JCST
Joint Committee on Surgical Training

JCST Fellowships

Hand Surgery Curriculum

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Contents

1 Introduction

This JCST Fellowship will provide high quality, high prestige and quality assured advanced training in Hand Surgery. This has been recognised by the Specialty Advisory Committees (SACs), the British Society for Surgery of the Hand (BSSH), the British Orthopaedic Association (BOA) and the British Association of Plastic, Reconstructive and Aesthetic Surgeons (BAPRAS) and Lead Dean(s) for Trauma and Orthopaedic Surgery or Plastic Surgery as being a service that is required within the NHS and may not be trained to unsupervised level by certification. It builds on the skills achieved by certification to enable the Fellow to contribute unsupervised as a consultant member of the multidisciplinary team in Hand Surgery. The Fellowship incorporates:

a) a national selection process to select Fellows for training

b) this curriculum which defines the training to be delivered

c) training units which have been assessed as being able to deliver this training

d) a list of training Quality Indicators which describe the pattern of the training to be delivered

e) a quality review process managed by the JCST with input from the statutory education bodies and the specialty associations

2 Purpose of the fellowship

The purpose of the fellowship is to produce hand surgeons who are well versed in the breadth and depth of Hand Surgery. The fellows are expected to gain mutually complementary perspectives and skills from both Trauma and Orthopaedic Surgery and Plastic Surgery, in the management of hand and wrist conditions. The fellowship represents the pinnacle of Hand Surgery training in the UK and serves as a training opportunity for future leaders in the specialty.

3 Programme of learning

3.1 What has to be learnt during the fellowship

Fellows following this curriculum will already have achieved certification from the GMC in Trauma and Orthopaedic Surgery or Plastic Surgery. The curriculum builds on this to teach specific aspects of the delivery of the Generic Professional Capabilities (GPCs) and Capabilities in Practice (CiPs) required for practice at consultant level in Hand Surgery.

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 fellows 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 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 (CiPs). They are common across all surgical specialties and are delivered within the context of the Generic Professional Capabilities and the fellowship syllabus.

There are five CiPs:

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

The generic knowledge, skills, behaviours and values shared by all doctors are described in the Generic Professional Capabilities framework (GPCs). 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 nine domains of the GPC framework are:

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, CiPs and GPCs are the constituent parts of the role of a Consultant Surgeon. 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. Doctors who have gained entry to the Specialist Register will be able to demonstrate that they are capable of unsupervised practice in all CiPs and that they demonstrate all the Generic Professional Capabilities. For example, managing an unselected emergency take (CiP 2) requires 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 five CiPs can be found in Appendix 1.

Fellows will already have achieved the professional capabilities to the level required for consultant practice. This curriculum requires them to demonstrate the GPCs within the clinical context of Hand Surgery .

Items from the syllabus are combined with items taken from the Generic Professional Capabilities 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 (CiPs). When CiPs are taken together, along with the Generic Professional Capabilities, 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 Multiple Consultant Report (MCR) examines the trainee from the perspective of the outcome (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 five CiPs taken together describe the role of a Consultant Surgeon but more detail is needed to help fellows develop that capability through training via detailed feedback and focused development goals.

We can break CiPs down into smaller tasks. Each of these smaller tasks is a CiP descriptor. If a fellow 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 fellow to get closer towards the outcome of training. By describing component parts of a CiP, descriptors also aid decisions on assessment of the level of supervision required by a fellow 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 fellows identify where to focus their efforts to become competent and safe independent practitioners (more detail about assessment and feedback is given in the Programme of Assessment section of the curriculum).

Each CiP is judged against a scale that describes the level of supervision required to perform the CiP to the standard of successful completion of the fellowship. The level of supervision changes in line with the fellow'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:

Fellowship Level I: Able to observe only

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

- **a.** Supervisor present throughout
- **b.** Supervisor present for part

Fellowship Level III: Able and trusted to act with indirect supervision

Fellowship Level IV: Able and trusted to act at the level expected of a day one consultant in the clinical area of the fellowship

Fellowship Level V: Able and trusted to act at a level beyond that expected of a consultant within the clinical area of the fellowship

3.4 Critical progression points and end point of fellowship

There are no critical progression points during the fellowship.

The end point of the Fellowship will be reached when Fellowship Level IV or V has been achieved in all the CiPs and when all the GPCs are demonstrated at the level of consultant practice in Hand Surgery.

The GPCs will be assessed as being suitable for consultant practice in Hand Surgery or requiring development to reach that level.

An optional narrative outcome for the fellowship will also be available describing the Fellowship Levels achieved and any GPCs requiring development, all within the context of consultant practice within Hand Surgery.

3.5 Breadth of experience required during the fellowship

Fellows may practise at consultant or fellowship level in Trauma and Orthopaedic Surgery or Plastic Surgery during the fellowship while gaining further supervised experience in Hand Surgery as defined in the syllabus, Critical Conditions and Index Procedures.

3.5.1 The syllabus (See Appendix 2)

The syllabus provides a description of the knowledge, clinical skills and technical skills that are required.

3.5.2 Critical Conditions (See Appendix 3)

A list of Critical Conditions from within the syllabus has been identified which are of significant importance for patient safety and a demonstration of a safe breadth of practice. 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 fellow and feed into the summative assessments of the Assigned Educational Supervisor (AES) and end of fellowship assessment.

3.5.3 Index Procedures (See Appendix 4)

A list of Index Procedures has been identified. These are common but important operations central to practice in Hand Surgery, 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 required. Learning in the Index Procedures is indicative of learning in the broad range of technical procedures in the syllabus and they are therefore of significant importance for patient safety and demonstration of a safe breadth of practice. Each of these Index Procedures is assessed individually by means of the Procedure Based Assessment (PBA) which provides formative feedback to the fellow and feeds into the summative assessments of the AES and end of fellowship assessment.

3.5.4 Fellowship Completion Requirements

To support the demonstration of a sufficient breadth of experience and achievement of competence in Hand Surgery, Fellowship Completion Requirements, shown in section 5.2, summarise the experience fellows need to achieve by the end of the Fellowship. These include indicative numbers of cases, as fellows would not normally be expected to have achieved sufficient experience to be able to manage the range of pathology they will encounter unless these numbers are 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.

4 Teaching and learning

4.1 How the fellowship curriculum is delivered

The curriculum is used to help design training locally to ensure all fellows 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 fellow's own tailored learning and development plan. In keeping with formal pre-certification training, fellowship training should comply with the GMC standards presented in *Promoting excellence: standards for medical education and training* (2017). Units which train specialty trainees must already meet these 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.

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.

4.2 Learning opportunities

Fellows will be familiar with the educational approaches used in the Trauma and Orthopaedic Surgery or Plastic Surgery curriculum:

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

Fellows and their trainers will use these methods within the context of a mentor and mentee, rather than that of a trainer and trainee. It is expected that bi-directional learning will be a feature of this relationship.

4.2.2 Self-directed learning

The curriculum is fellow-led and self-directed learning is encouraged. Fellows are expected to take a proactive approach to learning and development and towards working as members of a multi-professional team. Fellows are expected to undertake personal study in addition to attending formal and informal teaching. This includes using study materials and publications and reflective practice. Fellows 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 fellows 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[1]. Self-directed learning permits development in all five CiPs, especially when there is effective reflection on all aspects of learning at the centre of self-directed learning.

[1] *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/

4.2.3 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. For JCST Post-Certification Fellowships, suitable training units will be selected and trainees appointed following a process to be defined in an accompanying document.

While in the workplace, fellows 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 role of the fellow 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 fellows and then the fellow managing a case independently but with access to their supervisor. The level of supervision changes in line with the fellow'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.

At the beginning of the fellowship, CiPs in the context of the clinical area of the fellowship are best taught by a specifically selected trainer directly watching and supervising while the fellow 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. CiP descriptors and 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 fellow 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 fellow. Fellows are required to keep a surgical logbook to support their reflection and the assessment of their operative skills.

4.2.4 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 CiPs, GPCs and the syllabus and may include a mixture of formal talks including attendance at national conferences relevant to the speciality, small group discussion, case review and morbidity and mortality meetings, literature review and skills teaching. Some knowledge and capabilities are best gained in the formal setting of a taught course.

4.2.5 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; and
- 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, for example for the management of trauma a valid certificate may be achieved through the *Advanced Trauma Life Support* (*ATLS*®), Advanced Paediatric Life Support (APLS) or equivalent.

4.3 Supervision

Supervision of the fellow by their supervising mentor/trainer is fundamental in the delivery of safe and effective training. It takes advantage of the experience, knowledge and skills of expert clinicians and ensures a mutually beneficial interaction between two experienced clinicians with the aim being for the supervising mentor to impart their knowledge, wisdom and skill to the fellow. The ultimate responsibility for the quality of patient care and the quality of training lies with the supervising mentor/trainer.

Training units are expected to use GMC recognised trainers as supervising mentors/trainers and fellows are expected to interact and work with all consultants on the training unit. Training units must be approved by the JCST

Fellows must have a named AES and one or more CS, responsible for overseeing their development. Depending on local arrangements these roles may be combined into a single role of AES. The defined roles and responsibilities of each training role are described below and further information is given in the Gold Guide[2].

Fellows will be expected to work at consultant level in the generality of practice within Trauma and Orthopaedic Surgery or Plastic Surgery but will be supervised to a degree appropriate to their skill level in Hand Surgery. As the fellowship progresses, fellows should have the opportunity for increased autonomy, consistent with safe and effective care for the patient. Achievement of Fellowship Level IV in the CiPs indicates that a fellow 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 a multidisciplinary team. However, within the context of a training system fellows are always under the educational and clinical governance structures of the Health Service.

[2] https://www.copmed.org.uk/gold-guide/

4.4 Roles and responsibilities for supervision

The key roles involved in fellowship teaching and learning are the AES, CS, assessor and fellow. Their responsibilities are described in Appendix 5.

4.5 Supporting feedback and reflection

Effective feedback is known to enhance learning and combining self-reflection[3] with feedback promotes deeper learning. Fellows 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 assessment. The MCR and use of the CiP descriptors provide regular opportunities for detailed and specific feedback. 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 in multiple ways:

- *Learning Agreement:* appraisal meetings with the AES at the beginning, middle and at the end of the fellowship
- *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 fellow's self-assessment and team views
- *MCR (mid-point formative):* meeting with the AES or CS to discuss the fellow'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 fellow's self-assessment and CSs' views on CiPs

Constructive feedback is expected to include three elements:

1) a reflection on performance;
2) identification of the fellow's achievements, challenges and aspirations; and
3) an action plan.

[3] *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/

5 Programme of assessment

5.1 Delivery of the programme of assessment

Fellows and their trainers will be familiar with the programme of assessment described in the pre-certification curriculum.

The fellow and their AES will create a Learning Agreement at the start of the fellowship. This will describe how the fellow will aim to achieve the curriculum requirements and will indicate the workplace based assessments that will be used. As a minimum these should include the Multiple Consultant Report on the CiPs and GPCs (mid-point and end of fellowship), CBDs on the critical conditions and PBAs on the index procedures.

The fellow and their AES should ensure that sufficient reflection and feedback arising from these assessments is recorded in ISCP to demonstrate the full extent of the fellow's progression through the fellowship.

The end of fellowship MCR and AES report will feed into the end of fellowship assessment. This will be conducted by a national panel likely to comprise representation from the SAC, the Surgical Specialty Association (SSA) and the relevant statutory education body. If possible, a lay member should also be included. The panel will review the fellow's portfolio with particular reference to:

- The Learning Agreement
- AES report
- The MCR
- CBDs in the critical conditions
- PBAs in the index procedures
- Operative logbook
- Record of reflection

If the panel is satisfied that the curriculum requirements have been met then that outcome will be recorded and the fellow informed. Alternatively, a narrative record of achievement will be written by the panel to indicate the skills gained by the fellow. This will be agreed with the training unit before being released to the fellow.

There will be no formal examinations.

5.2 Completion of fellowship training in Hand Surgery

The following requirements are applied to all fellows completing this curriculum

a) be fully registered with the GMC and have a licence to practise (UK fellows) or be registered with the Medical Council in Ireland (Ireland fellows);

b) have achieved Fellowship Level IV or V in all the relevant Capabilities in Practice (CiPs)

c) have achieved the competencies described in the nine domains of the Generic Professional Capabilities Framework; and

d) have been recognised by the end of fellowship assessment panel as having met the curriculum requirements. These include the following :

5.2.2 **Fellowship completion requirements for** Hand Surgery

Area	**Requirement**	**Evidence**
Educational progress – confirmation that all requirements of the curriculum have been achieved	Completion of fellowship recommended via supportive report	AES report
CiPs and GPCs	All relevant CiPs and GPCs assessed at the appropriate level	MCR
Critical conditions (assessed at level IV/demonstrating consultant-level competence)	Case Based Discussions must be presented as detailed in Appendix 3	CBDs and CEXs
Operative competence - evidence of competence in indicative operative procedures (assessed at level IV/demonstrating consultant-level competence)	Procedure based assessments must be presented as detailed in Appendix 4	PBAs
Operative experience - consolidated logbook evidence of the breadth of operative experience as defined in the curriculum	Minimum indicative numbers of index procedures are listed in Appendix 4	eLogbook

Area	Requirement	Evidence
Reflection	Fellows should reflect on the development of their practice during the fellowship, and how they would like to develop their practice over the next 2-3 years[4]	MSF Self-Assessment Self-Assessment on GPCs and CiPs (midpoint and end of placement) Journal entries Reflective section in all WBAs and Other Evidence sections Other type of reflective statement

5.3 Assessment framework components

5.3.1 The sequence of assessment

Training and assessment take place throughout the fellowship, which will usually be of twelve months' duration. Assessments are carried out by relevant qualified members of the fellow's multi-professional team whose roles and responsibilities are described in Appendix 5. The fellow's progress is monitored primarily by the fellow's AES through Learning Agreement meetings held between the fellow and the AES. Throughout the fellowship, fellows must undertake WBAs. The fellow's Clinical Supervisors must assess the fellow on the five CiPs and nine GPC domains using a Multiple Consultant Report (MCR). This must be done towards the mid-point of each fellowship in a formative way and at the end of the fellowship when the formative assessment will contribute to the AES's summative assessment at the final review meeting of the learning agreement. The fellowship culminates with the AES report of the fellow's progress for the end of fellowship assessment, which provides a summary of the competences gained during the fellowship.

[4] *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/

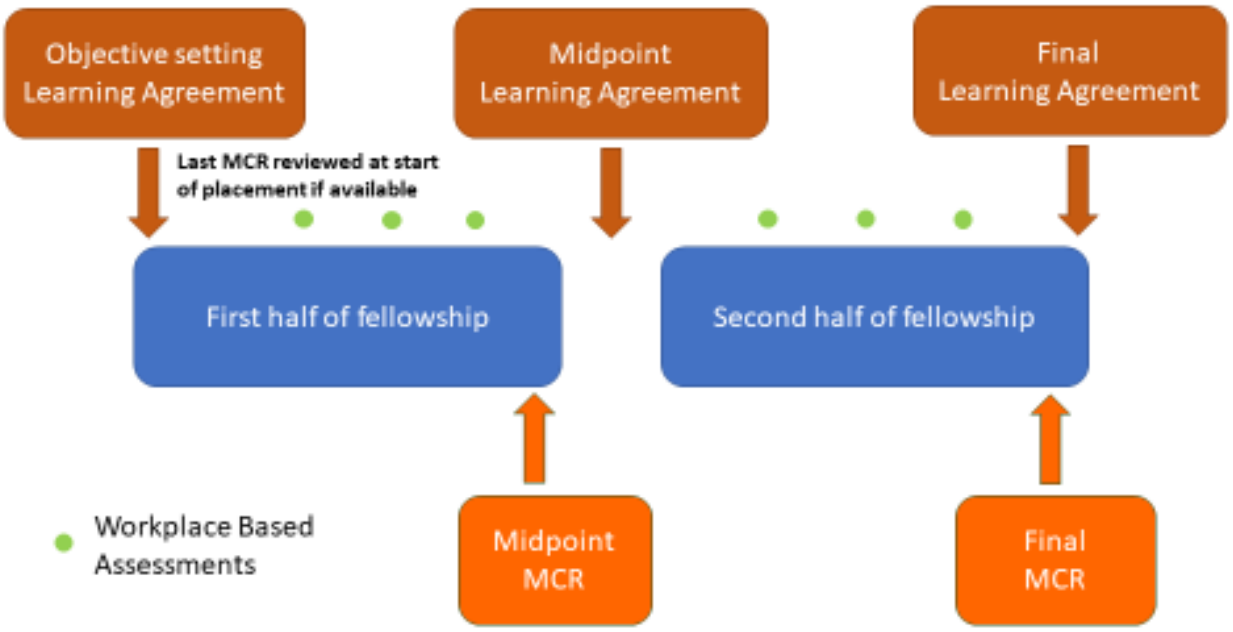

Figure 1: The sequence of assessment through a fellowship.

5.3.2 The Learning Agreement

The Learning Agreement is a formal process of goal setting and review meetings that underpins 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 fellows. There are three Learning Agreement meetings in each placement and these are recorded in the fellow's learning portfolio. Any significant concerns arising from the meetings should be fed back to the AES at each point in the Learning Agreement.

Objective-setting meeting

At the start of the fellowship the AES and fellow must meet to review the fellow's current competence and experience, agree learning objectives and identify the learning opportunities presented by the fellowship. The Learning Agreement is constructively aligned towards achievement of the high-level outcomes (the CiPs and GPCs) and, therefore, the CiPs are the primary reference point for planning how fellows will be assessed and whether they have attained the learning required. The Learning Agreement is also tailored to the fellow's current abilities and learning needs. The most recent summative MCR (if available) will be reviewed alongside the fellow's most recent self-assessment. Any specific targeted training objectives should also be considered and addressed though this meeting and form part of the Learning Agreement. The Learning Agreement is signed by both the fellow and the AES and recorded in the learning portfolio.

Mid-point review meeting

A meeting between AES and the fellow must take place at the midpoint 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 eLogbook and the formative midpoint MCR, including the fellow's self-assessment. This meeting ensures training opportunities appropriate to the fellow's own needs are being presented in the fellowship, 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 fellowship 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 fellow, and the Head of School 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 fellowship in response to areas for development identified through the MCR.

Final review meeting

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

AES report

The AES must write an end of fellowship report which informs the end of fellowship assessment. The report includes details of any significant concerns and provides the AES's view about whether fellow's learning objectives have been achieved. 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 assessment 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 in the clinical area of the fellowship. The assessment, called the Multiple Consultant Report (MCR), must be carried out by the consultant CSs involved with a fellow, 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 fellow is progressing in each of the five CiPs. This global rating is expressed as a supervision level recommendation described in Table *1*. 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, Clinical Supervisors must make an overall, holistic judgement of a fellow's performance on each CiP and GPCs. Levels IV and V, shaded in grey equate to the level required for successful completion of the fellowship and the level of practice expected of a day one consultant in the clinical area of the fellowship (level IV) or beyond (level V). If not at the level required for completion of the fellowship the MCR can identify areas for improvement by using the CiP or GPC descriptors or, if further detail is required, specific syllabus items or GPC descriptors through free text. The assessment of 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 fellow in person on a day-to-day basis. The CS group, led by a Lead CS, should meet at the midpoint of a placement to conduct a formative MCR and at the end of a placement to conduct a summative MCR. Through the MCR, they agree which supervision level best describes the performance of a fellow at that time in each of the five CiP areas 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.

In making a supervision level recommendation, CSs should take into account their experience of working with the fellow and the degree of autonomy they were prepared to give the fellow during the fellowship. They should also take into account all the descriptors of the activities, knowledge, skills and GPCs 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 fellow requires a degree of supervision to carry out the activity then the CSs should indicate which of the descriptors of the activities, knowledge, skills and GPCs require further development (to a limit of five items per CiP, so as to allow targets set and feedback to be timely, relevant and achievable). Similarly, if a fellow excels in one or more areas, the relevant descriptors should be indicated.

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 fellow 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 fellow in person after each MCR and, therefore, includes a specific feedback meeting with the fellow using the highlighted descriptors within the MCR and/or free text comments.

The midpoint MCR feeds into the mid-point and final Learning Agreement meetings. At the mid-point it allows goals to be agreed for the second half of the fellowship, with an opportunity to specifically address areas where development is required. Towards the end of the fellowship the MCR feeds into the final review learning agreement, helping to inform the AES report (Figure 1). The MCR is an iterative process involving CSs, self-assessment by fellows, face to face meetings between fellows 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 subsequent MCRs.

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

Table 1: MCR anchor statements and guide to recommendation of appropriate supervision level in each CiP.

		Trainer input at each supervision level			
MCR Rating Scale	**Anchor statements**	**Does the fellow perform part or all of the task?**	**Is guidance required?**	**Is it necessary for a trainer to be present for the task?**	**Is the fellow performing at a level beyond that expected of a day one consultant? [c]**
Level I:	Able to observe only: no execution	no	n/a	n/a	n/a
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
Level IIb:	Able and trusted to act with direct supervision: The supervisor needs to guide all aspects of the activity. This guidance may partly be given from another setting but the supervisor will need to be physically present for part of the activity	yes	all aspects	will be necessary for part	n/a
Level III:	Able and trusted to act with indirect supervision: 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. The supervisor may be required to be physically present on occasions.	yes	some aspects	may be necessary for part	n/a
Level IV:	Able and trusted to act at the level of a day one consultant in the clinical area of the fellowship	yes	None [a,b]	None [a, b]	n/a
Level V:	Able and trusted to act at a level beyond that expected of a day one consultant in the clinical area of the fellowship	yes	None[a]	None [a]	yes

a. This equates to the level of practice expected of a day one consultant in the clinical area of the fellowship. It is recognised that advice from senior colleagues within a multi-disciplinary team 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 a multidisciplinary team. 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.

b. 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 (SL IV), i.e. be a level commensurate with that of a day 1 consultant.

c. 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.

5.3.4 Fellow self-assessment of CiPs

Fellows should complete the self-assessment of CiPs 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 GCP 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 fellowship. Wide discrepancy between self-assessment of supervision level and the recommendation by CSs in the MCR allows identification of over- or under-confidence and for support to given accordingly.

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 7) and will be used to underpin assessment in those areas of the syllabus central to the clinical area, i.e. the critical conditions and index procedures, as well as being available for other conditions and operations as determined by the fellow and supervisors. 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 fellows' reflections on practice in order to address learning needs.

WBA uses different trainers' direct observations of fellows to assess the actual performance of fellows 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 fellows in important areas of the syllabus throughout the fellowship. Fellows undertake each task according to their experience and ability level and the assessor must intervene if patient safety is at risk. It would be normal for fellows 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 fellows immediately after the observation. Each WBA includes the fellow's and assessor's

individual comments, ratings of individual competencies (e.g. *Satisfactory*, *Needs Development* or *Outstanding*) and global rating. 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, WBAs also contribute to the AES report for the end of fellowship assessment.

WBAs are formative and may be used to assess and provide feedback on all clinical activity. Fellows 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 Appendix 3 and Appendix 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 fellow's progress. All fellows are required to use WBAs to evidence that they have achieved the learning in the index procedures or critical conditions by the end of the fellowship. However, it is recognised that fellows 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 7) 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 for 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 for feedback to and assessment of the fellow.

Case-Based Discussion (CBD)

The CBD assesses the performance of a fellow 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 fellow 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 fellows compile, prioritise and apply knowledge. By using clinical cases that offer a challenge to fellows, rather than routine cases, fellows 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). Fellows are assessed against the standard for the completion of the fellowship.

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 fellow and patient interaction and an assessor is available. The CEX or CEX(C) is important for assessing the critical conditions (Appendix 3). Fellows are assessed against the standard for the completion of the fellowship.

Multi-Source Feedback (MSF)

The MSF assesses professional competence within a team working environment. It comprises a self-assessment and the assessments of the fellow'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 fellow'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 fellow to discuss the feedback on performance in the MSF. Fellows are assessed against the standard for the completion of the fellowship.

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 fellows 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). Fellows are assessed against the standard for completion of the fellowship.

Surgical Logbook

The logbook is tailored to each specialty and allows the fellow's competence as assessed by the PBA to be placed in context. It is not a formal assessment in its own right, but fellows 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 PBA and will be compared with the indicative numbers of index procedures defined in the curriculum (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*:

Endoscopy

Fellows who develop endoscopy skills will record their experience through the Joint Advisory Group (JAG) Endoscopy Training System (JETS)[5]. This is a system common across all medical and surgical specialties. Fellows are required to keep a log of all endoscopic procedures they have undertaken including the level of supervision required on each occasion. The JETS logbook demonstrates breadth of experience in endoscopy and fellows will perform DOPs within this framework which will be available for review and will feed in to the end of fellowship assessment.

[5] https://www.jets.thejag.org.uk/

Assessment of Audit (AoA)

The AoA reviews a fellow's competence in completing an audit or quality improvement project. It can be based on documentation or a presentation of a project. Fellows are assessed against the standard for completion of the fellowship.

Observation of Teaching (OoT)

The OoT assesses the fellow's ability to provide formal teaching. It can be based on any instance of formalised teaching by the fellows which has been observed by the assessor. The standard is set for the fellowship.

The forms and guidance for each WBA method can be found on the ISCP website (see section 6).

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. Fellows 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 fellows are expected to have a good knowledge of the curriculum and should use it as a guide for their training programme. Each fellow 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 a fellow's conduct and practice as follows:

- Fellows 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
- AESs can complete fellow appraisal through the learning agreement, monitor fellow portfolios and provide end of placement AES Reports;
- CSs complete the MCR at the midpoint and endpoint of each placement;
- Assessors can record feedback and validate WBAs, including the MSF;
- Other people involved in training can access fellow 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, treatment (both operative and non-operative) and recognition of the degree of discussion required within, and support from, the multidisciplinary team. Fellows are expected to apply syllabus defined knowledge and skills in straightforward and unusual cases across the breadth of the clinical area of the Fellowship across all CiPs.

All CiPs relate to Good Medical Practice domains 1, 2, 3, and 4.

Shared Capability in Practice	1. Manages an out-patient clinic

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

Fellowship specific requirements:

- Able to manage additional pressures from urgent referrals
- Able to supervise other more junior colleagues

Shared Capability in Practice	1. Manages an out-patient clinic

Supervision level:

Fellowship Level I: Able to observe only

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

- **a.** Supervisor present throughout
- **b.** Supervisor present for part

Fellowship Level III: Able and trusted to act with indirect supervision

Fellowship Level IV: Able and trusted to act at the level expected of a day one consultant in the clinical area of the fellowship

Fellowship Level V: Able and trusted to act at a level beyond that expected of a consultant within the clinical area of the fellowship

Shared Capability in Practice	2. Manages the unselected emergency take

Description

Manages all patients with an emergency condition requiring management within the clinical area of the fellowship. Able to perform all the administrative and clinical tasks required of a consultant surgeon in order that all patients presenting as emergencies in the clinical area of the fellowship 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

Supervision level:

Fellowship Level I: Able to observe only

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

- **a.** Supervisor present throughout
- **b.** Supervisor present for part

Fellowship Level III: Able and trusted to act with indirect supervision

Fellowship Level IV: Able and trusted to act at the level expected of a day one consultant in the clinical area of the fellowship

Fellowship Level V: Able and trusted to act at a level beyond that expected of a consultant within the clinical area of the fellowship

Shared Capability in Practice	3. Manages ward rounds and the on-going care of in-patients

Description

Manages all hospital in-patients with conditions requiring management within the clinical area of the fellowship. 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 multidisciplinary 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 round 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

Shared Capability in Practice	3. Manages ward rounds and the on-going care of in-patients

Supervision level:

Fellowship Level I: Able to observe only

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

- **a.** Supervisor present throughout
- **b.** Supervisor present for part

Fellowship Level III: Able and trusted to act with indirect supervision

Fellowship Level IV: Able and trusted to act at the level expected of a day one consultant in the clinical area of the fellowship

Fellowship Level V: Able and trusted to act at a level beyond that expected of a consultant within the clinical area of the fellowship

Shared Capability in Practice	4. Manages an operating list

Description

Manages all patients with conditions requiring operative treatment within the clinical area of the fellowship. 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

Shared Capability in Practice	4. Manages an operating list

Supervision level:

Fellowship Level I: Able to observe only

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

- **a.** Supervisor present throughout
- **b.** Supervisor present for part

Fellowship Level III: Able and trusted to act with indirect supervision

Fellowship Level IV: Able and trusted to act at the level expected of a day one consultant in the clinical area of the fellowship

Fellowship Level V: Able and trusted to act at a level beyond that expected of a consultant within the clinical area of the fellowship

Shared Capability in Practice	5. Manages multi-disciplinary working

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 clinical area of the fellowship. 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 clinical area of the fellowship.

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

Shared Capability in Practice	5. Manages multi-disciplinary working

Fellowship specific requirements:

- Recognises fundamental importance of the hand therapists to outcomes in hand surgery
- Liaises appropriately with the therapists and is available for advice
- Able to listen and act on their concerns about a patient

Supervision level:

Fellowship Level I:	Able to observe only
Fellowship Level II:	Able and trusted to act with direct supervision: **a.** Supervisor present throughout **b.** Supervisor present for part
Fellowship Level III:	Able and trusted to act with indirect supervision
Fellowship Level IV:	Able and trusted to act at the level expected of a day one consultant in the clinical area of the fellowship
Fellowship Level V:	Able and trusted to act at a level beyond that expected of a consultant within the clinical area of the fellowship

Appendix 2: Syllabus

The syllabus provides a description of the knowledge, clinical and technical skills required for the fellowship. It outlines the scope and aspirations of the fellowship, but the fellows are not expected to achieve advanced level in every module.

Standards for knowledge

Specific competency levels in knowledge have been removed except for the critical conditions where the topic for a phase of training has a competence level ascribed to it for knowledge ranging from 1 to 4 which indicates the depth of knowledge required:

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

Standards for clinical and technical skills

The practical application of knowledge is evidenced through clinical and technical skills. Competency levels for clinical and technical skills range from 1-4 as detailed below.

1. Has observed

Exit descriptor; at this level the fellow:

- has adequate knowledge of the steps through direct observation;
- can handle instruments relevant to the procedure appropriately and safely;
- can perform some parts of the procedure with reasonable fluency.

2. Can do with assistance

Exit descriptor; at this level the fellow:

- knows all the steps - and the reasons that lie behind the methodology;
- can carry out a straightforward procedure fluently from start to finish;
- knows and demonstrates when to call for assistance/advice from the supervisor (knows personal limitations).

3. Can do whole but may need assistance

Exit descriptor; at this level the fellow:

- can adapt to well- known variations in the procedure encountered, without direct input from the trainer;
- recognises and makes a correct assessment of common problems that are encountered;
- is able to deal with most of the common problems;
- knows when help is needed;
- requires advice rather than help that requires the trainer to scrub.

4.	Competent to do without assistance, including complications	Exit descriptor; at this level the fellow: ● with regard to the common clinical situations in the clinical area, can deal with straightforward and difficult cases to a satisfactory level and without the requirement for external input; ● is at the level at which one would expect a UK consultant surgeon to function; ● is capable of supervising trainees.

Specific competency levels for knowledge and clinical skills have been removed except for the critical conditions which are defined in Appendix 3.

The syllabus is structured on a modular basis. The modules are as follows:

1. Skin / Soft tissue / Microsurgery / Dupuytren's Disease
2. Fractures and Joint Injuries including Wrist Instability
3. Osteoarthritis and Inflammatory Arthritis
4. Tendon and Tendon-related Disorders
5. Nerve and Nerve-related Disorders
6. The Child's Hand, Vascular Disorders and Tumours

Hand Surgery Module 1: Skin / Soft tissue / Microsurgery / Dupuytren's Disease

Objective

1. Acquire competence in the diagnosis and management of soft tissue problems around the hand and upper limb including traumatic loss
2. 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 and scar management, reduction of swelling and
- management of stiffness
- levels of amputation for the upper limb
- principles of microvascular surgery
- principles of replantation including macro-replantation
- 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 and electrical burns, and frostbite
- principles of allotransplantation

Hand Surgery Module 1: Skin / Soft tissue / Microsurgery / Dupuytren's Disease			
Objective	1. Acquire competence in the diagnosis and management of soft tissue problems around the hand and upper limb including traumatic loss 2. Acquire competence in all aspects of care of Dupuytren's disease		
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

Hand Surgery Module 1: Skin / Soft tissue / Microsurgery / Dupuytren's Disease

Objective

1. Acquire competence in the diagnosis and management of soft tissue problems around the hand and upper limb including traumatic loss
2. Acquire competence in all aspects of care of Dupuytren's disease

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

Hand Surgery Module 2: Fractures and Joint Injuries including Wrist Instability

Objective

1. Acquire competence in the diagnosis and management of all types of fractures of the phalanges, metacarpals, carpus and distal radius
2. Acquire competence in the diagnosis and management of the unstable wrist including distal radioulnar joint

Knowledge

Basic

Should 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 radiocarpal/DRU/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 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 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

Hand Surgery Module 2: Fractures and Joint Injuries including Wrist Instability			
Objective	1. Acquire competence in the diagnosis and management of all types of fractures of the phalanges, metacarpals, carpus and distal radius 2. Acquire competence in the diagnosis and management of the unstable wrist including distal radioulnar joint		
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 and 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 abilities of: • 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 the phalanges, carpus and distal radius

Hand Surgery Module 2: Fractures and Joint Injuries including Wrist Instability

Objective

1. Acquire competence in the diagnosis and management of all types of fractures of the phalanges, metacarpals, carpus and distal radius
2. Acquire competence in the diagnosis and management of the unstable wrist including distal radioulnar joint

Technical Skills and Procedures

Basic

Should be able to perform:

- simulation-based exercises of the techniques for fracture fixation:
  - closed reduction with application of splint or cast
  - K-wiring and interosseous wiring
  - plate and screws
  - lag screw

Intermediate

Should be able to perform:

- closed K-wiring for CMC/PIP joint dislocations, phalangeal/metacarpal fractures, distal radius fractures
- open reduction internal fixation of metacarpal fractures
- open reduction internal fixation of uncomplicated distal radius fractures
- repair of ulnar collateral ligament of the thumb MCP joint
- application of external fixator to upper limb
- application of bridge plating

Advanced

Should be able to perform:

- open reduction internal fixation of phalangeal fractures
- operative treatment of intra-articular fractures of the PIP joint, including hemi-hamate arthroplasty
- open reduction internal fixation of complex distal radius fractures
- scaphoid fixation (acute fracture and non-union)
- vascularised or non-vascularised bone grafting for scaphoid non-union
- operative stabilisation of acute carpal disruptions
- ligament stabilisation procedures for chronic problems of the scapholunate, lunotriquetral and CMC joints, and midcarpal instability
- application of bone substitutes
- corrective osteotomy for malunion of the hand and wrist
- ulnar shortening osteotomy

Hand Surgery Module 3: Osteoarthritis and Inflammatory Arthritis

Objective

1. Acquire competence in the diagnosis and management of all aspects of management of osteoarthritic joints of the hand and wrist
2. Acquire competence in the diagnosis and management of all aspects of management of inflammatory arthritis of the hand and wrist

Knowledge

Basic

Should 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
  - MCP joint subluxation and ulnar drift
  - digital Boutonnière and swan neck deformities
  - thumb deformity and CMC joint disease
- principles of arthroplasty
- role of occupational therapy assessment and provision of aids to daily living

Intermediate

Should 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
- role 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 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 Kienböck’s disease
- management of Madelung’s deformity

Hand Surgery Module 3: Osteoarthritis and Inflammatory Arthritis

Objective

1. Acquire competence in the diagnosis and management of all aspects of management of osteoarthritic joints of the hand and wrist
2. Acquire competence in the diagnosis and management of all aspects of management of inflammatory arthritis of the hand and wrist

	Basic	**Intermediate**	**Advanced**

Clinical skills	Should demonstrate ability to:
	• clinically assess the arthritic patient and recognise the typical patterns of disease
	• apply conservative management techniques including splinting and exercises
	• undertake external K-wire removal
		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
		  ○ MCP joint subluxation and ulnar drift
		  ○ digital Boutonnière and swan neck deformities
		  ○ thumb deformity and CMC joint disease
		• diagnose pathology through local anaesthetic joint injection techniques
		• undertake treatment by joint injection
		  ○ includes simulation-based exercises for joint injection techniques
			Should demonstrate:
			• knowledge of detailed management algorithms for the conditions covered in this module including complex conditions

Hand Surgery Module 3: Osteoarthritis and Inflammatory Arthritis

Objective

1. Acquire competence in the diagnosis and management of all aspects of management of osteoarthritic joints of the hand and wrist
2. Acquire competence in the diagnosis and management of all aspects of management of inflammatory arthritis of the hand and wrist

	Basic	Intermediate	Advanced
Technical Skills and Procedures	Should be able to perform: • harvesting of iliac bone graft / radius bone graft • simulation-based exercises of wrist arthroscopy	Should be able to perform: • arthrodesis of DIP / PIP / MCP joints • trapeziectomy plus/minus soft tissue ligamentous reconstruction • total wrist arthrodesis • partial excision of carpus, including proximal row carpectomy • Darrach's procedure • diagnostic wrist arthroscopy	Should be able to perform: • therapeutic wrist arthroscopy e.g. TFCC debridement or repair • limited wrist arthrodesis e.g. STT, 4-corner, or radioscapholunate fusion • variety of procedures for rheumatoid arthritis including silicone spacer replacement and soft tissue arthroplasty with ligament reconstruction for instability. • soft tissue correction for swan neck / Boutonnière deformities • joint replacement arthroplasty for PIP / MCP / CMC / RC / DRU joints • Sauvé-Kapandji procedure • joint denervation

Hand Surgery Module 4: Tendon and Tendon-related Disorders

Objective

1. Acquire competence in the diagnosis and management of all aspects of flexor and extensor tendon injuries and associated reconstruction
2. Detailed knowledge of the hand therapy and rehabilitation regimens for the same

	Basic	Intermediate	Advanced
Knowledge	Should demonstrate knowledge of: • mechanisms of tendon injury and healing • pathophysiology of related tendon disorders	Should 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	Should 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	Should demonstrate ability to: • clinically assess the injured tendon and other tendon disorders • utilise relevant specialist imaging techniques such as ultrasound	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 and primary / secondary joint stiffness	Should demonstrate: • 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

Hand Surgery Module 4: Tendon and Tendon-related Disorders

Objective

1. Acquire competence in the diagnosis and management of all aspects of flexor and extensor tendon injuries and associated reconstruction
2. Detailed knowledge of the hand therapy and rehabilitation regimens for the same

	Basic	Intermediate	Advanced

Technical Skills and Procedures	Should be able to perform:
	• extensor tendon repair
	• flexor tendon repair (Zones III-V)
	• tendon graft harvest
	• extensor / flexor synovectomy
	• trigger digit release
	• simulation-based exercises related to tendon surgery
		Should be able to perform:
		• de Quervain's release
		• flexor tendon repair (Zones I & II)
		• flexor or extensor tenolysis
		• tendon transfer (EI-EPL)
		• tenodesis (EDC replacement in partial EDC rupture)
			Should be able to perform:
			• late reconstruction of flexor and extensor tendons
			• tendon grafting either one- and two-stage
			• pulley reconstruction
			• tendon transfer:
			  ○ radial nerve palsy
			  ○ opponensplasty
			  ○ intrinsic rebalancing

Hand Surgery Module 5: Nerve and Nerve-related Disorders

Objective

1. Acquire 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
2. Acquire detailed knowledge of the rehabilitation regimens for the same

	Basic	Intermediate	Advanced
Knowledge	Should demonstrate knowledge of: • topographic anatomy of the peripheral nerve system including brachial plexus • response of peripheral nerve to injury and repair • pathophysiology of nerve compressive disorders • appropriate outcome assessment instruments	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 complex regional pain syndrome (CRPS) and neuropathic pain problems • diagnosis and management principles of hand-arm vibration syndrome (HAVS)	Should demonstrate knowledge of: • appropriate use of nerve grafts (autogenous and allograft) and conduits (biological and synthetic) • techniques of nerve reconstruction, including nerve transfers • techniques of 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	Should demonstrate ability to: • clinically assess nerve-related disorders including brachial plexus injuries • apply relevant specialist imaging techniques such as electrophysiological investigation and ultrasound • prevent iatrogenic nerve injury	Should demonstrate knowledge of: • clinical assessment and management algorithms for the conditions covered in this module • assessment of nerve function using specific instruments e.g. Semmes-Weinstein monofilaments, 2-point discriminator	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 iatrogenic nerve injury

Hand Surgery Module 5: Nerve and Nerve-related Disorders

Objective

1. Acquire 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
2. Acquire detailed knowledge of the rehabilitation regimens for the same

	Basic	Intermediate	Advanced

Technical Skills and Procedures	Should be able to perform:
	• peripheral nerve repair, at the digital and wrist levels
	• simulation-based exercises for microsurgical peripheral nerve repair
	• nerve graft harvest
	• carpal tunnel release
	• cubital tunnel release (in-situ decompression)
	• neurolysis
		Should be able to perform:
		• nerve decompression :
		  ○ cubital tunnel release (anterior transposition / medial epicondylectomy)
		  ○ revision carpal tunnel release
		• reconstruction of segmental nerve defect with nerve graft or conduit
		• resection of neuroma
		• nerve wrapping using biological or synthetic materials
			Should be able to perform:
			• nerve decompression:
			  ○ ulnar nerve in Guyon's canal
			  ○ revision ulnar nerve surgery at elbow
			  ○ posterior interosseous nerve
			  ○ proximal median nerve
			• relocation of painful neuroma
			• joint denervation procedure
			• brachial plexus exploration (including OBPI)
			• vascularised nerve flap
			• nerve transfer
			• muscle transfer for reanimation

Hand Surgery Module 6: The Child's Hand, Vascular Disorders and Tumours

Objective

1. Acquire overall competence in the diagnosis and management of children's hand problems with emphasis on congenital hand conditions
2. Acquire competence in the management of vascular disorders and neoplastic conditions of the upper limb in both children and adults
3. 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
	• management of manifestation of systemic sclerosis in the hand
		Intermediate
		Should demonstrate knowledge of:
		• the following conditions of the child's hand:
		  ○ trigger digits
		  ○ polydactyly including thumb duplication
		  ○ simple syndactyly
		• Salter-Harris classification of physeal injuries and their impact on the growth plate
		• management of vascular insufficiency syndromes, haemangiomas and vascular malformations
		• management of soft tissue and bony tumours including formal amputations and 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
			  ○ ulnar dysplasia
			  ○ thumb hypoplasia
			  ○ upper limb malformations in arthrogryposis
			  ○ Madelung's deformity
			  ○ constriction band syndrome
			• cerebral palsy and 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

Hand Surgery Module 6: The Child's Hand, Vascular Disorders and Tumours			
Objective	1. Acquire overall competence in the diagnosis and management of children's hand problems with emphasis on congenital hand conditions 2. Acquire competence in the management of vascular disorders and neoplastic conditions of the upper limb in both children and adults 3. Demonstrate knowledge of the aetiology, classification, risk factors and surgical management of these conditions		
			• 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 disorders • counsel a patient with either malignant or benign diagnoses • work and communicate within the relevant multidisciplinary team (MDT)	**Intermediate** Should demonstrate knowledge of: • 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 • ability to advise regarding timing of reconstruction and effect of growth on reconstructive surgery previously performed • ability to advise regarding non-surgical and surgical treatment options in respect of vascular disorders • ability to provide detailed advice on the treatment pathways, including interpretation of specialist imaging, within the context of the relevant MDT in respect of neoplastic conditions of the upper limb

Hand Surgery Module 6: The Child's Hand, Vascular Disorders and Tumours

Objective

1. Acquire overall competence in the diagnosis and management of children's hand problems with emphasis on congenital hand conditions
2. Acquire competence in the management of vascular disorders and neoplastic conditions of the upper limb in both children and adults
3. Demonstrate knowledge of the aetiology, classification, risk factors and surgical management of these conditions

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, DIP joint)
- safe biopsy for 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 of glomus tumour
- excision / curettage of enchondroma
- excision of other benign tumours of bone and soft tissue

Advanced

Should be able to perform:

- complex syndactyly correction
- surgical treatment for radial dysplasia, including application of external distraction devices
- pollicisation
- cleft hand correction
- vascularised toe transfer
- reconstruction of first web space
- excision of nerve-sheath lesion e.g. Schwannoma
- excision of major vascular malformations and reconstruction of resultant defects
- excision of malignant tumours of bone and soft tissue including compartmentectomy and reconstruction of resultant defects

Appendix 3: List of Critical Conditions

The list of critical conditions covers a range of conditions where misdiagnosis or mismanagement can result in devastating consequences for life or limb.

These Critical Conditions must be assessed individually by means of the CBD and CEX, which both include an assessment of clinical judgement and decision-making.

Fellows are expected to complete CBDs or CEX in each of the critical conditions to level 4c by completion of the fellowship.

Critical Condition
Severe soft tissue or joint infections in the upper limb
Emergency management of complex trauma in the upper limb, including soft tissue and bony injuries and joint dislocations
Compartment syndrome
Emergency management of postoperative complications
Emergency management of acute peripheral nerve compression or injury
Emergency management of upper limb ischaemia

Appendix 4: Index Procedures

Index procedures are common but important operations central to the clinical area of the fellowship, 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 clinical area of the fellowship. Learning in the index procedures is indicative of learning in the broad range of technical procedures in the syllabus and surgical logbook and they are, therefore of significant importance for patient safety and demonstration of a safe breadth of practice. Each of these index procedures is assessed individually by means of the PBA which provides formative feedback to the fellow and feeds into the summative assessments of the AES and the end of fellowship assessment.

It is recognised that the fellows may have achieved some of the competencies during their parent specialty training already. The fellowship should be tailored accordingly to focus on areas where further training is required.

Index Procedure	Level Required
Palmar and digital fasciectomy for Dupuytren's contracture	4
Median and ulnar nerve decompression	4
Trapeziectomy	4
Extensor tendon repair	4
Zone II flexor tendon repair	4
Metacarpal plating	4
Digital nerve repair	4
Skin graft	4
Local soft tissue flap	3
Arterial repair	3
Plating of distal radius fracture	3

Appendix 5: Roles and responsibilities for supervision within the Fellowships

Assigned Educational Supervisor (AES)

AESs are consultant surgeons responsible for the management and educational progress of the fellow. 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 Trainers 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. They must have access to the support and advice of other 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 fellows are familiar with the curriculum and assessment system relevant to the level/phase of training and undertakes it according to requirements;
- Ensuring that fellows have appropriate day-to-day supervision appropriate to their position;
- Helping fellows with both professional and personal development;
- Completing a learning agreement with fellows 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 for concerns and how they have been resolved;
- Regularly inspecting fellow learning portfolios and ensuring fellows are making the necessary clinical and educational progress;
- Informing fellows of their progress and encouraging fellows to discuss any deficiencies in the training programme, ensuring that records of such discussions are kept;
- Ensuring access to fellow data is kept confidential;
- Ensuring patient safety in relation to fellow performance by the early recognition and management of those doctors in distress or difficulty;
- Discussing fellows' progress with each trainer with whom fellows spend a period of training and involving them in the formal reporting process; and
- Providing an end of placement AES report for the end of fellowship assessment.

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

The roles of AES and CS come under the umbrella of the Professionalised Trainer outlined as described in the Trainer's Area on the ISCP. The JCST is supportive of the GMC's move towards greater recognition and accreditation for clinicians undertaking the roles of AES and CS, and other responsibilities supporting education and training.

The Assessor

Assessors carry out a range of WBAs and provide verbal and written feedback to the fellow. 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 fellows with reference to the CiPs. Other members of the surgical team including senior trainees, senior nurses and doctors from other medical disciplines may assess fellows in areas where they have particular expertise. Those who are not medically qualified may also act as assessors for the fellow's Multisource 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 WBAs, including the MCR, according to their area of expertise and training;
- Providing constructive verbal feedback to fellows, including an action plan, immediately after the event;
- Ensuring access to fellow data is kept confidential; and
- Providing written feedback and/or validating WBAs in a timely manner.

The Fellow

Fellows will have been awarded certification by the GMC in their specialty and will have been selected into the fellowship. All doctors 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. Fellows 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.

Fellows are responsible for:

- Engaging with opportunities for learning;
- Creating a learning agreement and initiating meetings with the AES;
- Raising concerns with the AES 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 6: Quality management of the curriculum

Internal Quality Review

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) (under the umbrella of the Interface Training Oversight Group (ITOG)) and works closely with the Surgical Specialty Associations (SSAs) in the UK 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 all equality and diversity legislation.

The quality system has three components:

- Quality assurance: This is the responsibility of the GMC (in the UK) and is not relevant to the JCST Post-Certification Fellowship initiative.
- Quality management: The implementation of curriculum standards through training programmes at Local Office (HEE) / Deanery level in conjunction with the JCST
- Quality control: The implementation of training standards by local education providers. The local delivery of curriculum through the people involved with training, their recruitment, selection and training and the systems and resources upon which they can address concerns.

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

GMC survey

This will not apply to JCST Post-Certification Fellowships.

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 and Ireland, the Lead Dean for the specialty, a trainee representative, the Chair of the Intercollegiate Specialty Board (ex officio), the President of the Surgical 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 JCST's quality processes through first hand independent knowledge of training programmes.

The SACs' activities will include the Post-Certification Fellowships

Curriculum development

The SACs, working with their Specialty Associations, supported by each specialty's Lead Dean, are responsible for curriculum development. 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 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, specialty organisations, deans, employers, patient and lay representatives. The process of curriculum development for post-certification fellowships will mirror this.

Quality Indicators

The JCST Quality Indicators are the JCST and SACs' guidance on the attributes of good quality Fellowship posts. They are not used to assess the achievements of individual fellows, but rather to identify good and poor quality training, in order that appropriate action may be taken, with compliance measured via the JCST fellow survey.

Annual Fellowship Report (AFR) – Regional and National

Through the AFR process, the JCST will work with a variety of postgraduate bodies to collate and share information to promote training quality improvement. The Regional AFR describes the SAC's view on the quality of Fellowship training in each region and is fed back to Heads of School (or equivalent) and individual units. The National AFR gives a broad overview of training in each Fellowship and in draws out themes common to all Fellowships. The reports will be based on local quality management information, analysis of the JCST survey and other surveys, the development of curricula and the monitoring of the progress of fellows through to successful completion of the Fellowship. The AFR identifies what each specialty considers to be good practice, areas of concern and trends attributed to different areas of implementation.

JCST survey

The JCST 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. Fellows complete one survey during their Fellowship prior to their ARCP equivalent assessment. As part of its five-year strategy, the JCST shares this information in the form of annual reports. The JCST also conducts an annual survey of surgical AESs and CSs to gather information on issues particularly relevant to surgical trainers, such as use of the web-based curriculum, time and support to undertake external and training activities and the recording of continuing professional development (CPD) activity. Analysis of the findings from these surveys are key to the work of the SACs and QA Group, feeding into their meetings and the consultations SAC Liaison Members have with those responsible for curriculum delivery within their regions. 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 Fellowship training through the AFR.

JCST and ISCP data

Training data collected through the JCST and ISCP are used to inform a variety of aspects of the quality assessment process. These include curriculum delivery, adherence to quality indicators and equality and diversity issues. The ISCP is used to monitor curriculum delivery, fellow 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.

Fellows' views

Fellows' representatives will, in due course, be involved in working groups, curriculum review and the development of the ISCP training management system, including, where necessary, cascading training, testing and piloting.

Appendix 7: 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 fellows are assessed on the high-level outcomes of the curriculum: the CiPs and GPCs.

High Level Outcomes

	Assessed via							
Capabilities in Practice for all surgical specialties	CiP/GPC Self-assessment	MCR	MSF	CEX	CBD	PBA	AoA	OoT
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	✓	✓	✓		✓			

	Assessed via							
Capabilities in Practice for Paediatric Surgery	CiP/GPC Self-assessment	MCR	MSF	CEX	CBD	PBA	AoA	OoT
6. Assesses and manages an infant or child in a NICU/PICU environment	✓	✓	✓	✓	✓	✓		

	Assessed via							
Capabilities in Practice for Plastic Surgery	CiP/GPC Self-assessment	MCR	MSF	CEX	CBD	PBA	AoA	OoT
6. Safely assimilates new technologies and advancing techniques in the field of Plastic Surgery into practice	✓	✓	✓		✓	✓		

	Assessed via							
Generic Professional Capabilities	CiP/GPC Self-assessment	MCR	MSF	CEX	CBD	PBA	AoA	OoT
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

		Assessed via							
		CiP/GPC Self-assessment	MCR	MSF	CEX	CBD	PBA	AoA	OoT
Knowledge		✓	✓	✓	✓	✓	✓	✓	✓
Clinical skills	Clinical skills (general)	✓	✓	✓	✓	✓			
	Critical conditions (mandated CEX/CBD)	✓	✓	✓	✓	✓			
Technical skills	Technical skills (general)	✓	✓				✓		
	Index procedures (mandated PBA)	✓	✓				✓	✓	✓

Appendix 8: Fellowship completion checklist

1. Curriculum and knowledge

			Has standard been met and evidence checked?	
	Yes	**No**	**Comments** Enter details of where evidence can be found in ISCP or details of omissions and plans to resolve them	**Y / N**
Has the Fellow completed WBAs for the critical conditions and index procedures to the required level (from a range of different trainers while taking into account of prior achieved competencies)?				
Has the Fellow provided evidence of having attended specific courses/gained specific qualifications as defined in the Hand Surgery curriculum? (Examples of this could be tutorials, coursework, workplace-based assessments, modules of the British Hand Diploma or equivalent meeting the learning outcomes described.)				

2. Operative experience

Including critical conditions, index procedures, and indicative numbers if specified.

Evidence: ISCP PBAs, eLogbook.			**Has standard been met and evidence checked?**	
	Yes	**No**	**Comments** Enter details of where evidence can be found in ISCP or details of omissions and plans to resolve them	**Y / N**
Has the Fellow experienced an indicative total of 400 operations per year across a broad range of hand procedures, in both Plastic and Orthopaedic Surgery, with at least 60% of these supervised by a consultant hand surgeon?				
Has the Fellow performed at least 50% of the procedures?				
Has the Fellow gained a balanced exposure to trauma and elective hand surgery?				

3. Research and audit

Evidence: CV, ISCP WPBAs, MSF, completed audits, MSF, Reflection, AES/CS reports			**Has standard been met and evidence checked?**	
	Yes	**No**	**Comments** Enter details of where evidence can be found in ISCP or details of omissions and plans to resolve them	**Y / N**
Has the Fellow participated in at least one audit or clinical improvement project during the year?				
Has the Fellow submitted a manuscript for consideration of publication in a peer-reviewed journal, or had an oral presentation at a national or international meeting, or participated in recruitment of patients for a clinical trial during the year?				
Has the Fellow attended at least one scientific meeting or course in hand surgery during the year?				

Appendix 9: Glossary

AES	Assigned Educational Supervisor
AES Report	An end of placement report by the fellow's Assigned Educational Supervisor, providing key evidence for the fellow's ARCP equivalent.
ARCP / ARCP 6	The Annual Review of Competence Progression (ARCP) panel will recommend one of eight outcomes to trainees. Outcome 6 sets out that a trainee has gained all required competences and will be recommended as having completed the training programme. For further information, please see the Gold Guide[6]). A similar process will be used for fellows
Capability	The ability to be able to do something in a competent way.
CBD	Case-Based Discussion
CEX	Clinical Evaluation Exercise
CiP	Capabilities in Practice. The high-level learning outcomes of the curriculum. Learning outcomes are statements that set out the essential aspects of learning that must be achieved. Fellows must demonstrate they have met these outcomes to reach Certification.
Core Surgical Training	The early years of surgical training for all ten surgical specialties.
Critical conditions	Any condition (identified in the syllabus) where a misdiagnosis could be associated with devastating consequences for life or limb. See section 3.5.2 and Appendix 3.
CS	Clinical Supervisor
CSTAC	Core Surgical Training Advisory Committee
Fellow	A surgeon undertaking a programme of training in a specific clinical area following entry to the GMC's specialist register.

[6] https://www.copmed.org.uk/gold-guide/

Generic	Applicable to *all* fellows regardless of specialty, discipline and level of training, e.g. generic professional capabilities.
GPCs	Generic Professional Capabilities. A framework of educational outcomes that underpin medical professional practice for all doctors in the United Kingdom.
GMP	Good Medical Practice. The core ethical guidance that the General Medical Council (GMC) provides for doctors.
High Level Outcome	See *CiPs*.
Index Procedures	Common but important operations central to practice in a clinical area, competence in which is essential to the delivery of safe patient care. See section 3.5.3 and Appendix 4.
ISCP	Intercollegiate Surgical Curriculum Programme. The online portfolio for surgeons.
JCST	The Joint Committee on Surgical Training. An advisory body to the four surgical Royal Colleges of the UK and Ireland for all matters related to surgical training. The parent body for all ten SACs, the CSTAC, the TIGs and the ISCP.
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.
MCR	Multiple Consultant Report. An assessment by Clinical Supervisors that assesses fellows 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 Generic Professional Capabilities. This will be at the midpoint of a placement (formative) and the end of a placement (summative). The MCR feeds into the AES Report. It also provides fellows with both formative and summative feedback.

Protected characteristics	These are defined by the Equality Act (2010) as protected groups with characteristics which may result in that individual suffering discrimination, harassment, victimisation, or some other inequality of opportunity. The protected characteristics are: age; disability; gender reassignment; marriage and civil partnership; pregnancy and maternity; race; religion or belief; sex; sexual orientation.
SAC	Specialty Advisory Committee.
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.
Supervision level	The level of supervision required by a fellow to undertake an activity, task or group of tasks, ranging from observe only through direct and indirect supervision to unsupervised.
TIG	Training Interface Group. Advises on training in cross-specialty clinical areas.