T&O SURGERY PROFORMA

Domain: O - Objective / K - Knowledge / CS - Clinical skills / TS - Technical skills

MAIN CURRICULUM DOCUMENT

Page	Section	Change	Reason
Cover	1	Amended cover version and implementation dates	Version control / update
Acknowledgements	2	Updated authorship	Version control / update
2.1	4	Addition of the words 'and Ireland'	Previous omission
12/13	3.5.1	Added paragraphs relating to Genomics, Clinical Informatics and Sustainability	These paragraphs have been included in surgical curricula to emphasise the importance of emerging areas in healthcare, ensuring that trainees remain adaptable and informed as surgical practice evolves.
32	5.3.6	Removal of wording after phase 2 The examination is taken after successful completion of phase 2. Deletion of the words 'and the standard is set at having the knowledge, clinical and professional skills at the level of a day-one consultant in the generality of the specialty, and must be passed in order to complete the curriculum'	Removal of wording after phase 2 was carried out because the words following 'phase 2' implied that the knowledge, clinical and professional skills acquired at the end of phase 2 are at the level of a day one consultant – This is not the case.
35	5.4	In the Management and leadership section – addition of 'across relevant health services and the variation' between nations.	In response to lay/patient feedback, there is a recognised need to strengthen trainees' understanding of the structure and functioning of health systems across the UK. Knowledge limited to the trainee's immediate training jurisdiction may not sufficiently prepare them for the realities of working within or alongside other devolved health systems.
35	5.4	In Clinical experience section – added wording – 'To ensure opportunities to acquire the breadth of curricular competencies in a variety of learning environments and cultures,	This generic wording has been incorporated into all curricula where possible to ensure optimal exposure and learning from different training cultures and environments, as well as clarifying the need for full curricula coverage. This update aligns with existing language

		trainees should, where geographically possible, complete a training programme that includes rotation through multiple units or sites. This recognises the importance of an ability to constructively compare different approaches to delivering surgical patient care and work-based cultures'.	with other curricula, namely Urology, Plastic Surgery and Otolaryngology.
		'specialty interests' changed to 'special interest'	Typographical correction.
Throughout • Health Education England (HEE) replaced with NHS England (update) / HEE local offices removed • Corrected hyperlinks • Amended footer date			Editorial updates

SYLLABUS CHANGES

Section	**Change**	Reason
Appendix 2, syllabus Applied Clinical Skills	Standards for clinical and technical skills 2. Can do with assistance The words 'under direct supervision' were added to standard 2, bullet 2.	This is to clarify that, while trainees at this level can perform a straightforward procedure fluently, they must do so with continuous oversight from a supervisor to ensure patient safety and proper skill development. This addition also helps to better differentiate this level from others, particularly level 3, where trainees begin to work more independently.
	Standards for clinical and technical skills 4. Competent to do without assistance, including complications The words 'day-one' were added to standard 2, bullet 2.	This change is to further clarify the standard at completion of training.

Syllabus topic	**Domain (O / K / CS / TS)**	**Describe the change**	**Reason for change**
Applied Clinical (Basic) Science	**K**	1. Structure and function of connective tissues	

		Knowledge level for core surgery (phase 1) has been changed from level 2 to level 3.	This is expected knowledge from core surgical trainees, and is often asked at ST3 selection interviews.
		2. Metabolism and hormonal regulation AND Metabolic and immunological response to trauma These two domains are now combined into "Physiological response to trauma".	Streamlines and brings into line with the critical condition of the same name.
		3. The sections on osteoarthritis, osteoporosis, metabolic bone disease and rheumatoid arthritis and other arthropathies have been changed to knowledge level 2 for core surgery instead of level 3, as this is what would be expected from a core trainee.	This is the level of knowledge expected from a core trainee.
		4. Infection of bone, joint, soft tissue, including tuberculosis, and their prophylaxis 5. Prosthetic infection These topics have been combined into into "Diagnosis and management of bone and joint infection, including Prosthetic Joint Infection and Fracture-Related Infection"	Streamlines and includes Fracture-Related Infection, which is now included in the British Orthopaedic Association Standards for Trauma guidelines: BOAST - Fracture Related Infections (FRI)

		6. "Surgery in high risk and immuno- compromised patients" has been changed to "Risk management in patients with medical co-morbidities"	This makes it more holistic and inclusive of other medical conditions which have a bearing on surgery.
		7. "Pain and pain relief" and "Behavioural dysfunction and somatization" have been combined into "Management of pain and pain-related behaviour"	This is a more respectful term than "behavioural dysfunction" and more in keeping with modern medicine.
		8. Musculoskeletal imaging: x-ray, contrast studies, CT, MR, ultrasound, radioisotope studies – the knowledge level for core surgery (phase 1) has been changed from level 3 to level 2.	This is the level that would be expected from core trainees.
		9. Design of theatres - the knowledge level for core surgery (phase 1) has been changed from level 3 to level 2.	This is the level that would be expected from core trainees.
		10. "Safe use of radiation in theatre" has been added.	

		11. Medical ethics - Safeguarding now included 12. Non-technical skills for surgeons has been added. 13. “Audit” has been changed to “Audit and quality improvement”	This is an important topic for protection of all staff in theatre. This is included in the vascular and cardiac surgery curricula. In particular, the risk of breast cancer in female orthopaedic surgeons has been reported to be higher than the normal population, so understanding how to safely manage radiation in theatre for all trainees and all surgeons is of sufficient importance to be included in the curriculum. Radiation Exposure in Theatre and Associated Risks This is now included in Generic Professional Capabilities Inclusion of these skills is highly recommended, as there is good evidence that they impact on surgical outcomes. Evidence can be provided in the form of a course, reflections in the portfolio which demonstrate understanding, or feedback in the MCR and MSF. Yule S, Paterson-Brown S. Surgeons' non-technical skills. Surg Clin North Am. 2012 Feb;92(1):37-50. doi: 10.1016/j.suc.2011.11.004. Epub 2011 Dec 28. PMID: 22269259. This is a broader term. Audit is used for conditions or pathways that have a recognised standard against which to audit. Quality improvement is a broader term and is used in a wide variety of situations to examine and improve clinical practice.

Foot and Ankle	**k**	**14.** Surgical approach to Weber B ankle fractures has been replaced with “all ankle fractures”	Trainees should have knowledge to treat all types of ankle fractures. This would be expected from any Day 1 Consultant at District General Hospital level.
Knee			
Hip			
Spine	**K**	15. The knowledge level for “Anatomy and principles of surgical approaches: anterior and posterior at each level and endoscopic access” has been changed from level 1 to level 2 for core trainees (phase 1). 16. The knowledge level for “Acute and chronic infections of the spine” has been changed from level 1 to level 2 for core trainees (phase 1). 17. The knowledge level of “Deformities of the spine, paediatric and adult, including coronal and sagittal plane deformities” has been changed from level 4 to level 3 for ST3 – ST8. 18. The knowledge level for “Spinal instability as applied to trauma, tumour, infection and spondylolysis/listhesis” has been changed from level 3 to level 4 for ST3 – ST8.	Questions on surgical approaches are asked at ST3 selection interviews, and we would expect this knowledge at the end of phase 1. It would be expected that core surgical trainees can identify life-threatening sources of sepsis such as spinal infections. Spinal deformity and its management is specialty specific knowledge. Given it is never managed by non-spinal surgeons, trainees need to know to refer it and little else. It is also NOT a level 4 CBD in the CCT requirements**.** The management of spine trauma is a level 4 CBD mandated for CCT and has been for many years. By definition this knowledge must be level 4.

		19. The knowledge level for "Important complications of inflammatory spinal conditions - rheumatoid instability and ankylosing spondylitis" has been changed from level 3 to level 4 for ST3 – ST8.	As per above - this has been a level 4 mandated CBD for over 10 years so cannot be level 3 by definition.
		20. The knowledge level for "The painful spine in the child" has been changed from level 3 to level 4 for ST3 – ST8.	As per above - this has been a level 4 mandated CBD for over 10 years so cannot be level 3 by definition.
Hand	**K**		
Elbow		21. The knowledge level for "Compressive neurological problems around the elbow" has been changed from level 3 to level 2 for core surgery (phase 1)	Core trainees would only be expected to know the basics, this is a specialised topic.
		22. The knowledge level for "Inflammatory, degenerative and infective conditions of the elbow" has been changed from level 3 to level 2 for core surgery (phase 1)	Core trainees would only be expected to know the basics, this is a specialised topic.
		23. The knowledge level for "History and examination of the elbow including special tests" has been changed from level 3 to level 2 for core surgery (phase 1)	Core trainees would only be expected to know the basics, this is a specialised topic.
Shoulder			

Trauma	**K**	24. Surgical approaches for bone and soft tissue injuries *Approaches for hip fractures* *Approaches for Weber B fractures* The last two are included in the first and so have been removed. 25. Weber B ankle fractures has been changed to "All ankle fractures"	Unnecessary repetition, and trainees need to know approaches to all ankle fractures, not just Weber B. A day one consultant should be able to manage all ankle fractures, not just Weber B.
Paediatric Orthopaedic Surgery	**K**	26. "Conditions in childhood resulting in deformity e.g. spina bifida, cerebral palsy and muscular dystrophy" has been split into two separate domains as follows: "Cerebral palsy" And "Other childhood conditions resulting in deformity, such as spina bifida, neural tube defects and muscular dystrophy" 27. The knowledge level for "Normal variants in paediatric orthopaedics" for ST3 - ST8 has been changed from level 3 to level 4.	Cerebral palsy is a common (1.7%) lifelong condition which has significant musculoskeletal consequences. (https://cks.nice.org.uk/topics/cerebral-palsy/background-information/prevalence/) and all consultants on an unselected take need this level of knowledge. Spina bifida is very much less common. This allows the knowledge level to be level 4 for Cerebral palsy and level 3 for Other conditions, for ST3 – ST8. T & O consultants need to be aware of normal variants in order to distinguish these from abnormal conditions in childhood which have significant clinical consequences.

		28. The knowledge level for "Diseases affecting bones in childhood, including infection" has been changed from a level 3 to a level 4 for ST3 - ST8.	T & O consultants are expected to know this in detail. We have proposed this as a critical condition, for which a mandatory CBD is required.
		28b. Assessment of Childhood Disability	Assessment of child with a disability would be expected of a day one consultant. The level has therefore been changed from a level 3 for ST3-ST8 to a level 4.
		29. Syndromes of paediatric orthopaedic importance" has been removed.	This term is too vague to be useful, we would like to remove it as it does not mean anything in particular and trainees do not understand it.
		30. Cerebral palsy knowledge level has changed from level 3 to level 4 for ST3 – ST8.	This is a relatively common condition, and trainees are expected to be familiar with it.
		31. Neuromuscular disorders" has been removed.	All curriculum points covered by this catch all term are covered in the rest of the curriculum.
		32. The knowledge level for "The treatment of normal variants such as knock knees, flat feet, femoral anteversion" has been changed to level 4 instead of level 3 for ST3 to ST8.	T & O consultants should have detailed knowledge of these conditions in order to recognise and differentiate between them and other conditions which have significantly different clinical courses, prognoses and treatment.
		33. "Determining physical disability" has been split into: "Musculoskeletal assessment of child with cerebral palsy" And "Determining physical disability"	Musculoskeletal assessment of child with cerebral palsy should be at knowledge level 4 for ST3 - ST8, and knowledge level for Determining physical disability can be kept at level 3 for ST3 - ST8.

		34. "Screening for congenital abnormalities" has been split into "Screening for DDH" And "Screening for congenital abnormalities (other)"	Screening for DDH in part of the National Infant Physical Examination (NIPE) screening programme. https://www.gov.uk/government/publications/newborn-and-infant-physical-examination-programme-handbook/newborn-and-infant-physical-examination-screening-programme-handbook Consultants need to have level 4 knowledge in this area to provide this service. This allows "Screening for congenital abnormalities (other)" to be kept at knowledge level 3
APPLIED CLINICAL SKILLS			
Trauma Spine	**CS/TS**	1. "Application halo / tong traction cervical spine" has been changed from level 3 to level 2 for ST3 – ST8	This is rarely performed in most units and is usually a consultant or post CCT fellow procedure. It is entirely possible an SpR will never even see one applied.
Elective Spine	**CS/TS**	2. The competence level for "Thoracic outlet release (not excision cervical/1st rib)" has been changed from level 4 to level 3 for Specialty interest trainees 3. The competence level for "Thoracoscopic spinal procedures +/- instrumentation" has been changed from a level 4 to a level 3 for Specialty interest trainees.	The condition is very rare, and it is unlikely that many specialty interest trainees will see this procedure. Illig KA, Rodriguez-Zoppi E. How Common Is Thoracic Outlet Syndrome? Thorac Surg Clin. 2021 Feb;31(1):11-17. doi: 10.1016/j.thorsurg.2020.09.001. PMID: 33220767 Not all spinal centres will perform this procedure. Very unit dependent, even at fellowship level.

		4. The competence level for "Lumbar epidural" has been changed to level 1 instead of level 3 for ST3 - ST8.	No longer funded by NHSE - very small numbers performed (<10/year between 9 consultants in a large spinal unit). Recommendations | Low back pain and sciatica in over 16s: assessment and management | Guidance | NICE
		5. The competence level for "Nerve root injection for lumbar spine" has been changed from level 1 to level 2 for ST3 – ST8.	Trainees can learn image interpretation and triangulation which is a core skill of all image-driven orthopaedic interventions. It is the only procedure in spinal surgery that trainees may be able to do with minimal supervision in six months so a good way to show learning and progression.
		6. "Lumbar disc replacement" competence level for Specialty interest has been changed from level 3 to level 1.	Lumbar disc replacement no longer done on NHS and is not approved by NHSE. Recommendations | Low back pain and sciatica in over 16s: assessment and management | Guidance | NICE
Trauma Shoulder			
Elective Shoulder	**CS/TS**	7. "Rotator cuff repair (open) +/- acromioplasty" competence level has been changed from level 2 to level 3 for ST3 – ST8.	This procedure may be necessary in an emergency situation, as part of an open reduction of a shoulder dislocation.
Trauma Elbow			
Elective Elbow	**CS/TS**	8. "Total elbow replacement revision 1st stage" competence level has been changed from level 4 to level 3 for specialty interest trainees.	Uncommon in all but specialist hubs – unreasonable to expect all specialist interest trainees to be competent

		9. "Total elbow replacement revision 2nd stage" competence level has been changed from level 4 to level 3 for specialty interest trainees.	Uncommon in all but specialist hubs – unreasonable to expect all specialist interest trainees to be competent
Trauma Hand		10. The competence level for "Metacarpal fracture (not 1st or 5th) MUA +/- POP" changed from level 5 to level 4!	There is no such thing as a Level 5, this is an error.
Elective Hand			
Trauma Hip		11. The competence level for "Diaphyseal femur fracture application of external fixator" has been changed from level 3 to level 4 for ST3 - ST8.	This is an essential skill for a T & O consultant, and is an index procedure, for which mandatory PBAs are required. By definition, it therefore should be a level 4.
Elective Hip			
Trauma Knee		12. "Diaphyseal tibial fracture external fixation (including frame)" has been changed to "Diaphyseal tibial fracture external fixation (excluding ring fixator)" The competence level has been changed from level 3 to level 4 for ST3 – ST8.	The term "frame" is confusing, and should not be used, as it can refer to a number of different appliances. Ring fixation is a subspecialty skill and would not be expected for ST3 - ST8. External fixation is an index procedure, for which mandatory PBAs are required. By definition, it therefore should be a level 4.
Elective Knee			
Trauma Foot and Ankle	**CS**		
Elective Food and Ankle	**CS**	13. The competence level for First MTPJ arthrodesis has been changed from level 3 to level 4 for ST3 - ST8.	This is a commonly performed procedure, and arthrodesis is now being included in the index procedures (see below). The skill set required to perform this procedure is the same as for first MTPJ osteotomy, which is currently level 4 for ST3 – ST8.

Paediatric Orthopaedics		14. “Closed, percutaneous reduction of radial head and neck fractures” has been changed to “Closed, percutaneous and open reduction of radial head and neck fractures”.	A T & O consultant may be expected to perform an open reduction in the event that a closed reduction is not possible.
		15. “Chari medial displacement osteotomy of the pelvis” has been removed.	‘Chari medical displacement osteotomy of the pelvis’ has been replaced by other techniques, and has been crossed out of syllabus. Jelicic J, Buterin A, Vrgoc G, Butorac Z, Tudor A, Sestan B, Jotanovic Z. Chiari pelvic osteotomy does affect hip survival: a long-term follow-up study. Hip Int. 2021 Jul;31(4):548-554. doi: 10.1177/1120700020901836. Epub 2020 Jan 23. PMID: 31971009.
		16. The competence level of “Surgical correction of clubfoot” has been changed from level 2 to level 1 for ST3-ST8.	The treatment of CTEV (“clubfoot”) has been revolutionised since the introduction of a casting method (“Ponseti treatment”) in the early 2000s. 97% of practitioners worldwide use the Ponseti treatment as first line treatment. Trainees need to be aware of the surgical options but only at level 1. Asitha J, Zionts LE, Morcuende JA. Management of idiopathic clubfoot after formal training in the Ponseti method: a multi-year, international survey. Iowa Orthop J. 2013;33:136-41. PMID: 24027473; PMCID: PMC3748869.

Paeds T&O Appendix Three – critical condition (page 47)	**O/K/CS/TS**	**Removed** • Spinal infections • The painful spine in the child • The painful hip in the child **Added** • Spinal infections (adult or child) • The acute painful hip in the child (not infection) • Primary bone or joint infection in a child (septic arthritis or osteomyelitis)	The critical CBDs are to ensure competency when on-call for conditions, which will have life changing consequences if not correctly treated. As currently structured trainees can use elective clinic patients (eg scoliosis for painful spine, chronic hip pain in an adolescent etc.) It is possible to fulfil these critical CBDs without either seeing an MSK infection or a SUFE. This change is wording ensures the original intention of the critical CBDs is restored. This change is necessary having been highlighted by TPDs, LMs and trainees concerning the inconsistency of evidence produced. It does not increase the number of critical CBDs.
Paeds T&O Appendix 4 – Index procedures and indicative numbers (page 49)	**O/CS**	**Removed** Intramedullary nailing (including elastic nailing) for fracture or arthrodesis (30) femur shaft, long CMN for subtrochanteric fracture, tibia shaft, humerus, hindfoot nail, arthrodesis e.g. knee **Added** Intramedullary nailing for fracture or arthrodesis (30) femur shaft, long CMN for subtrochanteric fracture, tibia shaft, humerus, hindfoot nail, arthrodesis e.g. knee	Since its introduction more than 30 years ago flexible nailing has become the gold standard treatment for fractures of the forearm. It is recommended by GIRFT and is a quality standard indicator. Femoral flexible nailing is the standard treatment for children with femoral shaft fractures between approximately 4 and 10. It is a simple skill, needed by day one consultants on the on-call rota, but requires different skills from standard rigid nailing (ie the insertion of a balanced pair of nails from the side of long bones, avoiding the growth plate). It makes no sense to include this type of nail with rigid nails. Model hospital data shows there were on average 2169 flexible nails per year in England, in the three years to Sep 2023. This is more than supracondylar fractures of the humerus (1818/yr), an indicative number that trainees achieve without difficulty.

		Added Fixation of long bones in children (excluding K-wires) (5) Any long bone. Radius OR ulna OR both counts as one case	The treatment of long bone fractures in children requires a different set of skills to adult practice (see above) the introduction of this standard ensures that there is evidence of competence in this area required for day one consultant practice of the unselected trauma take.
Appendix 4: Index procedures/indicative numbers (pages 48, 49)	**O/CS/TS**	**Changed** Osteotomy (20) **To** Osteotomy (20) which may include a maximum of 5 fusions (lesser toe fusions do not count). **Changed** Compression Hip Screw for Intertrochanteric Fracture Neck of Femur (40) **To** Fixation of fractured neck of femur (40) **Changed** Application of Limb External Fixator (5)	The skills required of osteotomy and fusion are similar (restoration of normal anatomy, accuracy of bony cuts, stable fixation) and this will allow more flexibility and make the numbers easier to achieve on a practical level. This includes other methods of fixation of intertrochanteric fracture of the neck of femur, such as short intramedullary nails, and is more in keeping with modern practice. It is now also in line with the ST3 selection criteria. This is an essential trauma skill, and reflects modern practice, where external fixators are used increasingly as temporary stabilisation devices in patients with polytrauma, or in trauma units prior to transfer of complex injuries to a major trauma centre. A recent nationwide study indicated that

		To Application of Limb External Fixator (10)	approximately 30% of open fractures present initially to a non-specialist centre, and require initial stabilisation prior to transfer to a specialist centre. It is an essential skill for a day one consultant, and will make up a large proportion of their trauma practice Whiting PS, Obremskey W, Johal H, Shearer D, Volgas D, Balogh ZJ. Open fractures: evidence-based best practices. OTA Int. 2024 May 3;7(3 Suppl):e313. doi: 10.1097/OI9.0000000000000313. PMID: 38708043; PMCID: PMC11064778. Winstanley RJH, Hadfield JN, Walker R, Bretherton CP, Ashwood N, Allison K, Trompeter A, Eardley WGP; Open-Fracture Patient Evaluation Nationwide (OPEN) collaborators. The Open-Fracture Patient Evaluation Nationwide (OPEN) study: the management of open fracture care in the UK. Bone Joint J. 2022 Sep;104-B(9):1073-1080. doi: 10.1302/0301-620X.104B9.BJJ-2022-0202.R1. PMID: 36047016.
		Changed Tension-band wiring **To** Cerclage compression technique	The technique is now often performed with sutures or other modes of stabilisation, rather than simply with wires. In addition, the tension band technique cannot be applied consistently to each part of the fracture. The terminology is now consistent with that used in fracture fixation courses such as the AO course. Tension band wiring for Ulna, articular, olecranon