Trauma & Orthopaedic Surgery Curriculum
Purpose Statement

Proposal for October 2020

The purpose statement addresses the requirements of the General Medical Council's Excellence by Design: standards for postgraduate curricula[1] (theme 1) and the Shape of Training Review. It sets out patient and service needs, scope of practice and the level of performance expected of doctors in training. GMC approval of the curriculum pertains to UK training programmes while those in the Republic of Ireland are governed by the Royal College of Surgeons of Ireland (RSCI) and the Medical Council of Ireland.

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1. Purpose statement for Trauma & Orthopaedic Surgery (T&O)

1.1 The curriculum scope of practice, service, patient and population needs

The purpose of the curriculum for T&O surgery is to produce, at certification, competent doctors, able to deliver excellent outcomes for patients as consultant surgeons in the UK and Ireland. The curriculum will provide consultant surgeons with the generic professional and specialty-specific capabilities needed to manage patients presenting with the full range of acute and traumatic T&O conditions and manage elective conditions in the generality of orthopaedics as well as to develop one or two special interest areas. Trainees will be entrusted to undertake the role of the general T&O specialist trainee during training and will be qualified at certification to apply for consultant posts in T&O in the United Kingdom or Republic of Ireland.

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

A review of current consultant appointments[2] and discussions with the NHS National Directors of Elective and Trauma Care[3,4] on the future NHS needs has led to the definition of the consultant T&O surgeon in the UK and Republic of Ireland as able to receive the unselected emergency general trauma, develop elective competence in the main areas of the specialty and develop particular technical expertise in up to two complementary areas of eight special interests including management of complex trauma cases. With this in mind, on certification, the day-one consultant will have developed;

- general knowledge and assessment skills across the full breadth of the specialty in both elective and trauma orthopaedics with the generic professional skills required of a day-one consultant in the specialty.

- general technical skills across the full breadth of common orthopaedic trauma and to safely manage the acute unselected take.

- competence in the general principles of technical operative orthopaedics, enabling trainees to receive the unselected take and deliver the elective generality of the specialty up to and including post-operative care.

- more advanced knowledge, assessment and technical operative skills in up to two elective (or specialised trauma) special interests areas.

The curriculum ensures development of competency to the level of a day-one consultant across the breadth of the specialty, which can be divided into eight main areas. Six areas are based around anatomical sites and two areas cross all anatomical sites, describing the treatment of specific groups of patients; paediatric orthopaedic surgery and major orthopaedic trauma. Each of the eight areas may also make up a special interest area in its own right. Exposure to all eight is considered essential for producing a day-one consultant in T&O.

The eight areas are:

1. Hand/wrist
2. Shoulder/elbow
3. Spine
4. Hip

5. Knee
6. Foot & Ankle
7. Paediatric
8. Major orthopaedic Trauma

Training in T&O will be entered via a national selection process at ST3 (Phase 2), following the successful completion of core surgical training (Phase 1) or equivalent. T&O is aiming to participate in the Improving Surgical Training (IST) pilot[12] run-through from August 2020.

Training in the specialty of T&O will take an indicative time of six years, delivering the full breadth of knowledge, clinical skills and the generic technical skills of elective and emergency T&O although there is flexibility where some trainees may develop at a different rate.

The Intercollegiate Specialty Board Examination in T&O surgery can be applied for on successful completion of Phase 2 (ST3-ST7). To be eligible to sit the exam trainees require knowledge, clinical assessment and professional skills at the level of a day-one consultant. However, their technical skills require continued development in Phase 3 to reach certification level.

In ST7 and ST8 (Phase 3) trainees will continue their general technical skills and trauma development and undertake development in a special interest in up to two of the eight areas described above. The development of special interests will be in line with service needs although trainees will also have some choice, in discussion with the Training Programme Director (TPD).

For the majority, the two special interests are complementary (e.g. hip/knee or paediatrics/hip or Upper Limb - shoulder/hand). These pairings coincide with the requirements of employers and will produce a day-one consultant who fits service needs and will be flexible for future changes in service requirements. Trainees will be able to develop advanced technical skills in two special interests within the indicative eighteen to twenty-four months of Phase 3. Occasionally only one area, such as spine or foot/ankle or paediatrics, will be developed where there is less crossover between the areas or it has been identified the trainee is aiming for a more specialised consultant appointment. A small number of trainees will develop the technical skills for competence in a shorter time than the indicative eighteen to twenty-four months of Phase 3, and so be eligible for early recommendation for certification.

In two special interest areas (major trauma and hand), there is a need for a small number of trainees to develop cross-specialty skills. For these there are two training interface groups (TIGs) available.

1.2 Shape of training review

The Shape of Training (SoT) review[5] provides an opportunity to reform postgraduate training to produce a workforce fit for the needs of patients, producing a doctor who is more patient focused, more general and has more flexibility in career structure. The T&O curriculum meets the main recommendations of SoT as shown below.

1. *Takes account of and describes how the proposal will better support the needs of patients and service providers:*

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

Discussion regarding the change in the T&O curriculum has been going on within the specialty, and particularly the Specialty Advisory Committee (SAC), since 2015. This was partly driven by changes that were already occurring in the specialty, including evidence from *Getting It Right First Time* (GIRFT)[9], the National Joint Registry (NJR)[10] and the Trauma Network Initiative[11].

Service providers and patients benefit from consultant T&O surgeons who are trained in the generality of the specialty who can provide acute emergency and general trauma and elective skills but who also have special interest skills to provide more specialised care[9].

2. *Ensures that the proposed curriculum to CCT equips doctors with the generic skills to participate in the acute unselected take and to provide continuity of care thereafter:*

All trainees will have been exposed to the full range of generic and emergency T&O conditions throughout training. They will be able to manage the unselected take in their consultant practice and provide continuity of care thereafter, including appropriate referral to colleagues or other units through trauma networks for specialised trauma care where required.

3. *Where appropriate describes how the proposal would better support the delivery of care in the community:*

The nature of T&O surgery is such that it is largely performed in secondary care. Transformation in care pathways has evolved to involve many multi-disciplinary teams (MDTs) particularly Advanced Clinical Practitioners (ACPs), in outpatient assessment and triage. Trainees are closely involved in these models of care including the use of virtual clinics. Some outpatient surgery is now performed in the community setting, such as carpal tunnel decompression and forefoot operations. These are usually performed by certified orthopaedic surgeons or ACPs under the supervision of the former. Trainees will be involved with appropriate GMC site approvals and supervision.

4. *Describes how the proposal will support a more flexible approach to training:*

The curriculum allows ease of transfer into other surgical specialties following core training (CT1-2) or run through (ST1-2) training (Phase 1). There is generic specialty training until the end of Phase 2, allowing flexibility in special interest choice until relatively late in the training pathway.

The curriculum describes clinical Capabilities in Practice (CiPs) shared with other specialties in surgery supporting flexibility for trainees to move between the specialties in line with the recommendations set out in the GMC's report to the four UK governments[3]. The CiPs include the Generic Professional Capabilities (GPCs) common to all medical specialties, facilitating

transferability of learning outcomes across other related specialties and disciplines. It will, therefore, be possible for trainees to transfer generic knowledge, clinical and surgical skills to another surgical specialty without restarting at CT1/ST1 level. As an example, prior learning of history-taking, physical examination, health promotion, medical record keeping and technical skills in one specialty may allow accelerated learning in the clinical areas of another specialty with identical requirements for communication skills, team-working and empathy, compassion and respect for patients. Consequently, trainees will acquire generic skills in the CiPs which can be transferred to other surgical specialties, or to other non-surgical specialties. Trainees who choose a different career route may be able to have a shorter than usual training pathway in their new training programme, in recognition of learning already gained.

This flexible approach with acquisition of transferable capabilities will allow training in the specialty to adapt to current and future patient and workforce needs as well as to changes in surgery with the advent of new treatments and technologies.

5. *Describes the role that credentialing will play in delivering the specialist and sub-specialist components of the curriculum:*

Credentialing is a process which the GMC has defined as providing formal accreditation of competencies in a defined area of practice. The T&O SAC recognises the need to develop a credentialing pathway that will support the acquisition of super-specialist skills throughout T&O professional careers. When the legal and regulatory framework for credentialing has been developed, consideration will be given to which clinical areas will benefit from different types of credentials, responsive to employer and patient needs (see 1.4.3 below).

1.3 The high-level outcomes of T&O surgical training.

The curriculum is outcomes-based, specifying the high-level generic, shared and specialty-specific capabilities that must be demonstrated to complete training. There is a greater focus on the generic professional capabilities common to all doctors.

1.3.1 Capabilities in Practice

The high-level outcomes of the curriculum are expressed as Capabilities in Practice (CiPs). The five shared CiPs describe the professional tasks or work within the scope of T&O. These are:

1) Manages an out-patient clinic

2) Manages the unselected emergency take

3) Manages ward rounds and the ongoing care of inpatients

4) Manages an operating list

5) Manages a multi-disciplinary meeting

By the completion of training and certification, trainees must demonstrate that they are capable of unsupervised practice in all CiPs.

1.3.2 Generic Professional Capabilities

Embedded within each CiP are the full range Generic Professional Capabilities (GPCs) which describe the professional responsibilities of all doctors in keeping with Good Medical Practice.

These attributes are common, minimum and generic standards expected of all medical practitioners achieving certification or its equivalent. The GPCs have equal weight in the training and assessment of clinical capabilities and responsibilities in the training programme. The nine domains of the GPC framework are:

1. Professional knowledge
2. Professional skills
3. Professional values and behaviours
4. Health promotion and illness prevention
5. Leadership and team-working
6. Patient safety and quality improvement
7. Safeguarding vulnerable groups
8. Education and training
9. Research and scholarship

1.3.3 Supervision levels

The assessment of CiPs draws on the holistic judgement of Clinical Supervisors by ascribing the supervision level required by the trainee to undertake each CiP to the standard of certification. The level of supervision will change in line with the trainee's progression, consistent with safe and effective care for the patient. Typically, there should be a gradual reduction in the level of supervision required and an increase in the complexity of cases managed until the level of competence for independent practice is acquired. The supervision levels are:

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

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

Phase 1 of training will be completed when the level of competency required for completion of core training has been achieved. Phase 2 will be completed when a higher level of competency, defined in section 3.3, has been achieved, and a trainee will be eligible for certification when level IV has been achieved in all CiPs as well have having demonstrated achievement of other curriculum requirements described in the curriculum (Phase 3). Some trainees will display competence beyond that expected of a day-one consultant and this will be captured by the award of supervision level V.

1.3.4 Descriptors

Each CiP contains key descriptors associated with the clinical activity or task while the GPC descriptors are associated with the professional behaviours. The descriptors are intended to help trainees and trainers recognise the level of knowledge, skills and professional behaviours which must be demonstrated for independent practice. All descriptors will be taken into account when carrying out assessment and they will be used by Clinical Supervisors to highlight where trainees achieve excellence at a faster rate and when targeted training is necessary in the manner of an exception report. They provide the basis for specific, constructive feedback to the trainee. The CiPs and GPCs will also provide trainees with a self-assessment, providing an opportunity to show insight and actively engage in the feedback discussion.

1.4. Progression through training

Trainees will enter UK T&O training via a variety of routes. There is a national selection process at ST3 for England and a minority of posts in Scotland. Northern Ireland and Wales have devolved national selection processes at ST3. The majority of posts in Scotland are run through, entered at ST1 through a Scottish National Selection process. A small number of trainees enter academic run through training at ST1. From 2020 some trainees will enter run through training via the IST pilot.

Trainees will learn in a variety of settings using a range of methods, including workplace-based experiential learning in a variety of environments, formal postgraduate teaching, simulation based education and self-directed learning.

T&O training is outcome-based rather than time-based. However, it will normally be completed in an indicative time of eight years for those entering run through training at ST1 and six years for uncoupled trainees entering at ST3.

There will be options for those trainees who demonstrate exceptionally rapid development and acquisition of capabilities to complete training more rapidly than the current indicative time of eight years. There may also be a small number of trainees who develop more slowly and will require an

extension of training in line the Reference Guide for Postgraduate Specialty Training in the UK (the Gold Guide[6]).

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

The programme, from ST1, is broadly in three phases:

- Phase 1

Run though trainees will follow the core surgical curriculum for the indicative two years of Phase 1, with a minimum of ten months spent in T&O posts. There will be a critical progression point at the end of Phase 1, at which run through trainees will have to demonstrate that they have satisfied the requirements of the core surgical curriculum, passed the MRCS examination and been awarded an Outcome 1 at the Annual Review of Competence Progression (ARCP) at the end of the second year of training.

- Phase 2

During Phase 2 trainees must gain the knowledge, clinical and professional skills in general T&O to the level of independent practice expected at certification. Their technical skills, whilst well developed by the end of phase 2, will not necessarily reach the level expected for certification in the emergency and general elective competencies of the curriculum until the end of phase 3. At the end of phase 2 there is a critical progression point (see section 3.3) at which trainees must be able to demonstrate competencies in knowledge, clinical skills and professional behaviours commensurate with certification and become eligible to sit the Intercollegiate Specialty Board Examination in T&O surgery.

- Phase 3

In Phase 3 trainees continue to further develop the technical skills in the elective and emergency aspects of the specialty and further develop up to two special interest areas to greater depth, as defined by the syllabus. A special interest is chosen after discussion with the TPD and is based on the needs of the service, the preference of the trainee and the ability of the programme to support the trainee in that special interest. While programmes offer most or all of the eight common special interest areas, either within the programme or by arrangement with a neighbouring programme, occasionally the trainee may request one of the less common or super specialist areas in phase 3 which may be available within programme or by a period of out of programme training. There may be instances where there are more trainees in a cohort who wish to pursue an area of a specific special interest than a programme can accommodate, and the TPD may need to suggest a different special interest to some of these.

Throughout Phase 3 trainees will continue to develop generic and technical skills in their special interest as described in the CiPs and the syllabus and continue to be involved in the management of the unselected take.

In this outcomes-based curriculum, some trainees may reach the end of Phase 3 in less than the indicative time or conversely may require additional training time as determined by the ARCP panel. On completion of Phase 3, trainees will be eligible for certification and for recommendation to enter the specialist register.

TIGs have been optional syllabus modules in surgical curricula since 2002 and provide advanced training before certification which combines curricular elements of at least two specialties in important areas of patient care. T&O is one of parent specialties in the following TIGs:

Training Interface Group	Parent Specialties
Major Trauma	Trauma and Orthopaedics, General Surgery, Vascular Surgery, Plastic Surgery and Oral & Maxillofacial Surgery
Hand Surgery	Trauma and Orthopaedics and Plastic Surgery

We have also proposed the need for another in Spine Surgery in conjunction with Neurosurgery.

1.4.1 Critical Progression points

Indicative levels of supervision are indicated for the end of each phase. At the end of Phase 2 trainees are required to reach level IV in both the shared and specialty-specific CiPs.

Excellence will be recognised by:

a) achievement of Level V in any of the CiPs
b) exceeding the supervision level expected for the end of Phase 1 and Phase 2
c) achievement of a supervision level at an earlier stage than would normally be expected
d) recognition of particularly good performance in any of the descriptors within a CiP

Capability in practice (shared)	**Supervision level (end of phase 2)**	**Supervision level (end of phase 3)**
1. Manages an out-patient clinic	Level III	Level IV
2. Manages the unselected emergency take	Level III	Level IV
3. Manages ward rounds and the ongoing care of inpatients	Level III	Level IV
4. Manages an operating list	Level III	Level IV
5. Manages a multi-disciplinary meeting	Level III	Level IV

1.4.2 Training Pathway

1.4.3 Proposed place of Credentialing in Training/Post-training

Credentialing is defined as a process which provides formal accreditation of competencies (which include knowledge, skills and performance) in a defined area of practice, at a level that provides confidence that the individual is fit to practise in that area (GMC).[7]

Credentialing will be particularly relevant for surgeons who work in niche areas of medical practice that are not covered by existing standards for training and in new and emerging areas of medical practice.

The SAC is keen to work with the GMC to introduce a process of credentialing where deemed necessary to enhance medical regulation and patient protection by:

- providing a framework of standards and accreditation in areas where regulation is limited or absent
- providing patients and employers with information about doctors' particular capabilities and current areas of competence
- providing better recognition of doctors' capabilities to support:
    - improvements in workforce flexibility and professional mobility
    - the new architecture for postgraduate medical education
- providing recognition of the capabilities of T&O surgeons to assure the public, service providers and employers that they have met and are maintaining UK standards in their field
- developing detailed frameworks, standards, assessment processes and proposals for quality assurance

Areas within the specialty which could be considered suitable for credentialing (these are rare conditions where skills are not expected to be at level 4 by certification):

- Paediatric spinal deformity
- Primary bone tumour
- Peripheral Nerve/Brachial plexus repair
- Paediatric limb reconstruction

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