regions
functional and surgical anatomy of the face, head and neck
the surgical options for reconstruction of particular units of the head & neck (nose / eyelids / ears / lips), the trunk, the upper lower and lower limb
the range of dressings available for complex wounds/ulcers
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take focused skin history related to any skin lesion and skin symptoms
use the magnifying glass, lighting, dermoscopy
plan non-operative management of small open wounds
use non-operative methods of hemostasis in the acutely bleeding wound/ulcer
examine of the head & neck, upper limb, lower limb, abdomen and pelvis
assess lesions on the face, head and neck, hand, arm, trunk and lower limb
examine regional lymph nodes
organise discussion of cases at clinical
accurately record diagnostic findings
use the current minimum dataset for skin cancers
use current databases and audit and peer review tools according to published requirements and guidelines
INTERMEDIATE
Should demonstrate ability to:
assess the chronic ulcer/wounds
interpret, CT, PET-CT and MRI scans
interpret and discuss cytological and histological biopsy reports
ADVANCED
Should demonstrate ability to:
interpret any scans performed in particular PET, PET-CT and lymphoscintigraphy
assess and formulate management plan for the large complex wound
formulate appropriate and timely management, investigations, treatment and follow up plan for a patient in respect of all types of benign and malignant skin lesions
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
free-hand and ultrasound guided lesion biopsy
FNA of suspected lesions, punch biopsy
harvesting of cells for cytological examination for fungus or malignancy
aspiration of seromas or cystic skin lesions
excision biopsy of undiagnosed skin lesions smaller than 1cm in size including those suspicious for malignancy and direct closure techniques
application of the appropriate dressings in open wounds

application of the appropriate dressings in infected skin wounds
INTERMEDIATE
Should be able to perform:
surgical incision / excision biopsy of lesions at difficult sites (any size if periorbital, nasal, sole of the foot or hands and larger lesions on the pretibial region)
biopsy of subungual lesions
use of staged histological clearance
application of a negative pressure dressing
ADVANCED
Should be able to perform:
sentinel lymph node biopsy to include interpretation of result
surgical incision / excision biopsy of large suspicious skin lesions (greater than 1cm in size) including large facial lesions
Primary treatment of Skin-related neoplasia
OBJECTIVE
Acquire competence in the diagnosis, assessment and management of all types of primary skin-related neoplasia
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
epidemiology
histological classification (basal cell carcinoma / squamous cell carcinoma / Melanoma / Merkel cell/ porocarcinoma/ adnexal and pre-cancerous lesions
potential differential diagnosis skin lesions
staging of skin cancer (SCC and melanoma), (histological classifications, TMN, AJCC and current)
prognostic factors (tumour and patient related) and implications for patient treatment recommendations
implications of the occupational, family history, sun exposure history and immunosupression
principles of screening programmes within a population
genetic counselling and referral indications
margins of excision for different histological types of basal cell carcinomas, Squamous cell carcinomas, Bowen's disease, in-situ disease, dermatofibroma and benign dysplastic skin lesions.
peer review and NICE guidelines in treatment of melanoma and non-melanoma skin cancers (melanoma, SCC, Sarcoma, Bowen's, actinic keratoses, Kaposi's sarcoma and BCC's) in particular margin recommendations,
the role of the MDT
peer review and MDM documentation
INTERMEDIATE
Should demonstrate knowledge of:
margins of excision of different stages of melanoma, porocarcinoma, Merkel Cell carcinoma, Dermatofibroma sarcoma Protuberans, fibrosarcoma and suprafascial sarcoma
indications for non-surgical treatment (Photodynamic therapy-PDT, Cryotherapy, laser and topical therapies)
indications for sentinel lymph node biopsy and other prognostic investigations
adjuvant therapies including chemotherapy, radiotherapy, endocrine therapy and biological therapies particularly for melanoma

cancer biology – specifically with regards to hormonal and growth factors / receptors and tumour metastasis
palliative treatment options for skin cancer
ADVANCED
Should demonstrate knowledge of:
association between specific high risk benign skin conditions with associated increased skin cancer risk
genetic conditions in skin cancer
melanoma tumour biology
controversies that have existed around sentinel lymph node biopsy, its history, origins and basis of sentinel lymph node biopsy
theories of melanoma spread - incubator versus marker theory
important adjuvant and neo-adjuvant historical and current national and international trials (clinical/surgical, chemotherapy, radiotherapy, laser, hormonal and biological)
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take focused skin related history
elicit factors associated with benign and malignant skin neoplasia such as familial factors, sun exposure and mechanism of sun damage and skin types
examine head & neck and truncal lymph node basins
initiate appropriate investigations, use diagnostic techniques of clinical features, the diagnostic templates e.g. ABCDE (asymmetry, borders, colour, diameter and evolving)
undertake dermoscopy and methods of recording lesion e.g. photography, diagrams for medicolegal and follow up reasons
work effectively within the skin cancer and allied speciality multidisciplinary teams, (eg head and neck MDM)
INTERMEDIATE
Should demonstrate ability to:
assess and manage patients presenting with locally advanced disease
recognise pathological features of common skin cancers –BCC, SCC and melanoma
interpret lymphoscintigraphy, CT, MRI & PET scans
recognise where further pathology or radiology may be required and request these appropriately
develop and record management plan in line with peer review requirements and discuss rationale for management of common scenarios with patients and colleagues
communicate skilfully
ADVANCED
Should demonstrate ability to:
interpret FNA/USS and distinguish a primary pigmented lesion from a primary melanoma or a metastatic melanoma
formulate management plan using skills of analysis, diagnostic synthesis and judgement
discuss complex treatment scenarios with patients including discussion of all options
take informed consent detailing advantages and disadvantages of proposed treatment
discuss a cancer diagnosis with patients
advanced communication skills, breaking bad news, giving prognostic information to the patient
TECHNICAL SKILLS AND PROCEDURES
BASIC

Should be able to perform:
excision biopsy of lesion and incision biopsy of skin lesions-when indicated
Fine Needle Aspiration-FNA / core sample of lymph nodes
wider excision of skin tumours with the advised margins on the trunk, leg and arm
local flap reconstruction (rotation / transposition / advancement)
optimum placement of incisions allowing for possible secondary surgery and future block dissections
explain the rationale for use of split and full thickness skin grafts and artificial skin replacements
pre-op skin prep and draping and antibiotic and venous thromboembolism prophylaxis
node sample in centres where sentinel lymph node biopsy is not employed
INTERMEDIATE
Should be able to perform:
wider excision of lesions with the advised margin on the skin of the head and neck, face, genitalia and hand
head and neck, truncal and limb sentinel lymph node biopsy, - level I, II and III axillary dissections and inguinal block dissection
regional flaps – various including rotational, advancement, axial pattern
ADVANCED
Should be able to perform:
pelvic or head and neck block dissection
reconstruction with regional and distant flaps
free flap surgery
reconstruction of aesthetic units (nose / eyelids / ears / lips) and special sites – nose, digits, eyes, genitalia and ears
oculoplastic techniques
Treatment of recurrent and chronic skin tumours
OBJECTIVE
Acquire competence in the diagnosis, assessment, investigation and management of all types of recurrent and metastatic skin cancers
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
epidemiology and genetics of skin
basic understanding of familial syndromes
genes/oncogenes associated with skin cancer
margins of excision for metastatic lesions including national guidance
types of cancer – recurrences, new primaries, related malignancies
immunosupressed patients
syndromic patients, i.e., Gorlin's, Cowden's, polyposis coli, melanosis, xeroderma pigmentosum, giant melanocytic naevi, skin conditions in immunocompromised patients
TNM Staging of skin cancer
prognostic factors (tumour and patient related) and implications for patient treatment recommendations
rationale and types of imaging for prognostic and staging information
biopsies, FNA, USS, X-Ray, CT, MRI, PET-CT, SPECT-CT and SNB
cancer network guidelines in treatment of recurrent skin cancers

functioning of the MDT,
INTERMEDIATE
Should demonstrate knowledge of:
indications for non-surgical treatment
anatomy and techniques for excision and closure of block dissections
adjuvant therapies including chemotherapy, radiotherapy, endocrine therapy and biological therapies
Mohs micrographic surgery, isolated limb infusions, ECT, isolated limb perfusion, CO2 laser ablation and minimally invasive techniques including laparoscopic and robotic surgery
Staged Histological Clearance (SHC), isolated limb infusions, ECT, isolated limb perfusion, CO2 laser ablation and minimally invasive techniques including laparoscopic and robotic surgery
cancer biology – specifically with regards to hormonal and growth factors / receptors and tumour metastasis
palliative treatment options for the skin cancer patient
management of the complex wound
hospice care
ADVANCED
Should demonstrate knowledge of
appropriate use of and pitfalls of frozen section,
association between specific high risk benign skin conditions with associated increased skin cancer risk,
important adjuvant and neo-adjuvant historical and current national and international trials (clinical/surgical, chemotherapy, radiotherapy, hormonal and biological),
role of Human Papilloma Virus-HPV, in cancer aetiology
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
take focused skin related history
elicit factors associated with malignant non-skin related neoplasia
examine skin of entire body surface for additional primary tumours
examine all sites for regional lymphadenopathy
initiate appropriate investigations
work effectively within the skin cancer multidisciplinary team
manage the non-operative aspects of the chronic wound including pressure sores
INTERMEDIATE
Should demonstrate ability to:
interpret CT, MRI & PET scans
assess and manage patients presenting with locally advanced disease
recognise where further pathology or radiology may be required and request these appropriately
develop and record management plan for the patient and discuss rationale for management of common scenarios with patients and colleagues
ADVANCED
Should demonstrate ability to:
formulate management plan using skills of analysis and diagnostic synthesis, judgement in particular for the patient with multiple co-morbidities

discuss complex treatment scenarios with patients including discussion of all options, advantages and disadvantages and take informed consent
discuss a skin cancer diagnosis and prognosis with patients
communicate skilfully with patients and with other members of the clinical team
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
incision biopsy of lesions
excision biopsy of lesions
FNA / core sample of lymph nodes
undertaking local flap reconstruction (rotation / transposition / advancement)
INTERMEDIATE
Should be able to perform:
cervical sentinel lymph node biopsy
regional lymph node dissections of the axilla and groin
hernia repair
regional flaps, pedicled reconstructions
use of dermal substitutes for wound resurfacing
ADVANCED
Should be able to perform:
pelvic and head and neck dissections
free flap surgery
reconstruction of aesthetic units (nose / eyelids / ears / lips)
isolated limb perfusion
mapping biopsy techniques Staged Histological Clearance (SHC)
Reconstructive techniques for skin surgery
OBJECTIVE
Acquire competence in the planning, execution and management of appropriate soft tissue reconstruction of skin defects
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
anatomy of perforators and angiosomes – relevant to planning of local, regional and distal flaps
anatomy of local, regional and free flaps suitable for head & neck reconstruction
classification of flaps (random v axial / muscle flap - Mathes and Nahai / type of tissue being transferred)
advantages and disadvantages of local, regional and free flaps in the patient post skin tumour excision
use of local, regional and free flaps in the head & neck/upper limb/leg/chest and trunk
factors affecting outcome in flap surgery (patient related, operative, adjuvant therapy related)
principles of flap surgery (replace “like with like”, reconstructive units, back-up plan and “life boat”, donor site considerations)
principles of microsurgery
INTERMEDIATE
Should demonstrate knowledge of:
planning and prioritising treatment within the head & neck MDT setting

interpreting angiographic abnormalities when planning reconstruction, surgical anatomy and neurovascular supply of flaps used in head & neck reconstruction
indications for preoperative investigations for specific flaps
airway management according to techniques specified in ATLS
post-operative flap monitoring techniques
complications of autologous tissue reconstruction including donor site morbidity
use of common skin substitutes
ADVANCED
Should demonstrate knowledge of:
factors determining decision making in choice of flaps and tissue for soft tissue defect reconstruction
factors determining decision making in choice of flaps and tissue for reconstruction of particular units of the head & neck (nose / eyelids / ears / lips), factors determining appropriate surgical ablation techniques
range, indications and principles of surgical options and non-operative techniques
long term outcomes of different types of reconstructions
assessment of outcome
flap salvage and options following failure
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
clinically assess the soft tissue defect
take history, eliciting factors important for decisions regarding suitability / type of reconstruction
perform contemporaneous and appropriate record keeping
manage uncomplicated wounds using a range of dressings
plan both local and free flaps resurfacing of soft tissue defects
co-ordinate soft tissue reconstruction in conjunction with ablative team
manage the patient following Staged Histological Clearance (SHC)
INTERMEDIATE
Should demonstrate ability to:
discuss advantages and disadvantages of reconstructive options with patients specifically setting realistic expectations, advising on reconstruction as a process detailing possible complications
take informed consent from patients and participate in joint decision making
arrange appropriate level of post-operative care
manage complications of surgery appropriately in post-operative period and in the clinic
use of common skin substitutes
ADVANCED
Should demonstrate ability to:
clinically assess complex reconstructive requirements and formulate appropriate management plan
interpret investigations as part of formulating management plan
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
positioning of patient on operating table
protection of pressure areas

prevention of nerve injuries / neurapraxia
pre-operative marking of patient, skin preparation, draping, antibiotic prophylaxis and thromboprophylaxis
split skin grafting, full thickness skin grafting
range of local flaps
INTERMEDIATE
Should be able to perform:
reconstruction of the scalp and management of chronic scalp wounds and the unstable scalp
raising pedicled autologous flaps
in-setting of flap
harvesting chondrocutaneous, cartilage, composite grafts and vein grafts
use of common skin substitutes
ADVANCED
Should be able to perform:
3D reconstruction of specialised structures
reconstruction of the periorbital structures/ear and nose
microvascular anastomoses
flap salvage for failing flaps
flap shaping techniques
flap revision techniques
Scarring, wounds and other surgical conditions of the skin
OBJECTIVE
Acquire competence in the management of the patient with the longer term outcomes of benign and malignant skin conditions / post surgical scarring and chronic wounds
KNOWLEDGE
BASIC
Should demonstrate knowledge of:
skin anatomy
aetiology and related benign conditions
hypertophic scars, keloids, dermatofibroma, epidermal cysts, lentigines, actinic keratoses, xanthelasmata, lipomas
history and examination of the skin
INTERMEDIATE
Should demonstrate knowledge of:
dermoscopy and imaging techniques of the skin
Marjolin's ulcer, pilomatrixoma, DFSP, hidradenitis suppuritiva, acne scarring, inflammatory skin conditions
ADVANCED
Should demonstrate knowledge of:
consequences of nerve resection and other functional deficits after resection of tumour
lymphoedema
complex wounds
psychological and social issues that can affect the skin cancer patient
reconstructive techniques for pressure sores and large complex wounds
CLINICAL SKILLS
BASIC

Should demonstrate ability to:
assess the skin using dermoscope
recognise infection, induration, lymphoedema, seroma, post radiotherapy recurrence in complex scars
INTERMEDIATE
Should demonstrate ability to:
assess surgical scar and deploy non-operative techniques for scar improvement
injection techniques for scar improvement
manage functional and psychological effects of post cancer resection surgery
participate in multidisciplinary management of patients with large, chronic vascular malformations
ADVANCED
Should demonstrate ability to**:**
undertake nerve defect assessments
make decisions and analyse the options for aesthetic improvement in the surgically-scarred cancer patient including advance communications skills
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
debulking of keloids
excision of benign lesions
shave excisions
laser ablation of skin lesions
incision and curettage for active hidradenitis suppuritiva
INTERMEDIATE
Should be able to perform:
botulinum toxin and filler injections
scar release
z-plasty
reconstruction post excision of scars
surgical options of laser
excision or sclerotherapy for vascular malformations
fat grafting
ADVANCED
Should be able to perform
laser resurfacing
rejuvenation of the skin
reconstructive techniques for advanced and crippling hidradenitis suppurativa
reconstruction techniques for pressure sores and large complex wounds, lymphatic reconstruction/anastomosis
surgical excision of lymphoedema
Multidisciplinary team workings, allied professionals, palliative care and follow up regimes, trials, research and national guidelines
OBJECTIVE

Acquire competence working as a member of the multidisciplinary team, knowledge of and ability to consider appropriate referral to other professionals. A full understanding of NICE Improving outcomes guidance and Peer review. An understanding of research and audit in local, national and international settings
KNOWLEDGE
BASIC
Should demonstrate knowledge of
national guidelines (NICE) for the diagnosis, treatment and follow up of BCC, SCC's, Bowen's, Melanoma, dermatofibrosarcoma protuberans and suprafascial sarcoma,
surgical and non surgical options
INTERMEDIATE
Should demonstrate knowledge of
management of the patient with recurrent disease (surgical, non-surgical and radiotherapy options)
stages of bereavement that can be associated with loss of body image and the clinical and psychological supports that can be put in place to assist the patient cope with that loss
ADVANCED
Should demonstrate knowledge of
current trials, ethics, research and pathways to develop trials/research within a service
impact of disfigurement
consequences of an altered appearance, what it involves psychologically and socially, and the impact of an individual's body image on their life and that of their family
process by which an individual can successfully adjust to disfigurement and how the multidisciplinary team can assist with that process
CLINICAL SKILLS
BASIC
Should demonstrate ability in using communication and referral pathways to specialist MDM's
INTERMEDIATE
Should demonstrate ability to:
interpret lymphoscintigraphy, CT, MRI, PET, FNA, USS and pathology minimum dataset
develop and record management plan for the patient and discuss rationale for management of common scenarios with patients and colleagues
apply psychological assessment tools for evaluation of psychological needs (patient questionnaires)
ADVANCED
Should demonstrate ability to:
formulate management plan using skills of analysis and diagnostic synthesis, judgement
discuss complex treatment scenarios with patients including discussion of all options, advantages and disadvantages and taking informed consent
develop the skills to arrange patient-centred care with patient as partner in the process
provide realistic information and guiding patient decision-making regarding choices available and timing of those treatments
manage and lead the multi-disciplinary teams in respect of provision of psycho-social care
arrange the care pathway that supports an individual to successfully adjust to disfigurement through giving the individual and family specific life-skills -these include the patient being provided with information about their condition and its treatment, developing a positive outlook/belief system, learning to cope with their feelings, exchanging experiences with others who've "been there" and social skills training to manage other people's reactions

TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
excision of small skin recurrences / *in transit* metastases
recording surgical procedures
handling of surgical specimens
orientation and appropriate carriage medium for skin specimens
performing FNA.
INTERMEDIATE
Should be able to perform:
treatment of painful metastatic lesions and recurrences by surgical resection/laser resection of metastatic lesions
groin and axillary dissections
fasciotomy for the leg or the upper limb
ADVANCED
Should be able to perform:
head and neck resections
ILI, ILP, CO2 laser
minimally invasive surgical methods of isolated metastases
pelvic resections
Vascular Anomalies
OBJECTIVE
Competence in the assessment, surgical management and aftercare of vascular anomalies
KNOWLEDGE
BASIC
Should demonstrate knowledge of
classification and natural history of the common types of vascular anomalies including haemangiomas and vascular malformations affecting different vessels
diagnostic criteria of main types of vascular anomalies including ability to distinguish high and low flow lesions as originally described by Mulliken
INTERMEDIATE
Should demonstrate knowledge of
abnormalities and syndromes associated with haemangiomas (e.g. PHACE syndrome, Kasabach-Merritt syndrome, Maffucci's syndrome) and vascular malformations (e.g. Sturge-Weber, Klippel-Trenaunay, Parkes-Weber, Hereditary Haemorrhagic Telangiectasia)
indications for radiological investigations and safety issues pertaining to those investigations including MRI, CT and angiography
pharmacological interventions that are or have been used in the treatment of haemangiomas e.g. corticosteroids (systemic and intralesional), propranolol and possible side effects
principles of management of vascular tumours and malformations
problems related to multiple lesions e.g. haemangiomas including visceral or venous malformations
different types of laser treatment for vascular malformations e.g. pulsed dye laser and long pulse Neodynium:YAG laser including the role of topical cooling
role of the MDT in management of Vascular Anomalies
ADVANCED

Should demonstrate knowledge of :
difficult to classify lesions e.g. glomangiomas, rapidly involuting congenital haemangiomas, non-involuting congenital haemangiomas, tufted haemangiomas and haemangioendotheliomas
appearance of different vascular lesions on ultrasound, MRI, CT and angiography
different radiological procedures used for the treatment of vascular anomalies,eg sclerotherapy for venous malformations and lymphatic malformations and embolization of arteriovenous malformations and their potential complications
techniques of surgical excision of difficult lesions such as arteriovenous malformations in conjunction with embolization and problems of surgical treatment in e.g. Klippel-Trenaunay syndrome and the importance of preserving venous drainage
CLINICAL SKILLS
BASIC
Should demonstrate ability to:
correctly diagnose the main types of haemangiomas and vascular anomalies on history and physical signs
advise patients and parents on the natural history of haemangoimas and different vascular anomalies including prognosis of these lesions
INTERMEDIATE
Should demonstrate ability to:
utilise investigations to confirm diagnosis,
demonstrate extent of a vascular anomaly,
formulate a treatment plan utilising medical and non-invasive methods of management in an appropriate and effective way,
liaise as needed with other specialities e.g. radiology, dermatology, ophthalmology ENT
ADVANCED
Should demonstrate ability to:
plan appropriate interventional treatments
advise patients and parents on outcomes and complications of radiological, laser-based and surgical interventions with particular reference to critical anatomical sites including orbit, perioral and parotid areas
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to
use a hand held Doppler for diagnostic purposes.
INTERMEDIATE
Should be able to perform :
debulking of infantile haemangioma
excision of small vascular malformation
injection of steroids into infantile haemangioma
Sarcoma
OBJECTIVE
The purpose of training in sarcoma surgery is to become competent in the diagnosis and management of sarcoma, notably the management of all forms of soft tissue sarcoma.
All plastic surgery trainees are expected to have knowledge and exposure to soft tissue sarcoma diagnosis and management.
KNOWLEDGE

BASIC
Should demonstrate knowledge of:
anatomy of the trunk, pelvis, axilla, and limbs
osseous, muscular and neurovascular anatomy of the trunk and limbs
vascular, neuronal and lymphatic supply / drainage of the head & neck, trunk and limbs, blood supply of the skin
anatomy of perforators and angiosomes- relevant to planning of local flaps
anatomy of free-flaps relevant to reconstruction of extremity and truncal defect following excisional sarcoma surgery
INTERMEDIATE
Should demonstrate knowledge of:
aetiology, incidence and relative anatomical distribution
pathology of primary soft tissue tumours and primary bone tumours
common benign sarcoma like disorders- lipomas, vascular and congenital malformations, fibromatosis including desmoids
specific history and diagnostic features (clinical and non-clinical) of bone and soft tissue sarcomas and their differential diagnoses
patterns of spread of sarcomas
classification of sarcoma
grading and staging systems in current use
Should demonstrate knowledge of:
relevant imaging modalities for different sarcoma
methods for obtaining histological diagnosis
Should demonstrate knowledge of assessment of patients presenting with sarcoma:
guidelines for referral based on clinical suspicion (size symptoms etc.)
diagnostic imaging of sarcoma including X-rays, CT, MRI, USS, PET-CT, and imaging-assisted diagnostic biopsy
importance of correctly positioning biopsy access
histology of the common sarcomas
role of frozen section specimens
immunocytochemistry and cytogenetic techniques
ADVANCED
Should demonstrate knowledge of :
indications for different resection modalities in the management of sarcomas, e.g. marginal, wide, compartectomy etc
current concept of extremity preserving surgery with adjuvant radiotherapy compared with past concepts of compartectomy and amputation to achieve acceptable local recurrence rates
Should demonstrate knowledge of:
options for soft tissue reconstruction dependent of location and analysis of defect
reconstructive options for chest wall defects involving multiple rib resection
reconstructive options for abdominal wall defects
Should demonstrate knowledge of:
role of radiotherapy in the management of sarcoma and therefore advantages and disadvantages of different reconstructive options
role of chemotherapy in the management of soft tissue sarcomas
neo-adjuvant versus adjuvant therapy
follow-up schedule and appropriate imaging

CLINICAL SKILLS
BASIC
Should demonstrate ability to:
elicit a focused history from patients presenting with soft tissue lump,
musculoskeletal pain or imaging suspicious for sarcoma
examine patient, assessing site, size, consistency and fixity of lumps and associated involvement of key anatomical structures
examine extremity neurovascular status
clinically assess soft tissue defects in order to guide reconstructive options
INTERMEDIATE
Should demonstrate ability to:
interpret imaging as part of planning reconstructive options
Should demonstrate ability to:
assess potential donor sites for reconstructive option
plan both local and free flap reconstructions appropriate to defect
formulate logical procedural plan for complex reconstructive surgery
ADVANCED
Should demonstrate ability to:
work as a member of the multidisciplinary team and make appropriate referrals to related professionals.
apply NICE guidelines, improving outcomes guidance and support peer review. support research and audit in local, national and international settings
TECHNICAL SKILLS AND PROCEDURES
BASIC
Should be able to perform:
direct closure of wound
harvesting and insetting of skin grafts
raising of local fasciocutaneous flaps
INTERMEDIATE
Should be able to perform:
raising gastrocnemius flap for coverage of proximal third tibial defects
direct nerve and vessel repair
harvesting of nerve and vein grafts
arterial and venous anastomosis
four compartment fasciotomy for complications of extremity surgery
ADVANCED
Should be able to perform:
marginal excision of soft tissue sarcoma
marginal excision of sarcoma from vital adjacent structures
wide excision of soft tissue sarcoma
skin excision in continuity with soft tissue tumour or elevation of viable skin flaps
access incisions which preserve maximum vascularity to surrounding soft tissues
compartmentectomy
amputation at various levels of extremities involving sarcoma
most steps in the raising and anastomosis of free flaps

Dealing with patients impacted by disfigurement and loss of form and function
OBJECTIVE
To develop an understanding of the meaning of disfigurement, the impact of an altered appearance and what it involves psychologically and socially, and the impact of an individual's body image and life both on them and their family
KNOWLEDGE
BASIC
Demonstrates knowledge of the psycho-social issues that may follow from trauma, disease and surgery including social anxiety, depression, bullying, prejudice isolation and exclusion.
Demonstrates awareness of those parts of the specialty where psychosocial issues can have particular impacts for patients (Burns, Cleft, Craniofacial, Hand, Head & Neck, Genitourinary reconstruction, Oncoplastic Breast, Skin Oncology, Vascular anomalies)
INTERMEDIATE
Demonstrates knowledge of the factors that predict patient ability to cope with surgical treatment
Defines the stages of bereavement associated with loss of body image and the clinical and psychological supports that can be put in place to assist the patient cope with that loss
CLINICAL SKILLS
BASIC
Demonstrates ability to elicit signs and symptoms of distress and anxiety in patient undergoing plastic surgery
Demonstrates ability to make an appropriate referral to a clinical psychologist or other supporting member of the multidisciplinary team
INTERMEDIATE
Provides realistic information and guides patient decision-making regarding choices available and timing of those treatments. Treats the patient as partner in the decision-making process
Demonstrates confidence to elicit psychological and social needs in a range of settings.
TECHNICAL SKILLS AND PROCEDURES
Not applicable

Appendix 3: Critical conditions

Plastic Surgery manages a large number of individual conditions as described in the syllabus. Assessment of a trainee's ability to manage these is through the supervision level decisions made when assessing the shared and specialty-specific CiPs. Plastic Surgery also has a list of critical conditions which are felt to be of significant importance for patient safety and to demonstrate a safe breadth of practice.

To ensure that trainees have the necessary skills, these critical conditions will be assessed individually by means of the Case Based Assessment (CBD) and Clinical Evaluation Exercise (CEX) (as appropriate) to level 4: *Appropriate for certification*

The CBD/CEX will both provide formative feedback to the trainee and feed into the summative assessment of the AES (the AES report) for the ARCP.

Critical conditions:

- Burns assessment and emergency management
- Necrotising fasciitis and other severe soft tissue infections
- Emergency management of complex trauma to the lower limb, including open fractures and major degloving injuries
- Emergency management of complex trauma to the upper limb including replantation and revascularisation
- Compartment syndrome
- Emergency management of post-operative complications including microvascular salvage

Appendix 4: Index procedures

The curriculum requires technical skills to be achieved across a wide range of operative procedures as described in the syllabus. Assessment of a trainee's ability to carry out this full range of procedures is covered by the supervision level decisions made when assessing the shared and specialty-specific CiPs. These assess not only the necessary technical skills, but the totality of capabilities required to carry them out.

Plastic Surgery also has a list of index procedures, which are felt to be of significant importance for patient safety and to demonstrate a safe breadth of practice. These index procedures will be assessed individually by means of the Procedure Based Assessment (PBA). By the end of phase 3, there should be evidence that an indicative number of three or more operations in each procedure group has been assessed and recorded at the level of a day-one consultant (level 4 PBA). The PBA will both provide formative feedback to the trainee and feed into the summative assessment of the AES (the AES report for the ARCP.

Elective procedures:

a. Dupuytren's contracture surgery
b. Lymph node basin dissection
c. Cleft surgery
d. Free tissue transfer
e. Aesthetic surgery
f. Breast reconstruction
g. Excision skin lesion and flap/graft reconstruction

Emergency procedures:

- Zone 1-2 flexor tendon repair
- Hand fracture fixation
- Nerve repair (except brachial plexus)
- Burns resuscitation
- Burns - excisional or emergency operations
- Microvascular anastomoses
- Lower limb trauma procedures

PBA Level 4:
a: Procedure performed fluently without guidance or intervention
b: As 4a and was able to anticipate, avoid and/or deal with common problems/complications

Appendix 5: Courses and other learning opportunities away from the workplace

Some knowledge and capabilities are best gained in the formal setting of a taught course. In Plastic Surgery there is one mandated course.

Mandated Courses					
Trauma learning outcomes	**Rationale for learning by attendance at a course**	**Phase of training**	**GPC**	**CiP**	**Examples of ways to meet trauma learning outcomes**
Demonstrate the concepts and principles of primary and secondary patient assessments Establish management priorities in a trauma situation Initiate primary and secondary management necessary for the emergency management of acute life threatening conditions in a timely manner Demonstrate the skills related to ABCD which are often required during initial assessment and treatment of patients with multiple injuries	Cannot be learned in the workplace to the level required for patient safety Allows a systematic process of teaching a safe and reliable method of immediate management of severely injured patients and comprises a range of comprehensive and adaptable trauma management skills relevant to all specialties	Current throughout training	Domain 2: Professional skills Domain 3: Professional knowledge Domain 5: Capabilities in leadership and team working	2) Manages the unselected emergency take	The Advanced Trauma Life Support® (ATLS®), European Trauma Course, Definitive Surgical Trauma Skills course or equivalent locally provided course(s) meeting the outcomes described

Appendix 6: Roles and responsibilities for supervision

The role of the Training Programme Director (TPD)

TPDs are responsible for managing the specialty training programmes, ensuring they deliver the specialty curriculum.

TPDs are responsible for:

- Organising, managing and directing the training programmes, ensuring that the programmes meet curriculum requirements
- Identifying, appointing and supporting local faculty i.e. Assigned Educational Supervisors (AESs) and Clinical Supervisors (CSs), providing training as necessary, including training in equality and diversity and providing feedback to AESs and CSs on the quality of their performance
- Ensuring a policy for career management and advice covering the needs of trainees in their placements and programmes
- Overseeing progress of individual trainees through the levels of the curriculum, ensuring learning objectives are set, appropriate assessments are being undertaken and that appropriate levels of supervision 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/HEE Local Office administrative support are knowledgeable about curriculum delivery and are able to work with NHS Employers, SACs, trainees and trainers
- Providing induction for trainees entering specialty programmes
- Administering and chairing the Annual Review of Competence Progression (ARCP) meetings
- Monitoring the quality of the training programme and producing quality reports (including the quality of trainer assessments and feedback) for the Postgraduate Dean
- Ensuring access to trainee data is kept confidential.

The role of the Assigned Educational Supervisor (AES)

AESs are consultant surgeons responsible for the management and educational progress of one or more specified trainee(s) in a training placement or series of placements. AESs must be appropriately trained for the role, familiar with the curriculum and have demonstrated an interest and ability in teaching, training, assessing and appraising. They should have gained skills equivalent to courses such as Training the Trainer offered by an appropriate educational institution and must keep up-to-date with developments in training. They must have appropriate access to teaching resources and time for training allocated to their job plan (approx. 0.25 PA per trainee). 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.

AESs are responsible for:

- Providing induction to the unit (where appropriate)
- Ensuring that trainees are familiar with the curriculum and assessment system relevant to the level/phase of training and undertake it according to requirements
- Ensuring that trainees have appropriate day-to-day supervision appropriate to their phase of training

- Helping trainees with both professional and personal development
- Completing a learning agreement with trainees and undertaking appraisal meetings (typically one at the beginning, middle and end of a placement)
- Ensuring the MCR is completed by CSs, ensuring all the CiPs are addressed, any differences in supervision level are explained and final sign off of the MCR
- Ensuring a record is kept in the portfolio of any serious incidents or concerns and how they have been resolved
- Regularly inspecting trainee learning portfolios and ensuring trainees are making the necessary clinical and educational progress
- Informing trainees of their progress and encouraging trainees to discuss any deficiencies in the training programme, ensuring that records of such discussions are kept
- Ensuring access to trainee data is kept confidential
- Ensuring patient safety in relation to trainee performance by the early recognition and management of those doctors in distress or difficulty
- Keeping the TPD informed of any significant problems that may affect training
- Discussing trainees' progress with each trainer with whom trainees spend a period of training and involving them in the formal reporting process
- Providing an end of placement AES report for the ARCP.

The role of the Clinical Supervisor (CS)

CSs are consultant surgeons responsible for delivering teaching and training under the delegated authority of the AES. The training of CSs should be similar to that of the AES.

CSs are responsible for:

- Ensuring patient safety in relation to trainee performance
- Carrying out WBAs on trainees and providing verbal and written feedback
- Liaising closely with other colleagues, with whom the trainee is working, regarding the progress and performance of trainees
- Keeping the AES informed of any significant problems that may affect training
- Ensuring access to trainee data is kept confidential
- Contributing to the MCR as part of the faculty of CSs and providing constructive feedback to the trainee.

The roles of AES and CS come under the umbrella of the Professionalised Trainer outlined in section 3.2.2. The JSCT is supportive of the GMC's moves towards greater recognition and accreditation for clinicians undertaking the roles of AES and CS, and other responsibilities supporting education and training.

The role of the Assessor

Assessors carry out a range of WBAs and provide verbal and written feedback trainees. Assessments during training are usually be carried out by CSs, who will be responsible for the MCR, recommending the supervision level and providing detailed formative feedback to trainees with reference to the CiPs. Other members of the surgical team including senior trainees, senior nurses and doctors from other medical disciplines may assess trainees in areas where they have particular expertise (e.g. with the use of the DOPS). Those who are not medically qualified may also act as assessors for the trainee's Multi-source Feedback (MSF). Assessors must be appropriately qualified in the relevant professional discipline and trained in the methodology of WBA. This does not apply to MSF raters.

Assessors are responsible for:

- Carrying out WBA, including the MCR, according to their area of expertise and training
- Providing constructive verbal feedback to trainees, including an action plan, immediately after the event
- Ensuring access to trainee data is kept confidential
- Providing written feedback and/or validating WBAs in a timely manner.

The role of the Trainee

Trainees are the learners who have been selected into a specialty training programme. Other surgeons who have registered to use the curriculum and learning portfolio as learners have the same responsibilities. All trainees/learners have a responsibility to recognise and work within the limits of their professional competence and to consult with colleagues as appropriate. 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. Trainees/learners must place the well-being and safety of patients above all other considerations. They are required to take responsibility for their own learning and to be proactive in initiating appointments to plan, undertake and receive feedback on learning opportunities.

Trainees/learners are responsible for:

- Engaging with opportunities for learning
- Creating a learning agreement and initiating meetings with the AES
- Raising concerns with the AES and/or TPD about any problems that might affect training
- Initiating regular WBAs with assessors in advance of observations
- Undertaking self and peer assessment
- Undertaking regular reflective practice
- Maintaining an up to date learning portfolio
- Working as part of the surgical and wider multi-professional team.

Appendix 7: Quality Management of the Curriculum

The Joint Committee on Surgical Training (JCST) works as an advisory body to the four surgical Royal Colleges of the UK and Ireland for all matters related to surgical training. It is the parent body of the Specialty Advisory Committees (SACs) and the Training Interface Groups (TIGs) and works closely with the Surgical Specialty Associations in Great Britain and Ireland. The JCST sets out a curriculum quality framework directed at evaluating and monitoring curriculum delivery against curriculum standards whereby a range of qualitative and quantitative measures inform continuous improvement. The JCST is also the umbrella organisation for the Intercollegiate Surgical Curriculum Programme (ISCP), the curriculum training management system. Through the variety of mechanisms outlined below, the JCST complies, and ensures compliance, with the requirements of equality and diversity legislation set out in the Equality Act 2010.

The quality system includes the following components:

- Quality assurance (QA): the development and maintenance of the curriculum links with the GMC's role in providing standards for training and for curricula.
- Quality management (QM): the implementation of training and curriculum standards by Deaneries/HEE Local Offices through training programmes and post locations approved by the GMC. The system includes processes for recruitment and selection and mechanisms to address concerns. SAC Liaison Members provide externality and support for local quality management.
- Quality control (QC): the implementation of training standards by local education providers (LEPs). The local delivery of curriculum is through the trainers recognised by the GMC.

Internal Quality Review

The following mechanisms provide sources of information that, together, provide complementary information which informs quality management and quality improvement.

Specialty Advisory Committees (SACs)

There is one SAC for each GMC recognised surgical specialty and a Core Surgical Training Advisory Committee (CSTAC) which oversees core surgical training. Each SAC will comprise appointed Liaison Members to cover all training regions in the UK, the Lead Dean for the specialty, a trainee representative, the Chair of the Intercollegiate Specialty Board (ex officio), the President of the Specialty Association or deputy, a representative of Royal College of Surgeons in Ireland and additional members may be co-opted for a time-limited period to provide specific expertise as necessary. The skill set and experience of SAC members will reflect the breadth of the specialty. The Liaison Members act on behalf of the SAC by overseeing training in a particular region(s) other than their own. Duties include contributing to the local quality management systems, the ARCP and to the regular reporting through first-hand independent knowledge of training programmes.

Curriculum development

The SACs, working with their Specialty Associations, are responsible for curriculum development and maintenance. They monitor innovations in clinical practice and, when these become established components of service delivery, they can be incorporated into an approximately three yearly review of the specialty curriculum. Similarly, the JCST, ISCP Management Committee, JCST Quality Assurance Group and the SACs monitor developments in training delivery and incorporate these into formal curriculum reviews. Curriculum updates are made in consultation with all stakeholders, including trainees, trainers, speciality organisations, deans, employers, patient and lay representatives and the GMC including specific trials and pilots when required.

Equality and diversity implications are considered throughout the development of curricula in association with trainees and trainers through specific development events, which feed into impact assessments, noting any potential adverse effects on learners with protected characteristics as defined by the Equality Act 2010. Curricula are also developed through regular meetings with the GMC, helping to refine the curriculum approach and ensuring that the standards for curricula are met and identify future developments.

GMC Survey

The GMC undertakes a national training survey of trainee views on their training. The findings of the survey are available by country, postgraduate body, LEP, training level and graduating medical school. The GMC also conducts a survey of educational and clinical supervisors in the UK, which aims to collect evidence on whether trainers are able to undertake their duties as trainers effectively; have support for training including trainer development and the formal recognition of their duties in job plans; are implementing curricula and assessments appropriately.

The JCST analyses the GMC's published reports on these surveys, drawing out the key messages for surgery to feed into each SAC and QA Group meeting. SAC Liaison Members are responsible for consulting on the outcomes of these discussions with those responsible for curriculum delivery in their regions including TPDs and Specialty Training Committees (STCs). They also report key learning points through their Liaison Member Reports. The JCST uses the initial analysis and feedback from these processes to help address ad hoc queries and inform projects, pilots, monitoring and evaluation work. The outcomes of these processes are to report the specialty and national view of postgraduate surgical training through a continuous model of reporting to the GMC at regional and national level.

The GMC also provides a progression data portal, which colleges and faculties can use to consider data on the progression of trainees by specialties and regions. The JCST uses these data to help identify system or policy changes that might need review in order to ensure equality, diversity and fairness. See also below – External Quality Review (the GMC and postgraduate bodies use the GMC survey findings in external quality review).

Quality Indicators

The JCST Quality Indicators are the JCST and SACs' guidance on the attributes of good quality training posts. They are not an assessment for measuring the achievements of individual trainee. They are a tool to monitor the quality of training posts and drive quality improvement.

JCST Survey

The JCST trainee survey measures training post compliance with the JCST Quality Indicators across all UK training programmes. The anonymised survey responses are pivotal to the JCST's quality processes. Trainees complete one survey for each training placement prior to their ARCP. As part of its five-year strategy, the JCST shares this information in the form of annual reports. The JCST also conducts a biennial survey of surgical Assigned Educational Supervisors to gather information on issues particularly relevant to surgical trainers, such as use of the web-based ISCP, time and support available to undertake training and other related activities. Analysis of the findings from these surveys are key to the work of the SACs and QA Group. This informs their meetings and the consultations SAC Liaison Members have with those responsible for curriculum delivery within their regions including TPDs and STCs. The learning points drawn from the analysis and feedback

inform all JCST work including projects, pilots and evaluation and help report the specialty and national view of postgraduate surgical training.

JCST and ISCP data

Training data collected through the JCST and ISCP are used to review quality. These include curriculum delivery, adherence to quality indicators and equality and diversity issues. The ISCP is used to monitor curriculum delivery, trainee progression and WBA performance. The ISCP Management Committee undertakes and supports qualitative and quantitative research and recruits external Research Fellows to conduct specific studies to support curriculum and assessment change.

Trainee views

Representatives of trainee associations are members of the JCST committees and have specific sections of meetings to report on training issues and raise concerns. Trainee representatives are involved in working groups, curriculum review and the development of the ISCP training management system, including, where necessary, cascading training, testing and piloting.

External Quality Review

Postgraduate Deans

The responsibility for the quality management of specialty training programmes rests with the Deans. They ensure posts and programmes are approved by the GMC, oversee the appointment of trainees and of TPDs. They ensure that training in the regions is implemented in accordance with GMC-approved curricula. Deans work through STCs and Boards, seeking advice from the JCST, the surgical Royal Colleges and SACs on curriculum delivery, the local content of programmes, assessment of trainees, remedial training and the recognition and training of trainers. The Deans contract LEPs through Service Level Agreements to deliver training to agreed standards. Working alongside Postgraduate Deans, education providers must take responsibility for ensuring that clinical governance and health and safety standards are met. This includes the provision of a system of training including in equality and diversity, a process of revalidation and annual appraisals of trainers by employers set against the professional standards for Good Medical Practice.

Schools of Surgery

The co-ordination of surgical training is through Schools and their devolved nation equivalents, which are accountable to the Deaneries/HEE Local Offices. They bring together networks of lead providers of postgraduate medical education in a particular specialty or group of specialties to decide how educational initiatives are best delivered and ensure consistency of approach. Each School is led by the Head of School who acts as a workforce adviser to the education commissioners, leads on quality management of surgery, supports and develops lead providers, provides regional representation in national fora and an interface with other disciplines. The Head of School or their devolved nation equivalent also oversees the quality of training posts provided locally. The national Heads of School and their devolved nation equivalents meet through their Confederation of Postgraduate Schools of Surgery (CoPSS), which is also attended by the Chair of the JCST and ISCP Surgical Director.

Training Programme Directors

Training programmes are led by TPDs or their designated equivalent. TPDs have responsibility for managing individual specialty training programmes. Their responsibilities include allocating trainees to training placements and rotations, providing systems for career management, flexible training, academic training and remedial training as well as organising the recognition and training of trainers and co-ordinating the ARCP. TPDs, working alongside Heads of School, are also introducing a standardised form for the evaluation of AES reports in order to offer feedback to AESs about the quality of their feedback to trainees, along with mechanisms for development.

Statutory Education Bodies

Co-ordination and alignment of policy on medical education is devolved from health ministers to bodies governing the health services in the four nations of the UK (Health Education England (HEE), NHS Education for Scotland (NES), the Northern Ireland Medical and Dental Training Agency (NIMDTA) and Health Education and Improvement Wales (HEIW)) and Ireland (the Health Service Executive (HSE)). These organisations are responsible for healthcare, education, training and workforce development. The take advice from the JCST and the surgical Royal Colleges in order to ensure consistent regional delivery. These organisations can undertake visits to LEPs and visits can be triggered by specific concerns. They highlight any areas for improvement, agree the timetable for any appropriate action and identify areas of notable practice. SAC Liaison Members may be involved in the visits to provide both specialty-specific input and externality.

UK Medical Education Reference Group (UKMERG)

The UKMERG is a forum for discussion, co-ordination and alignment of matters relating to medical education across the UK. It includes representation from the four UK health departments and the four statutory postgraduate medical education bodies.

General Medical Council

The GMC is responsible for setting the standards for curricula and approving curricula as well as approval of training programmes and training post locations. The Deanery/HEE Local Office submits an application for programme and post location approval. Support for an application is available from the relevant surgical SAC. There is regular reporting to the GMC as part of their quality framework. The GMC activities may include document requests, meetings, shadowing, observations, visits and document reviews. The GMC uses the GMC survey results in quality assurance by monitoring that training meets the required standards. It will escalate issues through other QA activity such as an enhanced monitoring process. Triggered visits investigate possible serious educational failures or risks to patient safety as part of the GMC's enhanced monitoring process. The GMC’s QA process includes the ability to impose a sanction in response to a failure to meet its standards including imposing conditions which limit the time or scope of approval, refusing approval, and withdrawing recognition for training.

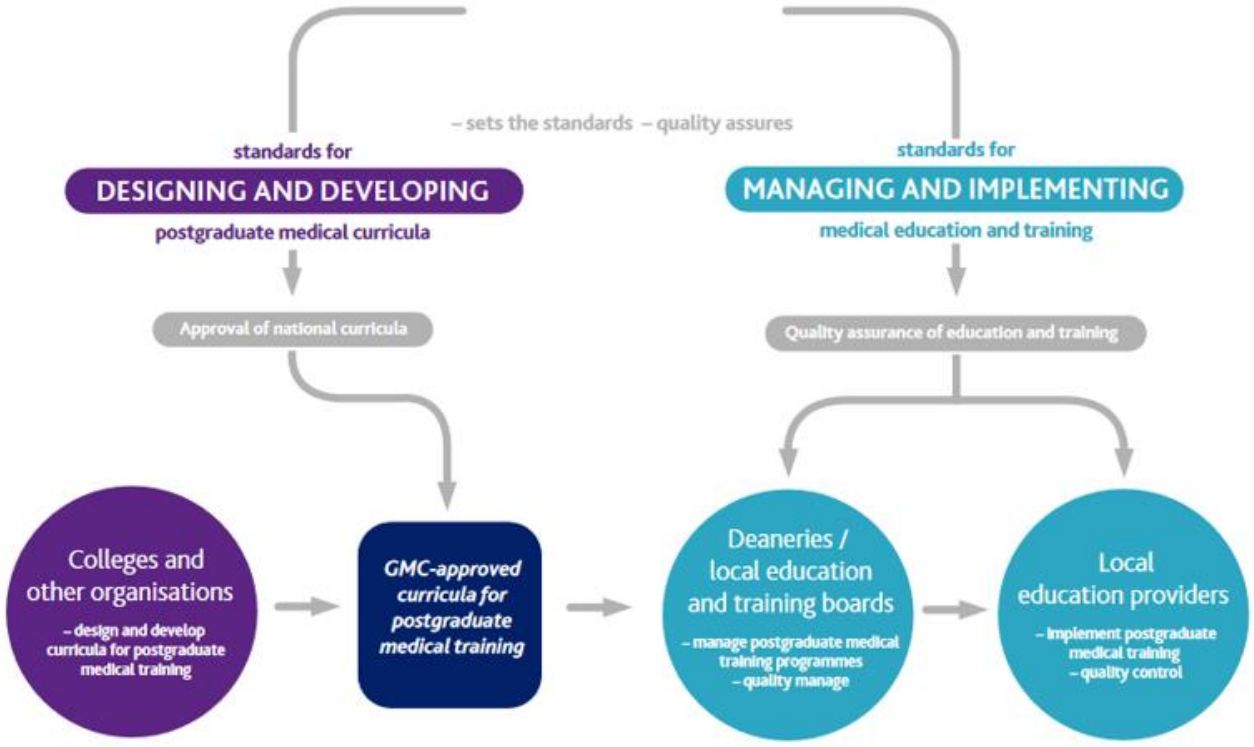


Figure 8: The quality assurance structure of the curriculum (adapted from Excellence by Design, GMC, 2017)

Appendix 8: Glossary

Term	Definition
AES Report	An end of placement report by the trainee's Assigned Educational Supervisor, providing key evidence for the trainee's ARCP.
ARCP / ARCP 6	The Annual Review of Competence Progression (ARCP) panel will recommend one of 8 outcomes to trainees. Outcome 6 sets out that a trainee has gained all required competencies and will be recommended as having completed the training programme. (For further information, please see the Gold Guide[7]).
Capability	The ability to be able to perform an activity in a competent way.
Capabilities in Practice (CiP)	The high-level learning outcomes of the curriculum. Learning outcomes operationalise groups of competencies by describing them in terms of holistic professional activities. In surgery they are aligned to what a day-one consultant will need to be able to know and do. Rather than learning 'inputs' ('what is learned', they set out what the learner must be able to do as a result of the learning at the end of the training programme – a practical skill) and clarify the extent to which trainees should successfully perform to reach certification.
Critical Condition	Any condition where a misdiagnosis can be associated with devastating consequences for life or limb.
Critical Progression Points	Key points during the curriculum where trainees will transition to a higher level of responsibility or enter a new area of practice. These points are frequently associated with increased risk, and so robust assessment is required. These points are at the end of phase 2 (transition to phase 3), and the end of phase 3 to achieve certification.
Core Surgical Training	The early years of surgical training for all ten surgical specialties.
Generic	Applicable to *all* trainees regardless of specialty, discipline and level of training, e.g. Generic Professional Capabilities.
Generic Professional Capabilities (GPCs)	A framework of educational outcomes that underpin medical professional practice for all doctors in the United Kingdom.
Good Medical Practice (GMP)	The core ethical guidance that the General Medical Council (GMC) provides for doctors.
High-Level Outcome	See Capability in Practice.
Index Procedure	Operative 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.
Manage	Throughout the curriculum the term 'manage' indicates competence in clinical assessment, diagnosis, investigation and treatment (both operative and non-operative), recognising when referral to more

	specialised or experienced surgeons is required for definitive treatment.
Multiple Consultant Report (MCR)	An assessment by Clinical Supervisors that assesses trainees on the high-level outcomes of the curriculum. The MCR provides a supervision level for each of the five Capabilities in Practice (CiPs) as well as giving outcomes for the nine domains of the Generic Professional Capabilities. The assessment will be at the mid-point and end of a placement. The MCR is a formative assessment, providing trainees with formative feedback. However, the final MCR also contributes to the summative AES report.
Phase	An indicative period of training encompassing a number of indicative training levels. Phases are divided by critical progression points to ensure safe transitioning where patient or training risk may increase. Phases have replaced 'stages' of training in previous versions of the curriculum.
Placement	A surgical unit in which trainees work in order to gain experiential training and assessment under named supervisors.
Run-through training	The route which allows trainees, after a single competitive selection process at ST1 and satisfactory progress, to progress through to specialty training at ST3 onwards (unlike uncoupled training).
Specialty Advisory Committee (SAC)	The committee which oversees training in a particular specialty, reporting to the JCST. SAC responsibilities include trainee enrolment and support, certification, out of programme and LTFT training, curriculum development, logbook development, simulation training, quality assurance (including processes for externality via the provision of regional liaison members), national recruitment also credentialing (if appropriate).
Shared	Applicable to all specialties i.e. the five shared CiPs are identical to all ten surgical specialties. In some specialties some additional CiPs may be specialty-specific.
Special Interest	Advanced areas of training in the specialty.
Supervision level	The level of supervision required by a trainee to undertake an activity, task or group of tasks, ranging from the ability to observe only through direct and indirect supervision to the ability to perform unsupervised.
Trainees	Doctors in training programmes.
Training programme	A rotation of placements in which training is provided under a Training Programme Director and named supervisors.
Uncoupled programme	The route where core surgical training (CT1 and CT2) and specialty training (ST3 onwards) are separated by a national recruitment process (unlike run-through training).

Appendix 9: Assessment Blueprint

All aspects of the curriculum are assessed using one or more of the described components of the assessment system. Some curriculum content can be assessed in more than one component but the emphasis will differ between assessments so that testing is not excessive in any one area. The key assessment is the MCR through which trainees are assessed on the high-level outcomes of the curriculum; the CiPs and GPCs.

High-level outcomes	Assessment Framework										
		CiP/GPC self-assessment	MCR	MSF	CEX	CBD	PBA	DOPS	AoA	OoT	ISB Exam Section 1	ISB Exam Section 2
	Capabilities in Practice											
	1. Manages an out-patient clinic	*	*	*	*	*						*
	2. Manages the unselected emergency take	*	*	*	*	*	*	*				*
	3. Manages ward rounds and the on-going care of in-patients	*	*	*	*	*						*
	4. Managing an operating list	*	*	*			*	*				
	5. Managing multi-disciplinary working	*	*	*		*						
	6. Safely assimilates new technologies and advancing techniques in the field of Plastic Surgery into practice	*	*	*		*	*	*				*

High-level outcomes	Generic Professional Capabilities										
		CiP/GPC self-assessment	MCR	MSF	CEX	CBD	PBA	DOPS	AoA	OoT	ISB Exam Section 1	ISB Exam Section 2
	Domain 1: Professional values and behaviours	*	*	*	*	*	*	*	*	*		*
	Domain 2: Professional skills	*	*	*	*	*	*	*		*		*
	Domain 3: Professional knowledge	*	*	*	*	*	*	*	*	*	*	*
	Domain 4: Capabilities in health promotion and illness prevention	*	*		*	*					*	
	Domain 5: Capabilities in leadership and team working	*	*	*		*	*	*	*	*	*	
	Domain 6: Capabilities in patient safety and quality improvement	*	*			*			*		*	
	Domain 7: Capabilities in safeguarding vulnerable groups	*	*		*	*	*	*			*	
	Domain 8: Capabilities in education and training	*	*							*		
	Domain 9: Capabilities in research and scholarship	*	*									

Syllabus			CiP/GPC self-assessment	MCR	MSF	CEX	CBD	PBA	DOPS	AoA	OoT	ISB Exam Section 1	ISB Exam Section 2
	Knowledge		*	*	*	*	*	*	*	*	*	*	*
	Clinical skills	Clinical skills (general)	*	*	*	*	*						*
		Critical conditions (mandated CEX/CBD)	*	*	*	*	*						*
	Technical skills	Technical skills (general)	*	*				*	*				
		Index procedures (mandated PBA/DOPS)	*	*				*	*				