

Empowering future surgeons: a workshop bridging the gap between graduation and the operating room

Abstract

Aims/Background Feedback from foundation trainees in Blackpool highlighted low levels of confidence with the prospect of surgical on-call shifts. Key areas of concern were assessing and managing the acute surgical patient, identifying which patients need an operation and having the technical skills to proficiently assist in theatre. This lack of confidence prevents trainees engaging in what should be an educational and rewarding rotation.

Methods The authors designed and facilitated a day of workshops, addressing these key educational needs. Bespoke to the trust's services, lectures were delivered by core surgical trainees on the assessment and management of acute surgical patients in general surgery, urology and trauma and orthopaedics. For the development of technical skills, an afternoon of surgical skills workshops covered suturing, knot tying, laparoscopic principles and theatre etiquette. Small groups of foundation trainees rotated through each workshop, delivered by surgical registrars (ST3+), to ensure high fidelity training.

Results Pre- and post-course questionnaires assessed the efficacy of teaching. Out of a total of 72 foundation trainees, 55 attended the teaching day, of which 45 (81.8%) completed pre- and post-course surveys using a six-point modified Likert scale. Rates for satisfactory confidence levels while on-call improved from 66 to 100% of participants after the course. Suturing skills satisfaction rose from 37.5 to 100%, among other impact markers.

Discussion All trainees that attended the course displayed a marked improvement. This course is now being incorporated into foundation teaching programmes at a regional level and has scope to be expanded nationally.

Key words: Foundation training; Simulation; Surgical education

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Background

Several focus groups seeking feedback from foundation trainees at Blackpool Victoria Hospital, part of Blackpool Teaching Hospitals NHS Foundation Trust, highlighted various levels of undergraduate surgical experience, but universally low levels of confidence regarding the prospect of a surgical on-call shift. In line with this feedback, research has highlighted significant disparities in levels of preparedness in junior doctors who have graduated from various medical schools in the UK (Morrow et al, 2012). The main areas of anxiety from the authors' cohort were assessing and managing an acute surgical patient, deciding which patients require surgery and possessing the technical skills to proficiently assist in theatre. This is reflected in the literature, which states that newly qualified doctors feel unprepared with the prospect of clinical reasoning, making diagnoses, emergency management, and working as part of a multidisciplinary team (Monrouxe et al, 2017).

It is reasonable to suggest that these areas of concern may be exacerbated within surgical specialties, as often senior support can be otherwise engaged when in theatre. Work undertaken by Brennan et al (2010) supports this theory, suggesting increased levels of anxiety from undergraduates transitioning to junior doctors, particularly those working in surgical fields. This anxiety is likely to be further confounded by the fact that often service provision demands cross cover of other surgical specialties. A 1-day surgical

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teaching course was designed as an intervention to remedy the lack of confidence and the inconsistency between juniors. The aim was to equip all foundation level doctors in the authors' trust with the skills and knowledge to proficiently navigate their surgical on-call shifts and, furthermore, to encourage them to be more involved in an educational and fulfilling rotation.

Programme design

A curriculum was created in collaboration with the foundation programme directorate, key stakeholders from the various surgical teams through which the foundation trainees would rotate, and the skills and simulation department at the authors' institution. A full day of surgical teaching took place for foundation year 1 and year 2 doctors during one of their allocated foundation teaching days. Pre- and post-course questionnaire data were anonymised.

Morning lectures were delivered by core surgical trainees using Microsoft Teams to ensure social distancing during the COVID-19 pandemic. Bespoke to the surgical services offered at the trust, these lectures covered the assessment and management of common surgical pathologies in the areas of general surgery, urology, and trauma and orthopaedics. During the talks, emphasis was placed on identifying which patient should undergo a surgical procedure, empowering juniors to begin the appropriate work up, including time-sensitive investigations and knowing when to escalate a patient to a senior member of the surgical team. The lectures were reviewed before presentation by consultants of the respective fields for quality assurance.

To address the practical skills development need for a surgical on-call shift, an afternoon of skills workshops was organised. Three large rooms were allocated, each to a particular theme: theatre etiquette, foundation surgical skills and laparoscopic skills. This ensured social distancing measures could be implemented in line with the COVID-19 regulations at the time. Trainees were divided into small groups and rotated through each workshop at 1-hour intervals, with 15-minute intermissions to allow for trainee rotation, refreshment, resetting and cleaning of materials, and completion of feedback. A minimum of two surgical registrars (ST3+) were allocated to the six trainees to ensure a high-fidelity simulation.

A theatre etiquette station was delivered by theatre staff, this initial meet and greet was designed to help allay any initial theatre aversion commonly felt by non-surgically inclined trainees. The candidates were taught correct scrubbing technique, don and doffing protocols, as well as tips on how to maintain sterility throughout procedures.

The foundation surgical skills station was facilitated by surgical registrars (ST3+). Here, the candidates were able to learn and practice fundamental surgical skills (Table 1) under experienced supervision with immediate feedback in a pressure-free environment.

Finally, a laparoscopic skills station was facilitated by senior surgical registrars (ST4 and above, or locally employed surgical fellows with equivalent experience). After an initial introduction and explanation of key principles, such as the fulcrum effect, each candidate was allocated a box trainer. Six simple laparoscopic box trainers were set up with a web cam attached to a monitor. Each box trainer was equipped with two graspers, one pair of laparoscopic scissors and the various kits required to complete each task (Table 2). An initial demonstration with key learning points was given before each task.

Pre- and post-course surveys were completed by the candidates using a six-point modified Likert scale (0: confident, 5: very confident) in the key areas; managing acute surgical

Table 1. Fundamental surgical skills

Familiarisation with surgical instruments
Simple interrupted suture
Hand knot tying
Instrument knot tying
Continuous subcuticular suture

Table 2. Laparoscopic skills station tasks

Task	Objective
Polo mint stacking	Using two Johann Laparoscopic graspers, the candidate is meant to pick up a polo mint and place it on a vertical hook. This process is repeated to stack the polo mints
Bead transfer	Using two Johann Laparoscopic graspers, the candidate is meant to pick up a bead from dish 1, transfer the bead to the opposite grasper, and place the bead in dish 2
Sweet unwrapping	Using two Johann Laparoscopic graspers, the candidate is meant to unwrap a sweet at both ends to reveal the sweet
Camera operation	While one candidate performs the task with the laparoscopic instruments, the other uses the laparoscopic camera to assist

patients (including requesting the relevant diagnostics and escalation plans), deciding which patients should proceed to theatre, and suturing as well as knot tying skills. In addition, candidates were encouraged to leave free text feedback for the day.

Results

Of 72 total foundation trainees, 55 attended the teaching day, of which 45 (81.8%) completed pre- and post-course surveys. The remaining 17 trainees who did not attend were either on nights, zero days, on annual leave or absent as a result of illness.

The mean feedback scores pre- and post-course for the foundation year 1 and 2 trainees are seen in **Table 3**. **Table 4** highlights free text feedback.

Pre-course, 66% of foundation year 1 trainees scored themselves as three (average) or more when answering the question ‘How confident do you feel about managing a

Table 3. Mean feedback scores (range 0–5*) pre- and post-course for the foundation year trainees

Question	Foundation year 1		Foundation year 2	
	Pre-course	Post-course	Pre-course	Post-course
How confident do you feel about managing a surgical patient during an on-call?	2.7	4.1	3.0	4.3
How confident do you feel on which patients should proceed to theatre?	2.1	3.8	2.6	3.8
How do you rate your suturing skill?	2.3	4.3	2.1	4.3
How would you rate your knot tying skill?	1.8	3.9	2.3	4.2

* 0: not confident, 5: very confident

Table 4. Free text feedback

Positives	Practical skills were very useful
	Really relevant and helpful teaching – thank you!
	The skills session was really enjoyable and informative, really non-judgemental teaching which was fab
	Morning lectures were very good
	Everything went well. Please do this every year
	Excellent sessions well delivered
	Suturing skills and knot tying were useful for me, not covered much at my med school
Things to improve on	Perhaps some coverage of vascular as well would be great
	Improve interaction during lectures, otherwise very helpful useful day. One of the most relevant teaching days
	Longer for skills session

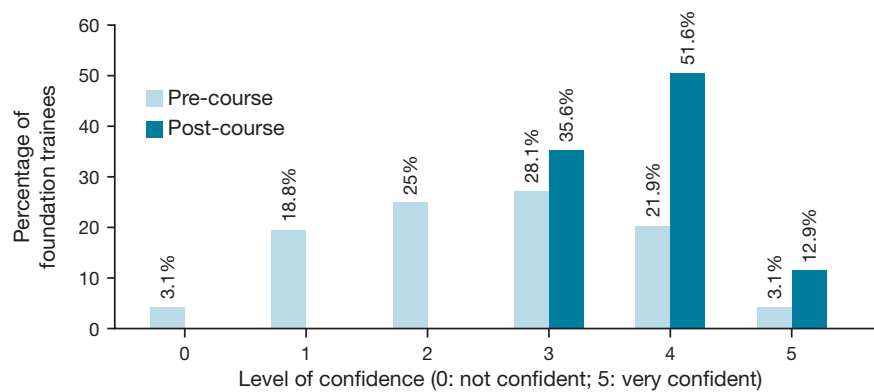


Figure 1. Foundation year 2 trainees' confidence in decision making regarding whether a patient should proceed to theatre.

surgical patient during an on call?'. This rose to 100% post-course. Similarly, the scores when answering the question 'How do you rate your suturing skill?' improved from 37.5 to 100%.

Foundation year 2 trainees who rated themselves as average or better in; 'How confident do you feel on which patients should proceed to theatre?' increased from 53.1 to 100% (Figure 1).

Discussion

Foundation trainees often express feelings of under-preparedness for surgical on-calls. Successive national surveys of foundation year 1 trainees in their first post have indicated the considerable stress and anxiety felt by many newly graduated doctors (Health Education England, 2019). While several initiatives have been introduced within the foundation teaching programme across the region to address these concerns, such as the well-known 'Asked To See the Patient' series (Hafiz et al, 2018), there remains a key gap in the curriculum to address the apprehension of not being equipped specifically for a surgical rotation.

Undergraduate surgical experience is varied, as the literature highlights (Marshall et al, 2015). The General Medical Council's (2020) annual specialty destination report highlights the significant difference in medical specialty destinations between graduates of different medical schools. As per the 2020 report, 3.2% of trainees from Hull were in surgical specialty training compared to 10.6% of Imperial College London's medicine graduates (General Medical Council, 2020). Surgically minded undergraduates may start engaging with specialty-specific surgical societies at university, which will complement their learning, but this self-selecting model is not fit for purpose, as all foundation trainees in the Northwest Deanery will undertake a surgical rotation. Widespread adoption of training in the form of this course or similar methods might help reduce these disparities.

The aim of this project was to provide a bespoke, trust-specific programme aimed at foundation doctors to make sure all participants have the underpinning knowledge, the basic practical skills and confidence in their preparedness to engage fully in their surgical rotation.

To remove the barriers typically associated with surgical courses, the programme is designed to be low cost to the trust and free to participants. It is delivered on a single designated foundation teaching day to reach all the foundation doctors, to be mindful about their time and the local schedule for foundation education. This teaching is ideally delivered early in the foundation year 1 programme to be of maximum value to all trainees.

The feedback has highlighted this method of teaching is well received and directly impacts the level of confidence for junior doctors during surgical rotation. Moreover, it provides established surgical trainees, such as core surgical trainees and registrars, with valuable opportunities to teach and gain organisational skills when implementing this course, which is vital for their own portfolios. It is a win-win situation for foundation trainees, course facilitators and the surgical directorates.

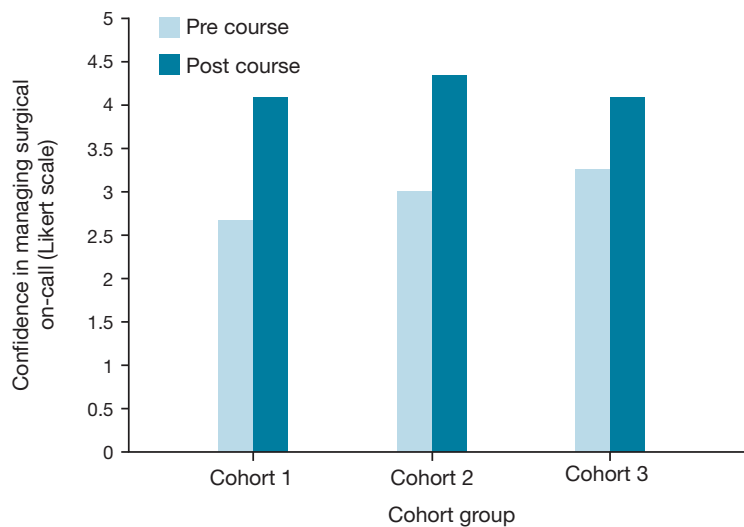


Figure 2. Cohort mean self-assessment scores in their confidence in managing surgical on-calls across 3 years of course delivery.

This surgical course is supported by the foundation, surgical and education teams at Blackpool Victoria Hospital. The course was initially delivered in the 2020 academic year and continues to run on an annual basis, with both trainee and trainer feedback remaining consistently positive (Figure 2). The project was presented at the Northwest Deanery's annual sharing best practice meeting where it was commended by the deanery's leadership body. Subsequently, several hospitals within the region have approached the design team for advice on running similar bespoke courses in their respective trusts. Surgically minded foundation year 2 trainees who participated in the course in their first year of training are encouraged to help organise the course for the foundation year 1 trainees and successively pass on the baton to their incumbents.

Limitations

This study used a qualitative methodology so there are no quantitative measures of how to improve training. The small sample size and single centre approach limit the generalisability of these findings.

Conclusions

More attention needs to be paid to preparing foundation trainees for their surgical rotations. Clinically themed lectures and practical skills workshops are effective in improving competence and confidence, which is exemplified by the feedback received from attendees of the course. The authors believe that this course will help the foundation programme deliver high quality, more targeted, relevant teaching. As such, this course has been incorporated into the foundation teaching programme locally, is in development within various trusts across the region and has scope to be expanded nationally.

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Key points

- There is an unmet educational need for site-specific surgical training for foundations doctors.
- There is good candidate feedback from a hands-on simulation approach which is low cost and high fidelity.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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