



Improving core surgical training in a major trauma centre



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ABSTRACT

Introduction: English Major Trauma Centres (MTCs) were established in April 2012. Increased case volume and complexity has influenced trauma and orthopaedic (T&O) core surgical training in these centres.

Objectives: To determine if T&O core surgical training in MTCs meets Joint Committee on Surgical Training (JCST) quality indicators including performance of T&O operative procedures and consultant supervised session attendance.

Methods: An audit cycle assessing the impact of a weekly departmental core surgical trainee rota. The rota included allocated timetabled sessions that optimised clinical and surgical learning opportunities. Intercollegiate Surgical Curriculum Programme (ISCP) records for T&O core surgical trainees at a single MTC were analysed for 8 months pre and post rota introduction. Outcome measures were electronic surgical logbook evidence of leading T&O operative procedures and consultant validated work-based assessments (WBAs).

Results: Nine core surgical trainees completed a 4 month MTC placement pre and post introduction of the core surgical trainee rota. Introduction of core surgical trainee rota significantly increased the mean number of T&O operative procedures led by a core surgical trainee during a 4 month MTC placement from 20.2 to 34.0 ($p < 0.05$).

The mean number of hip hemiarthroplasty procedures led by a core surgical trainee during a 4 month MTC placement was significantly increased (0.3 vs 2.4 [$p = 0.04$]). Those of dynamic hip screw fixation (2.3 vs 3.6) and ankle fracture fixation (0.7 vs 1.6) were not. Introduction of a core surgical trainee rota significantly increased the mean number of consultant validated WBAs completed by a core surgical trainee during a 4 month MTC placement from 1.7 to 6.6 ($p < 0.0001$).

Conclusions: Introduction of a departmental core surgical trainee rota utilising a 'problem-based' model can significantly improve T&O core surgical training in MTCs.

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Introduction

The training of the next generation of trauma and orthopaedic surgeons in England requires a modified approach. Given the established impact of both the European Working Time Directive (EWTD) working time restrictions and increased service provision emphasis there are declining opportunities for surgical trainees to obtain training within a traditional 'firm-based' model.

Continuity of training between trainee and trainer is being increasingly eroded by trainee shift work and service provision commitments. Consequently, it is essential that remaining dedicated training time for aspiring surgeons is used to its greatest potential.

However, the structure of training in trauma and orthopaedic surgery in England presents a challenge to this. Having completed a medical degree, which on average includes 2.7 weeks dedicated to trauma and orthopaedic surgery [1], a doctor in England then commences a Foundation Programme. This is 'a two-year generic training programme which forms the bridge between medical school and specialist or general practice training' [2].

Upon completion of the first year of this programme, the doctor is granted full registration with a licence to practise by the United

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Kingdom General Medical Council (GMC). With satisfactory completion of the second year of the programme, the doctor is awarded a Foundation Achievement of Competence Document (FACD) which is required to enter a further training programme.

Each doctors Foundation Programme typically contains six four-month placements including a combination of medical and surgical hospital specialties and community specialties. It is possible that trauma and orthopaedic surgery be included in a doctors programme, but for the majority it is not.

Upon completion of a Foundation Programme, a doctor wishing to become a trauma and orthopaedic surgeon in England is required to apply and enter core surgical training.

Core surgical training is a two-year programme in the generality of surgery, designed to provide a broad range of experience in a number of surgical specialties. Entrance is via a standardised and quality-controlled national recruitment process. The ratio of applicants to posts was 1.9 in 2013 and 2.2 in 2014 [3].

Each programme contains exposure to a combination of surgical specialties. Some programmes are 'themed' to allow a trainee to gain more experience in a particular surgical subspecialty. However, placements are 4 or 6 months in duration and trainees typically rotate to a different hospital between placements. This inevitably interferes with continuity in training which is particularly critical in a 'firm-based' training model whereby trainer and trainee have repeated exposures to learning opportunities that allow formative assessment, feedback and future reassessment to occur.

This failure of the 'firm-based' model, coupled with the challenges of EWTD and service provision, necessitate a different training model to make core surgical training successful.

Core surgical training is a critical juncture between foundation and trauma and orthopaedic higher surgical training. The purpose of this early years training is twofold; firstly it provides 'broad-based initial training in surgery relevant to the practise of surgery in any specialist surgical discipline' [4]. This is defined within the common component of the Intercollegiate Surgical Curriculum Programme (ISCP) and examined in the Membership of the Royal College of Surgeons (MRCS) – an exit requirement for core surgical training.

Secondly, it provides 'early specialty training such that trainees can demonstrate they have the knowledge, skills and professional behaviours to enter higher specialty training in a surgical specialty' [4]. This component is not tested in the MRCS but through workplace-based assessments (WBAs).

Entry into trauma and orthopaedic higher specialty training involves a standardised and quality-controlled national recruitment process. Trainees are tested against Specialist Advisory Committee (SAC) defined competencies.

Having acquired sufficient early specialty training is critical to a core surgical trainees success in this process. As outlined previously, it may be that the only training an aspiring surgeon may have had in trauma and orthopaedic surgery is 2.7 weeks as a medical student and their core surgical training. This emphasises the importance of quality core surgical training.

Recruitment into trauma and orthopaedic specialty training is particularly competitive, with 522 applicants for 123 posts in 2013 and represents the 'bottle neck' to many surgical trainees progression in England. However, that year core surgical trainees represented the most successful cohort in the process, with 40% appointed to higher specialty training [5]. Evidently, a structured core surgical training programme can provide ideal preparation for progression into specialist orthopaedic training.

The Joint Committee on Surgical Training (JCST) and SAC have developed quality indicators to assess the quality of surgical training placements, including those providing trauma and orthopaedic core surgical training. Specified quality indicators

include trainees being given the opportunity to perform dynamic hip screw fixation, hip hemiarthroplasty and ankle fracture fixation procedures, and regularly attend consultant supervised fracture clinics [6]. Trauma and orthopaedic placements achieving these quality indicators can provide early specialty training that affords the development of skills and the acquisition of knowledge that core surgical trainees need to progress to the next rung on the surgical training ladder.

In April 2012, the English National Health Service introduced the Trauma Network system with the aim of improving the quality of trauma care. Major Trauma Centres were designated to provide specialist care for patients with multiple injuries that could result in death or serious disability.

Many trauma and orthopaedic core surgical training placements are at Major Trauma Centres. Review of the core surgical training programmes offered in 2015 demonstrates that at least 155 core surgical trainees rotate through an orthopaedic major trauma placement annually. Concerns have been expressed that the increased case volume and complexity at these centres could be detrimental to training - particularly the early specialty trauma and orthopaedic training required for entrance and success in higher specialty training.

This study examined if quality indicators for trauma and orthopaedic core surgical training are being, or could be achieved in a major trauma centre. The study also demonstrated a method by which core surgical training in major trauma centres can be improved.

Methods

An audit cycle was performed to assess and improve standards of orthopaedic core surgical training in a single English Major Trauma Centre (MTC).

The electronic operative logbook (www.elogbook.org) and Intercollegiate Surgical Curriculum Programme (ISCP) records of core surgical trainees that had completed a 4 month orthopaedic rotation at the MTC over an 8 month duration were retrospectively analysed.

Records were obtained with consent of involved trainees via the ISCP account of the regional core surgical Training Programme Director (TPD).

Data collected from operative logbooks included the total number of operative procedures a trainee had performed during their rotation (procedures with supervision recorded as Supervised-trainer scrubbed, Supervised-trainer unscrubbed but in theatre, and Performed) and the total number of dynamic hip screw fixation, hip hemiarthroplasty and ankle fracture fixation procedures a trainee had performed during their rotation.

Data collected from ISCP records included the total number of consultant-validated WBAs that a trainee had recorded during their rotation.

Audit standards were based on regional requirements where it is expected that trainees should perform 30 operations and complete five consultant validated WBAs per rotation.

Upon completion of this audit, a weekly orthopaedic department core surgical trainee rota was introduced (Fig. 1). This rota included allocated timetabled sessions that optimised clinical and surgical learning opportunities whilst ensuring service provision was maintained. It was designed to compliment a 'problem-based' learning model rather than 'firm-based'. Consequently, trainees were allocated to sessions with the best learning opportunities rather than necessarily those of a consultant for which they were working. The rota was produced by a core surgical trainee working within the department using a framework that ensured learning opportunities were distributed equally.

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