

Triennial Conference 2022

Making it better



THE ROYAL
COLLEGE OF
SURGEONS
OF EDINBURGH

ICOSET
2022



THE FACULTY
OF SURGICAL
TRAINERS

**A SELECTION OF POSTERS SUBMITTED TO ICOSET 2022
ON THEMES RELATING TO SURGICAL EDUCATION AND
TRAINING AND HOW THEY WILL CONTRIBUTE TO 'MAKING
IT BETTER'**

INDEX

1	The Role of Simulation-based Surgical Training. The Simulate International Randomised Controlled Trial	<i>Abdulla'f Aydin et al</i>
2	The Operating Theatre as a Classroom: A Scoping Review of the Operative Learning Environment	<i>Lucie J. Wright</i>
3	The Theatre Training Checklist (TTC): A Toolkit to Improve Operative Training	<i>J Aldoori et al</i>
4	"Common Bleeps" – Preparation for Surgical Practice as an FY1 Regional Teaching Course	<i>Sami M.S. Mustafa et al</i>
5	A Decade of Undergraduate Surgical Teaching: A Review of UK Medical Schools (2011 – 2021) and Analysis of the University of Dundee	<i>Andrew Keenlyside et al</i>
6	Evaluating Clinical Learning Environment for Postgraduate Trainees at a Tertiary Care Hospital in Pakistan	<i>Muhammad Rizwan Khan et al</i>
7	Awareness of non-technical skills and confidence in teaching non-technical skills among Consultant Surgeons - A questionnaire study	<i>R J Scurrah et al</i>
8	Examining attitudes towards the reporting of incidents of sexual assault and harassment amongst UK surgeons	<i>Sophie Howles et al</i>
9	Extended reality in medical education: a case study during the Covid-19 pandemic in the UK	<i>Timothy T Griffiths et al</i>
10	Impact of COVID-19 on delivery of Advanced Trauma Life Support® (ATLS®) courses in the United Kingdom	<i>Shah S et al</i>
11	Implementation of EPAs for Final Year Medical Students: Evaluation	<i>Stephen Tobin et al</i>
12	Mental skills - the next key surgical skill?	<i>Timothy Boddice et al</i>
13	Incorporation of formal Basic Surgical skills session into the surgical block for 4th year medical students-impact on skills acquisition and interest in surgical career	<i>Jan Sher Khan et al</i>
14	Return to Training: Supporting Orthopaedic Trainees	<i>Rebecca Hart et al</i>
15	Scotland's Improving Surgical Training (IST) pilot: a tale of two cultural webs	<i>Adarsh P Shah et al</i>
16	Surgeons' Engagement in Critical Reflection on their Education Practice	<i>Laiba Rahman et al</i>
17	Systematic review of different methods to collect undergraduate student evaluation of teaching for clinical skill training through clinical skills laboratories in last 10 years	<i>Cho Ee Ng et al</i>
18	The Influence of Legal Events involving Reflective Practice on the Views of Surgeons	<i>Ian Rudd</i>
19	The Effect of Pre-Operative Emotional Visual Stimuli on Simulated Laparoscopic Surgical Performance: A Pilot Cohort Study	<i>Andrew Keenlyside et al</i>
20	The Operating Theatre as a Classroom: A Scoping Review of the Operative Learning Environment	<i>Lucie J. Wright</i>
21	The perceived influence of COVID-19 on core surgical training in the United Kingdom	<i>Pedram Panahi et al</i>
22	The Use of Technical and Non-Technical Learning Objectives in Simulation Based Surgical Training	<i>Amalie A. Rosendal et al</i>
23	Department of Human Structure and Repair – Anatomy and Embryology	<i>Leander De Mol et al</i>
24	Surgeon's leadership style and team behaviour in the hybrid operating room	<i>Gilles Soenens et al</i>
25	Evaluating performance of peripheral endovascular interventions: a Delphi consensus The ENDORATE-PVI Framework	<i>Gilles Soenens et al</i>


Abdullatif Aydın ¹, Kamran Ahmed ¹, Nicholas Raison ¹, Takashige Abe ², Ali S. Gözen ³, Felix Moltzahn ⁴, Thomas Knoll ⁵, Wei Zhu ⁶, Thomas Kunit ⁷, Andreas Skolarikos ⁸, John Sfakianos ⁹, Andrea Lantz ¹⁰, Ben Chew ¹¹, George Thalmann ⁴, Jens Rassweiler ³, Nobuo Shinohara ², Mantu Gupta ⁹, Ashutosh Tewari ⁹, Guohua Zeng ⁶, Kemal Sarica ¹², Mieke Van Hemelrijck ¹³, Hashim U. Ahmed ¹⁴, M. Shamim Khan ¹, Prokar Dasgupta ¹ for the **SIMULATE** Trial Group

¹ MRC Centre for Transplantation, King's College London, King's Health Partners, UK | ² Dept. of Urology, Hokkaido University Hospital, Sapporo, Japan | ³ Dept. of Urology, SLK-Kliniken, Heilbronn, Germany | ⁴ Dept. of Urology, University of Bern, Switzerland | ⁵ Dept. of Urology, Sindelfingen-Böblingen Medical Centre, Germany | ⁶ Dept. of Urology, First Affiliated Hospital of Guangzhou Medical University, China | ⁷ Dept. of Urology, Paracelsus Medical Private University, Salzburg, Austria | ⁸ Dept. of Urology, Sismanoglio Hospital, Athens, Greece | ⁹ Dept. of Urology, Icahn School of Medicine at Mount Sinai, New York, USA | ¹⁰ Dept. of Urology, Dalhousie University, Halifax, Canada | ¹¹ Dept. of Urology, University of British Columbia, Vancouver, Canada | ¹² Dept. of Urology, Biruni University, Istanbul, Turkey | ¹³ Division of Cancer Studies, King's College London, UK, ¹⁴ Dept. of Surgery and Cancer, Imperial College London, UK

INTRODUCTION

There have been considerable developments and subsequent use of VR, dry-lab and wet-lab simulation models. It is hypothesised that simulation-based training (SBT) can reduce the early phase of the learning curve and improve surgical outcomes. However, there is a lack of high-level evidence for SBT enhancing performance.

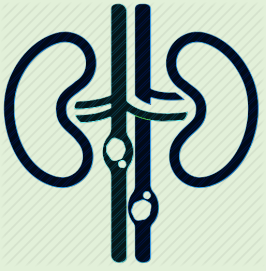
PRIMARY OUTCOME
LEARNING CURVE




No. of procedures required to proficiency*

SECONDARY OUTCOMES

OSATS SCORES



COMPLICATION RATES




EDUCATIONAL VALUE

*Proficiency: 3 consecutive ops with OSATS of ≥28, without post-op complications


METHODOLOGY

This prospective, international, multi-centre, parallel-group, pragmatic, superiority randomised controlled clinical and educational trial randomised surgical urology trainees, in a 1:1 ratio, to supplementary simulation-based training (SBT) or non-simulation-based training (NSBT) groups, the latter of which is the current sole standard of training globally.

INDEX PROCEDURE




ureteroscopy selected as most suitable by



DEVELOPMENT of SIM CURRICULUM
Delphi Study

SurveyMonkey®


2-rounds
23 Experts, 24 Trainees



Full Trial Protocol (BJU Int)

Randomisation

RECRUITMENT



Multicentre International RCT

ELIGIBILITY
Urology Trainees

≤10 index procedure & no sim experience

SAMPLE SIZE: 48

RANDOMISATION

(n=48) → NON-SIMULATION-BASED TRAINING (NSBT)
(n=48) → SIMULATION-BASED TRAINING (SBT)

+ SUPERVISED OR TRAINING


FOLLOW-UP
OSATS

25 Procedures or 18 Months


Participants in the SBT arm received simulation training as per curriculum

Intervention

URO-Mentor




Uro-Scopic Trainer



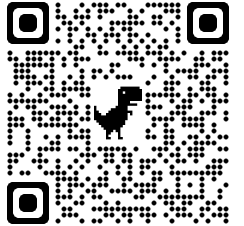
3 semi-rigid cases

Advanced Scope Trainer




Diagnostic / fURS case

Curriculum Validation (World J Urol)




Dry-lab Bench models



Fresh Frozen Cadavers*

Full Immersion Simulation*



Diagnostic cases (n=14)

NTS training (n=35)

*subject to local availability

RESULTS

65 Participants completed 1140 cases
645 URS | 318 fURS | 176 both

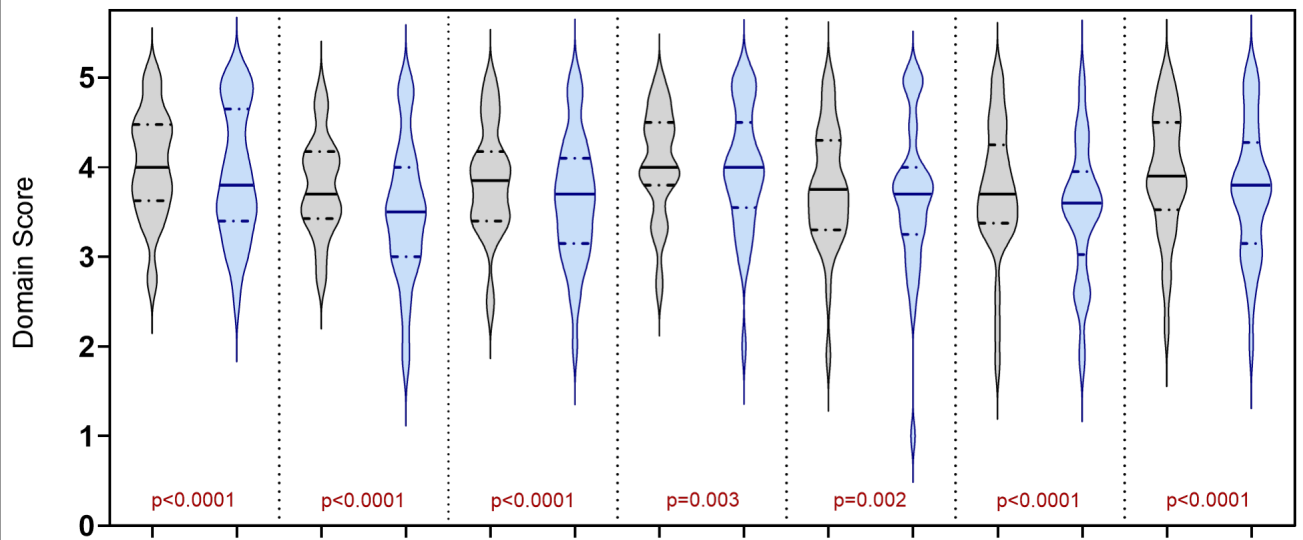
URS: 21 vs 18 participants (OR 1.59 [95% CI 0.59-4.33])
over 8 vs 9 sessions (HR 1.41 [95% CI 0.72-2.75])

Semi-rigid URS: 19 vs 16 participants (OR 1.55 [95% CI 0.58-4.15])
over 6 vs 7 sessions (HR 1.55 [95% CI 0.75-3.17])

fURS: 20 vs 9 participants (OR 3.33 [95% CI 1.09-10.24])
over 6 vs 7 sessions (HR 0.89 [95% CI 0.39-2.02])

*No differences observed in the number of procedures required to reach proficiency.
Twice as many SBT trainees reached proficiency in flexible URS, the complex form of the selected index procedure.*

OSATS



Domain Score

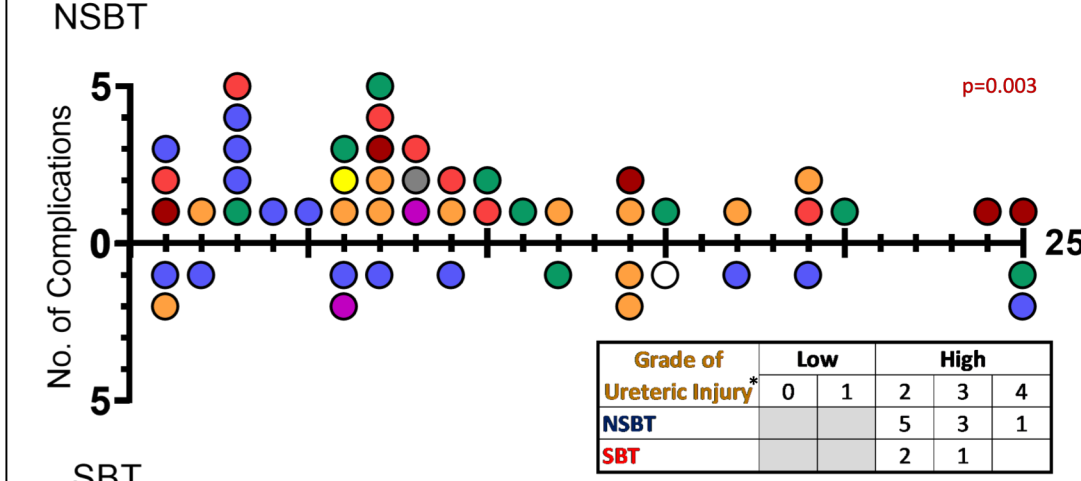
SBT (grey), NSBT (blue)

p<0.0001, p<0.0001, p<0.0001, p=0.003, p=0.002, p<0.0001, p<0.0001

The Simulation arm scored higher OSATS scores in all parameters.

Complication Rates

NSBT



SBT

Complications:

- Ureteric injury
- Pain
- Fever
- Haematuria
- Intra-op Bleeding
- AKI
- Sepsis
- UTI
- Unknown

Grade of Ureteric Injury

	Low	High
NSBT	0 1 2 3 4	5 3 1
SBT		2 1

p=0.003, p<0.001

The Simulation arm encountered significantly less number of overall and serious complications.

CONCLUSION

- No difference in the rate of reaching proficiency in both groups
- BUT Less number of overall & serious complications
- More trainees reached proficiency in complex form of index procedure
- Overall better technical skills (OSATS)
- Structured/curricular simulation contributes to trainee confidence

Acknowledgements

SIMULATE is generously funded by **The Urology Foundation**. This trial is endorsed by the **British Association of Urological Surgeons (BAUS)** and supported by the **European Association of Urology Urolithiasis Section (EULIS)**. The authors acknowledge support from the NIHR Biomedical Research Centre and **MRC Centre for Transplantation**. The authors also acknowledge support from **Olympus, Karl Storz, Boston Scientific, Coloplast, Simbionix, Limbs and Things** and **Mediskills**, for delivery of the educational programme.

The Operating Theatre as a Classroom: A Scoping Review of the Operative Learning Environment

Author: **Lucie J. Wright**, Plastic Surgery Registrar. Nottingham University Hospitals NHS Trust.

AIMS

To map the literature examining the clinical learning environment of the operating theatre and identify areas of future research.

METHODS

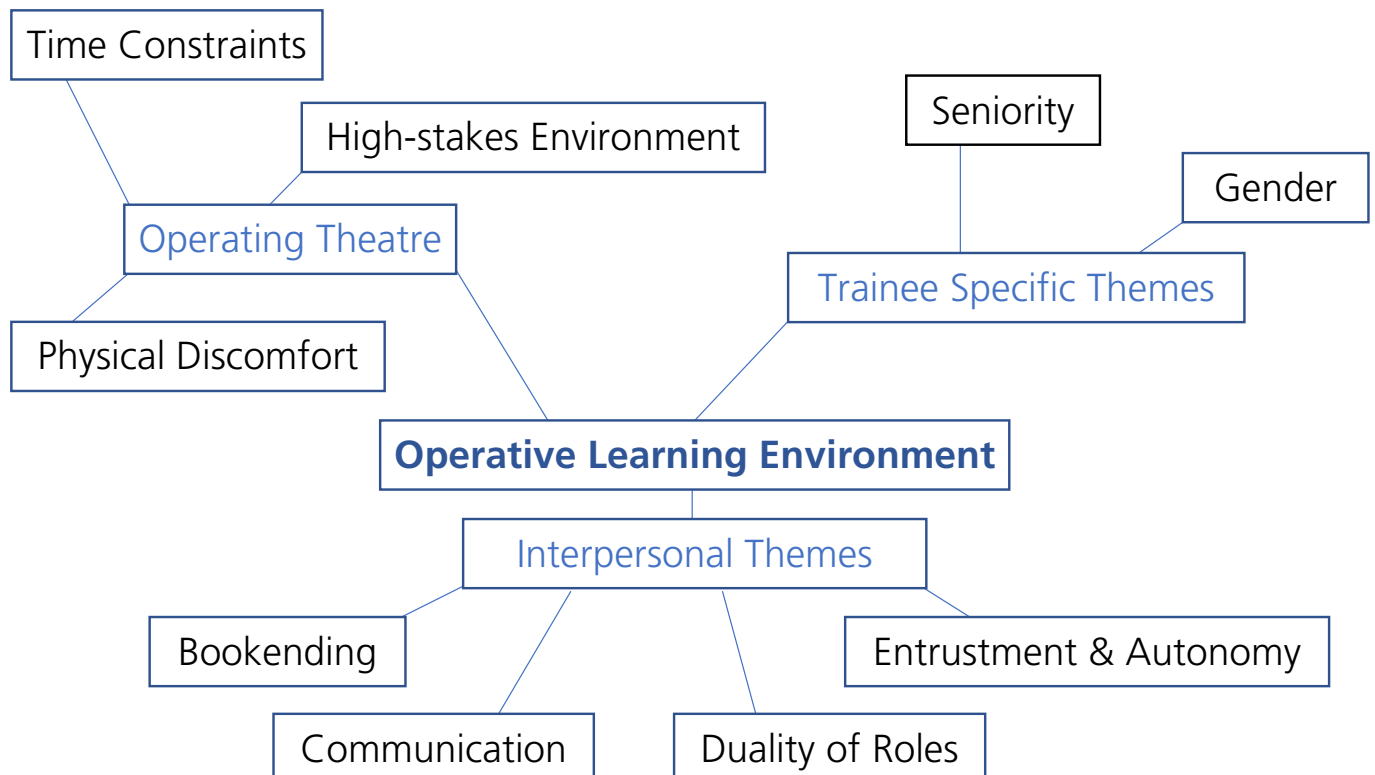
A literature search was performed using MEDLINE, CINAHL and PsychINFO. Further data were gathered from 'grey literature' sources. Through an iterative process, relevant sources were reviewed and thematically coded to map the topic and identify gaps in collective knowledge.

RESULTS

19 papers were included in this scoping review.

Thematic summary with 3 major sub-themes:

- 1. Operating Theatre:** Can be a hostile classroom characterised by:
 - Extreme temperatures
 - Distractions from noise
 - Time limitations
- 2. Trainee Specific:** gender and level of seniority of trainee appear to influence the perception of the operative learning environment
- 3. Interpersonal:** dynamic between trainee and trainer is pivotal and complex



CONCLUSION

Operating theatre can be simultaneously:

- Hostile and collaborative
- Discriminatory and an arena for mentorship

In Association with:



THE ROYAL
COLLEGE OF
SURGEONS
OF EDINBURGH



THE UNIVERSITY
of EDINBURGH

[RETURN TO INDEX](#)

The Theatre Training Checklist (TTC): A Toolkit to Improve Operative Training

J Aldoori¹, A Robson¹, D O'Regan¹, M Peter²

¹Leeds Teaching Hospitals NHS Trust, ²Calderdale and Huddersfield NHS Foundation Trust

THE PROBLEM

- The operating theatre is a learning environment for many different trainees: anaesthetists, surgeons, operation department practitioners, nurses and surgical first assistants and increasing members of the extended surgical team.
- This training environment must be shared between all trainees.
- Excellent teamwork and leadership is essential.

THE THEATRE TRAINING CHECKLIST (TTC): A FRAMEWORK TO IMPROVE TRAINING

- Traditionally trainers discuss training expectations from an operating list with trainees. There is limited communication between the wider team.
- The TTC is a simple framework to facilitate coordination of training for all members of the team.
- The checklist is completed at the start of the list during the theatre brief. It identifies all trainees and their specific needs within the operating theatre session to the whole team (figure 1).
- An example of how it can be used in a general surgery setting is shown in figure 2.

Figure 1. How to use the theatre training checklist

1



BEFORE THE BRIEF: Identify trainees' learning goals

2



DURING THE BRIEF: Identify all trainees within the operating theatre

3



Ask the team, "What are the training goals today?"

4

Rarely differences of opinions may arise.
If so they should be discussed between the most senior members of the team

5



AFTER THE BRIEF: Reflect on training achieved and complete work based assessments

Figure 2. An example of how the TTC can be used in a general surgery setting

TRAINING CHECKLIST		Date	AM	PM
		Scrub Lead		
		Consultant Anaesthetist:		
		Consultant Surgeon:		
Who are the Trainees / Learners?	Anaesthetic	Surgical	ODP / Scrub	Other learners
	CT2	CT1 ST4	New Scrub nurse	5 th year medical student
First Case				
Umbilical hernia repair with sutures	CT2 – General anaesthetic	ST4 – Performs with CT1 Consultant unscrubbed but in theatre	Go through tray with scrub nurse while performing the count	Glove and gown under supervision
Second Case				
Laparoscopic cholecystectomy	CT2 – Intubation	CT1 – induction of pneumoperitoneum, place gallbladder in bag and retrieve ST4 – Calot's dissection	Observe and help with the setting up of lap stack	Skin closure under supervision
Third Case				
Paraesophageal hernia repair	CT2 – Insertion of orogastric tube/ Bougie Consultant – Performs anaesthetic and intubates patient	CT1 – port placement ST4 – insertion of optical port & laparoscopic suturing	Scrub under supervision	Closure of port sites

PILOT STUDY

- A pilot study, was conducted within a renal transplant department over several weeks.
- There were 27 responses from across the theatre team. The results are shown in figures 3 & 4.

Figure 3. Results of a pilot study of the TTC

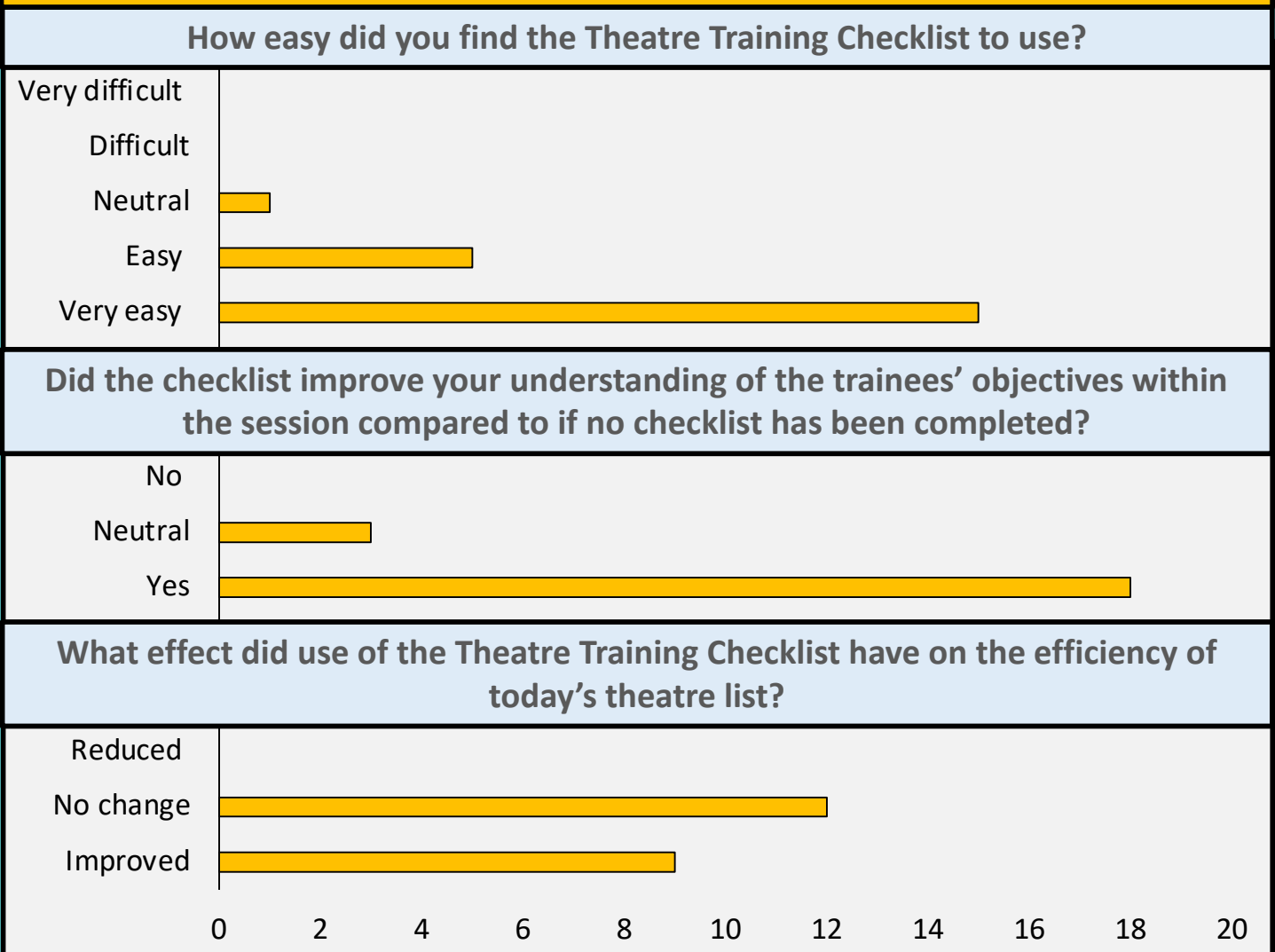


Figure 4. Qualitative feedback of the TTC

"Very good and helpful for the whole team to know the training goals of trainees and how to support trainees"

Registered Nurse

"This is a great way to identify what students and trainees want to achieve in theatre and how we can work together to overcome any difficulties or learning points"

Senior Operating Department Practitioner

"Student nurses able to observe operation and given explanation by surgeons"

Registered Nurse

"Improved my training experience"

Core Surgical Trainee

"It made everyone aware of the trainee's roles and objectives"

Trainee Surgical Care Practitioner



Find out more and use the TTC
www.TheTheatreTrainingChecklist.com

CONCLUSION

The TTC improves awareness and communication of training within the operating department while also improving team morale and cohesion

“Common Bleeps”- Preparation for Surgical Practice as an FY1 Regional Teaching Course

Authors: Sami M.S. Mustafa, J. Nicoletti, C. Croitoru, R. Beattie
Belfast Health and Social Care Trust

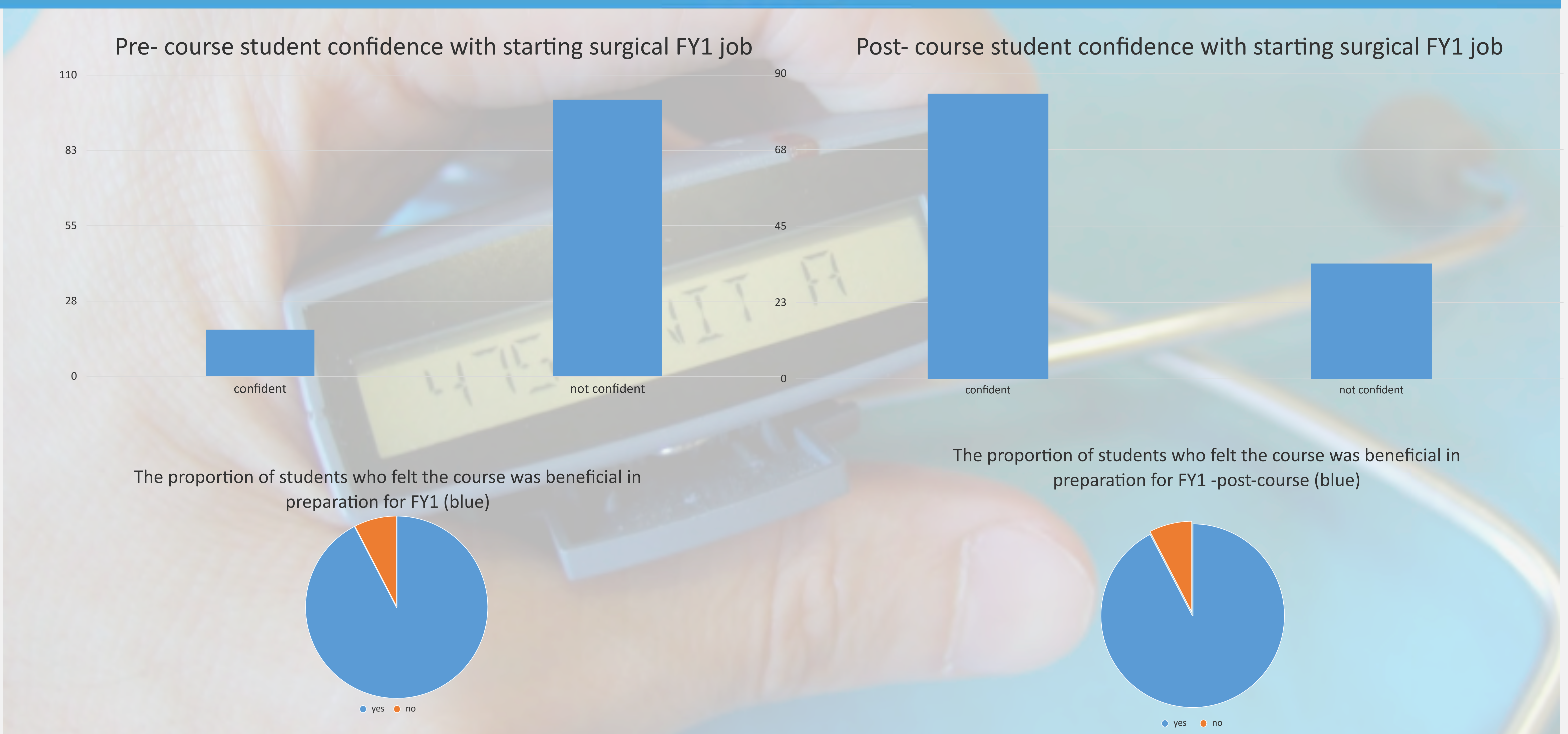
Introduction

The Pandemic has disrupted the medical education limiting students presence on surgical wards and their exposure to common scenarios. The urgency for novel adaptation has accelerated the development of the online learning environment preparing Foundation Doctors (FY1) for their first surgical placement.

Method

A two-day course aimed at final year medical students was devised by surgical trainees drawing on their lived experiences. It featured common bleeps and scenarios for every surgical speciality in the region. The course comprised five sessions per day, it was delivered on a virtual platform and was fully interactive. Students from other years were also welcomed and 130 medical students attended.

Results



Conclusion

Synchronous Distance Education in medical universities has had several benefits like flexibility of time, location and cost. (1). There is a potential to add to and complement traditional techniques like interpersonal contact and clinical exposure enhancing self-confidence. The course may have a place for demonstrating practical procedures, simulating clinical scenarios and sharing knowledge from junior surgeons in the long term as well as adapting to the current adverse environment.

References

1. Papapanou M, Routsis E, Tsamakidis K, et al/Medical education challenges and innovations during COVID-19 pandemic *Postgraduate Medical Journal* 2022;**98**:321-327.

A Decade of Undergraduate Surgical Teaching: A Review of UK Medical Schools (2011 – 2021) and Analysis of the University of Dundee

Andrew Keenlyside¹, Kismet Hossain-Ibrahim¹, Neil Harrison¹, Roderick McLeod¹, Gordon Hogg¹

¹ School of Medicine, University of Dundee, Ninewells Hospital and Medical School, Dundee

Overview and Aims:

This review discussed the current state of undergraduate surgical education in UK medical schools with a focus on changes over the previous decade (2011- 2021). An analysis of theatre etiquette and basic surgical skills (BSS) courses of the University of Dundee undergraduate curriculum was also undertaken, with comparison to the literature.

Methods:

A PubMed search using the quire “(undergraduate) AND (medicine) AND (Surgical) AND (teaching) AND (UK)” returned 155 publications. These were screened for relevance to yield the 100 publications discussed in this review. Analysis of Dundee student feedback (2016 – 2019) was carried out for BSS and theatre etiquette courses.

Results of Literature Review:

There exists a lack of consensus around the undergraduate curricula with extreme variation in teaching and clinical exposure by specialty and medical school. Scrubbing, gowning, gloving, and suturing are all often taught briefly (1) with little follow up and significant inconsistency between medical schools. These could be aided by the widespread adoption of virtual reality (2), simulation-based learning (3), and non-technical skills teaching (4).

A wide variety of novel techniques including near peer assisted learning (5), short targeted basic surgical skills (BSS) courses plus student opportunities, including mentorship and conferences has been found to be effective but are often limited within institutions.

Conclusions:

Though significant improvements have been made, most UK medical schools do not currently include all techniques included in national curricula produced by the GMC and RCS. As such, most students are not provided with sufficient technical and non-technical skills teaching and learning opportunities required to achieve the competence required for future safe practice upon graduation.

Excess variation in teaching practices and course content further damages graduate competence in many areas. These shortfalls are seen commonly in specialty rotations but most severely in oral and maxillofacial, ENT, and vascular surgery with basic techniques core to these specialties rarely taught. Practical experience, the most valuable asset to medical education, is highly inconsistent in volume and focus with some specialties being omitted completely.

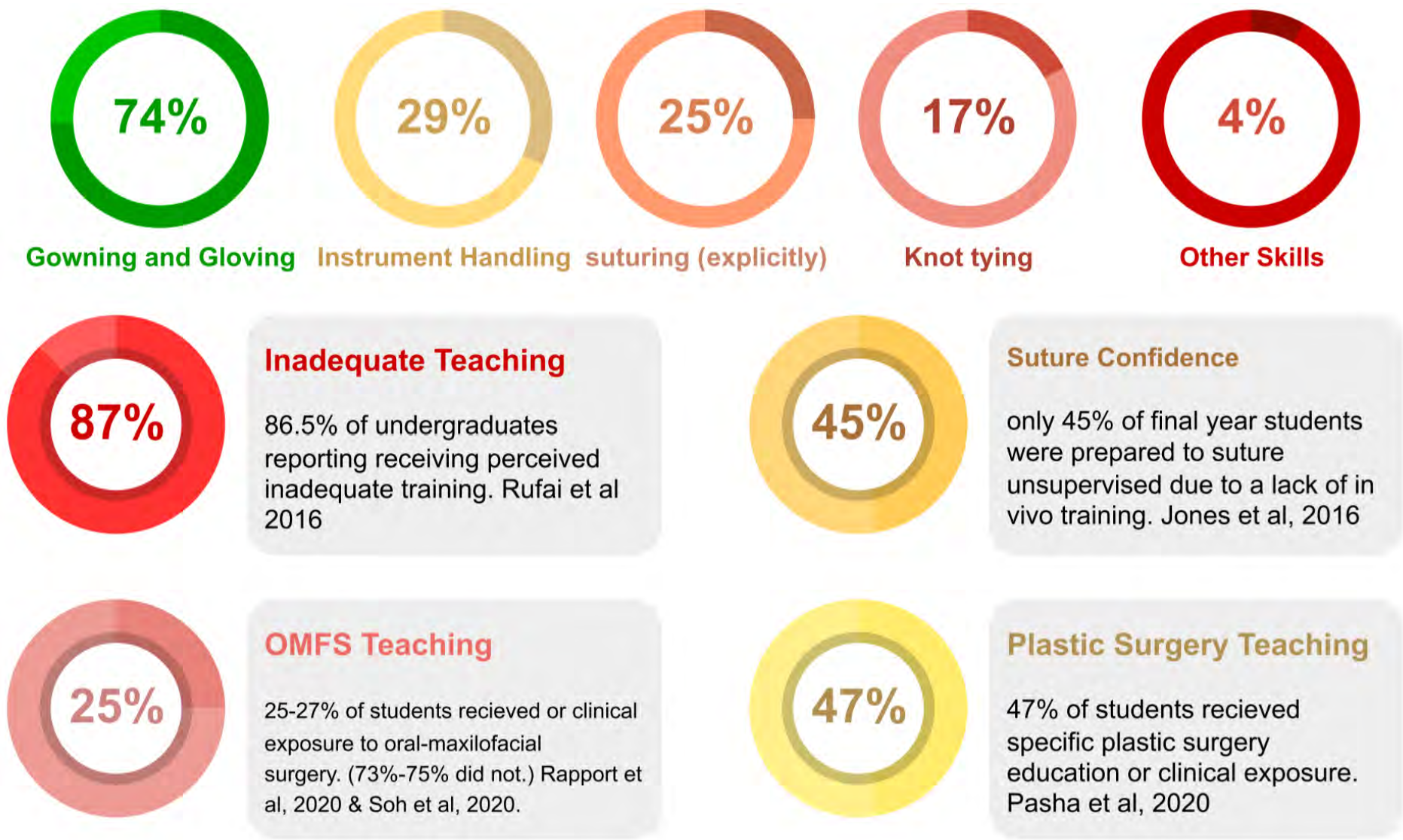
The adoption of simulation-based learning, near peer assisted learning and expansion of non-technical surgical skills teaching has improved performance outcomes where it has been utilised and its further integration is critical to the success of undergraduate surgical education. These techniques are greatly enhanced by technologies developed over the past decade like virtual and augmented reality simulations and increased fidelity of immersive and remote learning opportunities highly beneficial to surgical education.

Discussion

A wealth of conflicting, poorly collected, or non-specific data exists that, combined with differences in institutional funding and preferences, means that direct comparison of non-standardised curricula is not feasible. There is an urgent need for reform and an opportunity to greatly improve future undergraduate surgical teaching.

Citations

1 - Davis CR, Toll EC, Bates AS, Cole MD, Smith FC. Surgical and procedural skills training at medical school - a national review. Int J Surg. 2014;12(8):877-82.
2 - Brewer ZE, Ogden WD, Fann JI, Burdon TA, Sheikh AY. Creation and Global Deployment of a Mobile, Application-Based Cognitive Simulator for Cardiac Surgical Procedures. Semin Thorac Cardiovasc Surg. 2016;28(1):1-9.
3 - Sideris M, Nicolaides M, Jagiello J, Rallis KS, Emin E, Theodorou E, et al. In vivo Simulation-Based Learning for Undergraduate Medical Students: Teaching and Assessment. Adv Med Educ Pract. 2021;12:995-1002.
4 - Hull L, Sevdalis N. Advances in Teaching and Assessing Nontechnical Skills. Surg Clin North Am. 2015;95(4):869-84.
5 - Lee MJ, Drake TM, Malik TA, O'Connor T, Chebbout R, Daoub A, et al. Has the Bachelor of Surgery Left Medical School?-A National Undergraduate Assessment. J Surg Educ. 2016;73(4):655-9.
6 - Jones C, Mole R, Jones M. Undergraduate Suture and Local Anaesthetic Training in the United Kingdom. J Surg Educ. 2016;73(6):e169-e70.



The University of Dundee:

The majority of technical and non-technical surgical skills are taught within the pre-clinical to clinical transition block in 4th year, including a theatre etiquette course and a one-day basic surgical skills course in line with Royal College of Surgeons of Edinburgh practices using animal tissues. These courses are intended to provide students with sufficient skills for safe observation and limited supervised assistance during surgical placements.

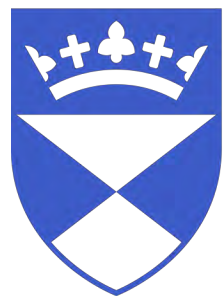
Following the theatre etiquette course, 483 students provided feedback between 2016 and 2019. Similar responses were also collected from 491 students on the BSS course over the same timeframe. These results indicate a high degree in confidence in scrubbing and gowning with supervision, with 98.5% and 97.8% responding that they either agree or strongly agree they are confident to do so respectively, following the theatre etiquette course. Following the 1-day basic surgical skills course students indicated a high degree of confidence in tissue handling, instrument handling, and reef knot tying (96.33%, 99.8%, and 97.56% net positive respectfully). 64.56% of students were also more likely to pursue a surgical career.

5 Key Points:

- 1) Insufficient teaching** is leaving the vast majority of students with low confidence in their surgical practices.
- 2) Inconsistent teaching** has lead to severe shortfalls in most surgical specialties with many core skills
- 3) Basic surgical skills** should have greater focus prior to clinical years - a minimum of a 1-day course should be utilised
- 4) Simulation based learning** has proven extremely useful and has, over the past decade, become an essential pillar of surgical education
- 5) Non-specific or vague data** is often collected. This is due to most research being done via student surveys rather than observed skills with clear objective outcomes and related performance metrics

3 Recommendations:

- 1) Provide disposable equipment for basic surgical skills to students**
This aims to supplement tutor-based sessions with home skills practice time. (6)
- 2) Provide a minimum of 1 day skills training skills and a 1 day placement in all 10 GMC mandated core surgical specialties**
This aims to be a minimum standard baseline to prevent the omission of some specialties, which institutions should be exceeding regularly.
- 3) The integration of non-technical surgical skills (NOTSS) from the first undergraduate year**
This includes stress management, effective team communication, and decision making. These provide wider benefits to training and should be taught explicitly. SBL is recommended. (4)



University
of Dundee

Evaluating Clinical Learning Environment for Postgraduate Trainees at a Tertiary Care Hospital in Pakistan

Prof. Muhammad Rizwan Khan^{1&3}, Dr. Qamar Riaz¹, Dr. Sadia Masood², Dr. Amir H. Shariff³

Departments of Postgraduate Medical Education¹, Medicine², and Surgery³, Aga Khan University, Karachi, Pakistan

Introduction

Clinical Learning Environment (CLE) is the overlapping space between the “clinical environment & the educational context”. It influences residents’ learning at the work place, & predicts preparedness for practice.

Residents’ perceptions of their CLE serve as quality indicator of the teaching & learning taking place at the work place; and can identify strengths as well as the areas requiring intervention for improvement in the academic training program(s).

Aim

To measure residents’ perception regarding CLE at the Aga Khan University (AKU), Karachi, Pakistan.

Methods

This cross sectional survey was conducted across all 34 residency programs at AKU, after approval from IRB (ERC# 14919). A non-probability sampling was employed, and email explaining the purpose of the survey and requesting written informed consent were send to 500 currently enrolled residents. Residents who had spent less than 3 months in residency program at AKU were excluded. Those who consented to participate were electronically sent the self-reported Postgraduate Hospital Educational Environment Measure (PHEEM) inventory, a validated tool for assessment of CLE. Confidentiality was maintained. Means with standard deviations, frequencies and percentages were calculated. One-way ANOVA was used to measure differences between gender, year of training, and residency programs. P-value of <0.05 was taken as significant.

Results

- Response rate: 69.4% (n=347/500)
- Males: 119 (34%); Females: 228 (66%)
- Reliability (Cronbach’s alpha): 0.95
- The domain of ‘Teaching’ had the highest while domain of ‘Autonomy’ had the lowest scores.
- Table 1 shows overall and domain scores with their interpretations.
- Highest scored item: I feel physically safe within the hospital environment’ (3.44)
- Least scored item: ‘My workload in this job is fine’ (1.76)
- First year residents perceived CLE as ‘More positive, but room for improvement’ (111.3), while final year residents thought their CLE had ‘plenty of problems’ (81.5; p<.05).

Table 1: Overall and Domain CLE scores

Domain (# of items)	Max. score	Mean ± SD (%)	Interpretation key
Overall (40)	160	107 ± 21.4 (66.8%)	<40: Very poor 41–80: Plenty of problems 81–120: More positive than negative, but room for improvement >120: Excellent
Perceptions of Autonomy (14)	56	33 ± 7.24 (58.9%)	0–14: Very poor 15–28: Negative view of role 29–42: More positive perception of one’s job 43–56: Excellent perception of one’s job
Perceptions of Teaching (15)	60	42 ± 8.9 (70%)	0–15: Very poor 16–30: Need some re-training 31–45: Moving in the right direction 46–60: Model teachers
Perceptions of social support (11)	44	27 ± 6.2 (61.3%)	0–11: Non-existent 12–22: Not a pleasant place 23–33: More pros than cons 34–44: Good supportive environment

- No significant difference was found in PHEEM overall or domain scores on the basis of gender.
- Surgical residents had lowest overall and domain scores and perceived their CLE as having ‘plenty of problems’, while Radiology residents perceived their CLE as ‘Excellent’ (Table 2).

Table 2: CLE perceptions by residency programmes

Discipline	N	Overall (160)	Autonomy (56)	Teaching (60)	Social Support (44)
Medicine	100	106.4 ± 22.4	32.8 ± 7.5	42.0 ± 9.2	28.6 ± 6.4
Surgery	40	95.5 ± 19.1	28.8 ± 6.4	38.1 ± 8.4	26.1 ± 5.3
Family Medicine	29	112.4 ± 19.1	35.5 ± 6.4	44.6 ± 8.8	29.2 ± 5.4
ER	26	104.5 ± 23.3	33.8 ± 35.5	41.7 ± 10.0	25.7 ± 7.1
Pediatrics	18	106.5 ± 18.1	34.3 ± 7.4	38.7 ± 9.7	26.3 ± 4.9
OB/GYN	17	99.0 ± 14.6	30.3 ± 5.0	39.4 ± 6.8	26.9 ± 4.3
Pathology	27	119.1 ± 16.8	38.4 ± 4.6	47.3 ± 6.7	30.3 ± 5.8
Anesthesia	43	99.8 ± 21.5	32.0 ± 6.5	39.0 ± 9.4	26.3 ± 6.9
Dentistry	14	115.3 ± 25.0	39.0 ± 9.1	45.1 ± 9.0	28.4 ± 7.4
Radiology	12	122.3 ± 13.6	39.2 ± 4.7	48.6 ± 5.2	31.5 ± 5.1
P value		<0.001	<0.001	<0.001	<0.021

Conclusions

The results of the CLE survey helped us identify the strengths and weaknesses of our programmes. The overall PHEEM score for the postgraduate programs at AKU was ‘More positive than negative’. Remedial measures addressing areas identified through PHEEM would further improve the quality of the clinical learning environment and thus the academic training program(s).

Awareness of non-technical skills and confidence in teaching non-technical skills among Consultant Surgeons - A questionnaire study



R J Scurrah, M Carr, D W Hamilton
Sunderland Royal Hospital



Introduction

- Surgical complications occur in up to 25% of patients, with approx **7 million patients suffering a surgical complication worldwide** - 1 million of these complications result in death¹.
- Analysis of surgical incidents highlights that the **underlying cause** is often not inadequate technical skills, but a **deficiency in non-technical skills (NTS) & human factors**^{2,3,4}.
- Surgical training has traditionally focussed upon the development of technical skills.
- Whilst technical skill is crucial to be able to perform surgery, this alone is not enough to be a proficient surgeon⁵.
- Over the last two decades there has been growing awareness of the importance of NTS training & education, **to improve patient outcomes, patient safety & enhance surgical performance**.
- However, **not all Consultant Surgeons have received NTS training** & there is **variable delivery of NTS training to surgical trainees**.
- Previous research found no change in NTS scores, between baseline & final simulation performance, in residents undertaking standard training, **suggesting non-technical skills are poorly trained on the job**⁶.

Aims

- Explore knowledge & perceptions of non-technical skills among Consultant Surgeons
- Explore Consultant Surgeon's experiences of non-technical skills training
- Explore Consultant Surgeon's confidence & approaches in teaching non-technical skills



Results

The majority of Consultants (9/14, 64%) reported being familiar with key domains of NTS, but fewer (6/14, 43%) were able to recall 2 or more domains.

Most (13/14, 93%) were aware of NOTSS but **only 4/14 (29%) had attended a NOTSS course**.

Most Consultants (12/14, 86%) reported no knowledge of NTS rating tools.

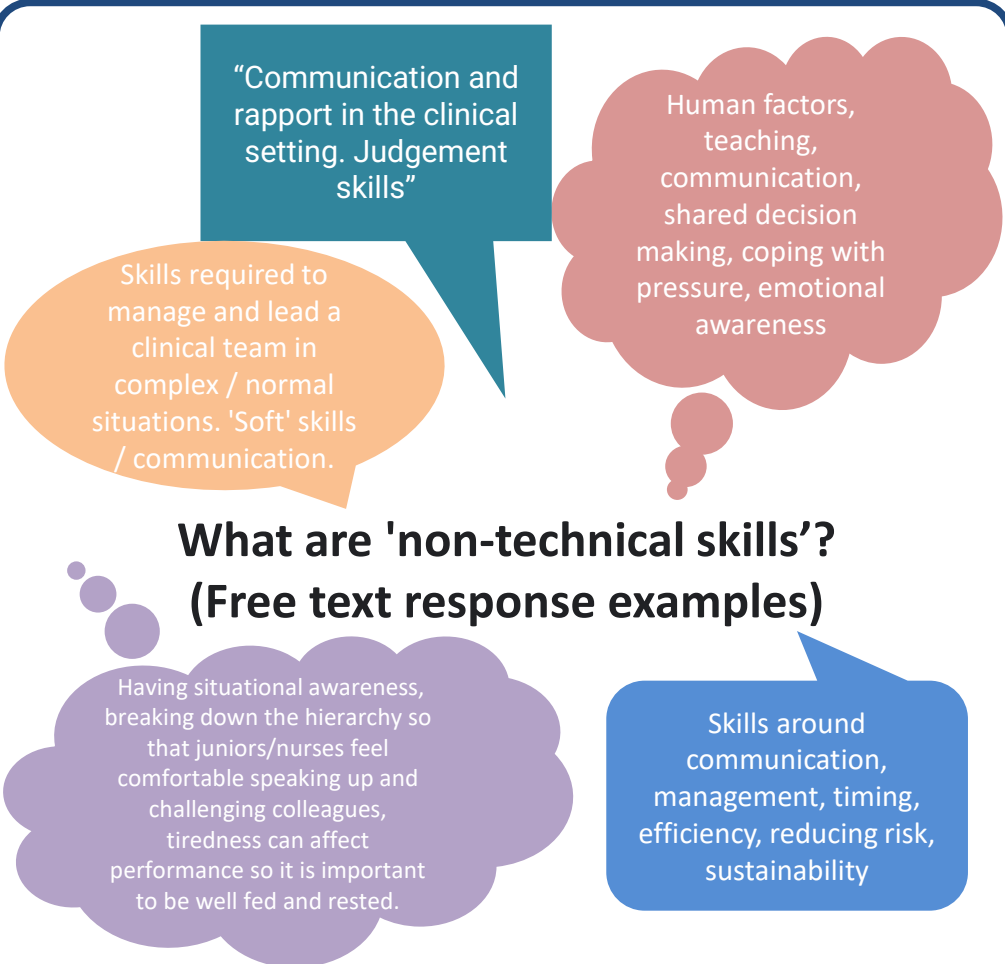
Only 2/14 (14%) agreed or strongly agreed that they 'have a good understanding of NTS'.

Similarly, **only 3/14 (21%) Consultants agreed or strongly agreed that they are confident in teaching NTS.**

All respondents either agreed or strongly agreed that NTS are relevant to their day-to-day work & 13/14 (93%) agreed or strongly agreed that they wished to improve their NTS.

Reflection, case-based discussion & leading by example are methods reportedly used to teach NTS to trainees.

Questionnaire Responses

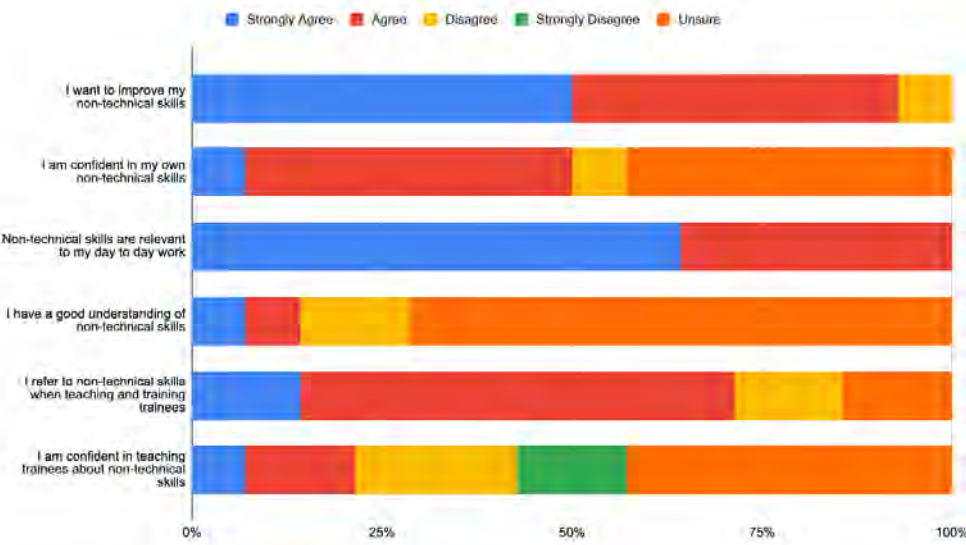


What are 'non-technical skills'? (Free text response examples)

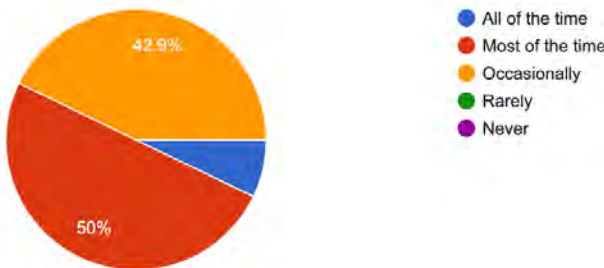
Having situational awareness, breaking down the hierarchy so that juniors/nurses feel comfortable speaking up and challenging colleagues, tiredness can affect performance so it is important to be well fed and rested.

Skills around communication, management, timing, efficiency, reducing risk, sustainability

Consultants were asked to rate agreement/disagreement with several statements:



Do you explicitly consider your non-technical skills when reflecting on your own practice?



Discussion

- Consultant Surgeons **recognise the importance of NTS & wish to develop their NTS**.
- Lack of confidence in own knowledge & NTS among Consultant Surgeons **may contribute to poor NTS development in trainees**.
- Inadequate NTS training for surgeons at all levels is **a risk to patient safety**.

Conclusions

Improved NTS training among Consultant Surgeons is needed.
Improving Consultant NTS & confidence in training these skills will improve trainee NTS & improve patient safety.

References

- WHO. (2009). *WHO guidelines for safe surgery*. 2 Kohn, L. T., Corrigan, J., & Donaldson, M. S. (2000). *To err is human : building a safer health system*. 3. Mazzocco, K., Petitti, D. B., Fong, K. T., Bonacum, D., Brooke, J., Graham, S., Lasky, R. E., Sexton, J. B., & Thomas, E. J. (2009). Surgical team behaviors and patient outcomes. *American Journal of Surgery*, 197(5), 678–685. 4. Rogers, S. O., Gawande, A. A., Kwaan, M., Puopolo, A. L., Yoon, C., Brennan, T. A., & Studdert, D. M. (2006). Analysis of surgical errors in closed malpractice claims at 4 liability insurers. *Surgery*, 140(1), 25–33. 5. Agha, R. A., Fowler, A. J., & Sevdalis, N. (2015). The role of non-technical skills in surgery. In *Annals of Medicine and Surgery* (Vol. 4, Issue 4, pp. 422–427). Elsevier Ltd. 6. Dedy et al., 2016 Dedy, N. J., Bonrath, E. M., Ahmed, N., & Grantcharov, T. P. (2016). Structured training to improve nontechnical performance of junior surgical residents in the operating room: A randomized controlled trial. *Annals of Surgery*, 263(1), 43–49. 7. CHFG. (2020). *What are clinical human factors?* <https://chfg.org/what-are-clinical-human-factors/>. 8. Flin, R. (2013). *Non-technical skills for anaesthetists, surgeons and scrub practitioners (ANTS, NOTSS and SPLINTS)*. 9. Flin, R., O'Connor, P., & Crichton, M. (2013). Safety at the sharp end: A guide to non-technical skills. In *Safety at the Sharp End: A Guide to Non-Technical Skills*.

Methods



Examining attitudes towards the reporting of incidents of sexual assault and harassment amongst UK surgeons



Sophie Howles and Deepa Bose
University Hospitals Birmingham NHS Trust



Introduction

‘Sexual assault in surgery: a painful truth’ (Fleming S and Fisher RA 2021) highlights the issue of sexual assault within surgery, and since its publication many surgical trainees and consultants in the UK have spoken openly about their experience of sexual harassment and assault. The authors of this paper emphasize the importance of reporting incidents and on the need for ongoing and massive cultural change within our speciality.

The aim of this questionnaire study was to examine the attitudes towards the reporting of incidents of sexual harassment and assault, and to identify potential blocks to reporting in order to make recommendations to improve the mechanisms for reporting these incidents, and for seeking help and support.

Method

We ran an anonymised questionnaire study, seeking responses from UK surgeons of any age, grade or speciality. Respondents were asked to give demographic details and answer some questions about their own experiences. Questions regarding knowledge of reporting mechanisms, confidence with reporting and potential blocks to reporting were asked using a 5 point likert scale as well as open ‘white space’ questions.

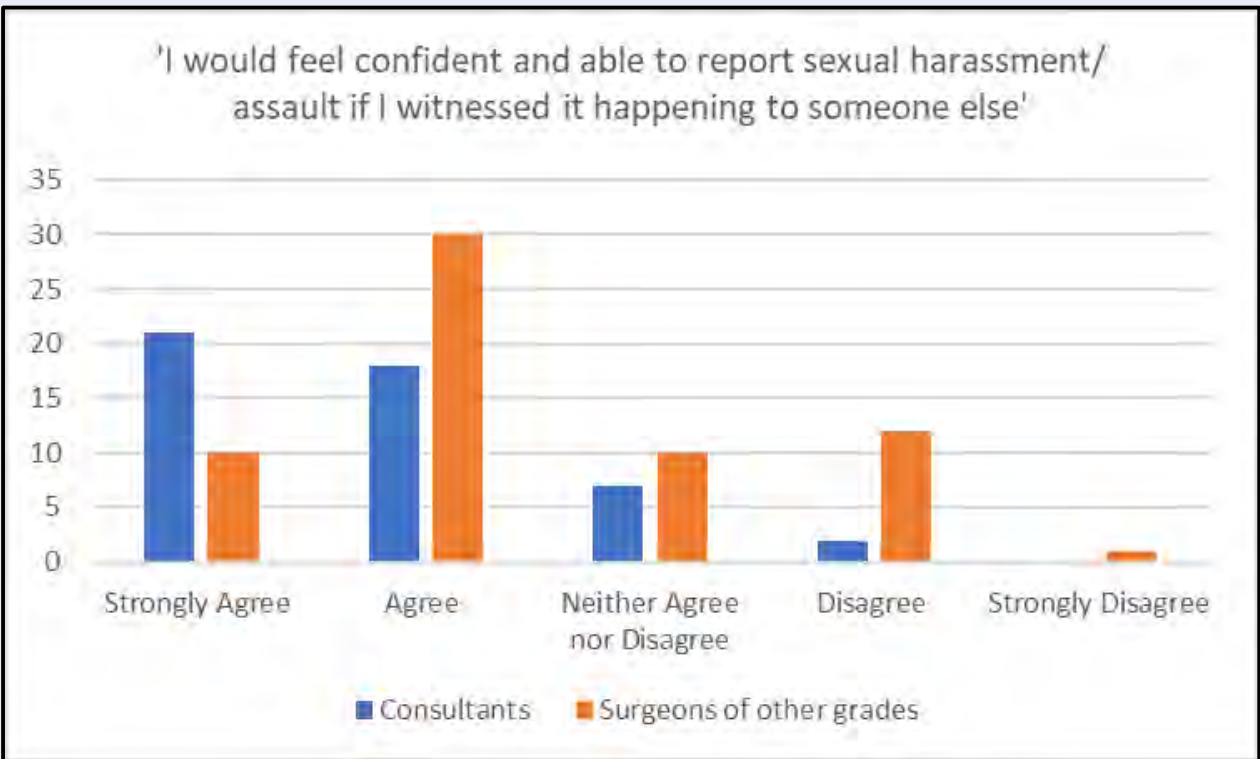
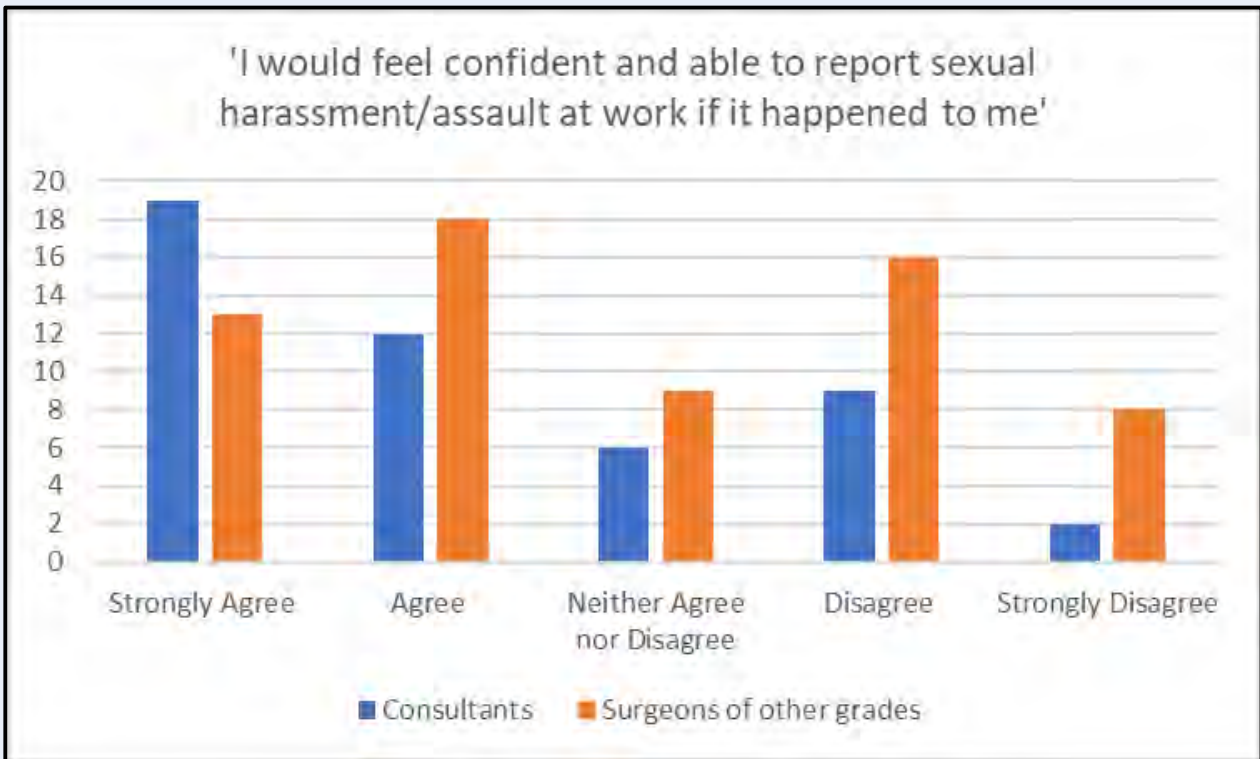
Results

There were 111 respondents who completed the survey in full. 43% of these were consultants, 57% were trainees/speciality doctors. Of the respondents who disclosed their gender, 35 identified as male, 71 as female and 2 as gender non-binary.

58 (52%) of respondents had experienced sexual harassment once or more during their career and 60 (54%) had witnessed it happening to someone else. 18 (16%) had experienced sexual assault and 7 (6%) had witnessed it happening to someone else.

79% of consultants (58% other grades) surveyed agreed or strongly agreed with the statement ‘If I had concerns regarding sexual harassment or assault, I would know who to raise them with’. 65% of consultants (48% other grades) surveyed agreed or strongly agreed with ‘I would feel confident and able to report sexual harassment/assault at work if it happened to me.’ 81% of consultants (63% other grades) agreed or strongly agreed with the statement ‘I would feel confident and able to report sexual harassment/ assault if I witnessed it happening to someone else’

The most common factor influencing reporting decisions was ‘concern for colleagues and future colleagues’, however more than half of respondents also cited fear of repercussions and impact on future career as factors influencing their decision.



Conclusions

This preliminary data supports existing evidence that sexual harassment and assault affect a significant number of surgeons during their careers. Consultants overall felt more confident and able to report incidents of harassment and assault than doctors of other grades, and both groups felt more confident and able to report incidents of sexual harassment or assault that they witnessed happening to someone else, compared to harassment/assault happening to themselves.

The data suggests that lack of information about reporting, potential impact on career, fear of repercussions and lack of anonymity all play a play in reporting decisions, however ‘concern for colleagues and future colleagues’ was the most common factor driving decision making. Within the white space questions, many participants highlighted the need for significant cultural change within surgical specialities. Further collaborative work is needed to explore ways in which better support can be provided to enable the safe reporting of incidents of sexual harassment and assault.

Timothy T Griffiths, Michael William Farfan Arango, Glen Davies, Shireen McKenzie

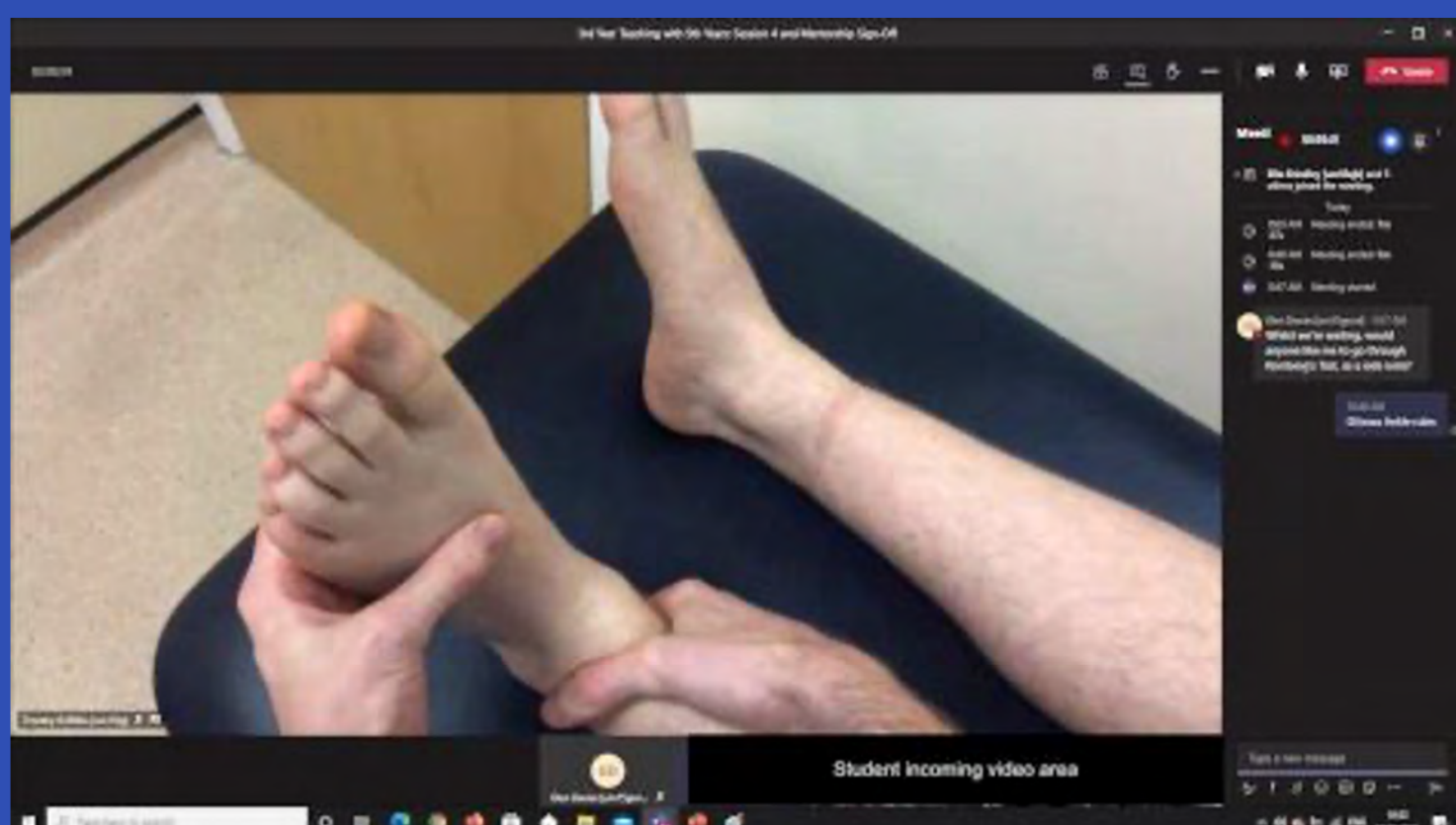
Institutions: 1. Faculty of Medicine and Health Sciences, University of Leeds, Leeds, UK, 2. Leeds Teaching Hospitals Trust, UK

Background

Clinical Education has been severely affected by the barriers of social distancing and national lockdown brought about by the COVID-19 Pandemic. The difficulties of carrying out in-person teaching sessions have had a substantial effect on the quality of education and teaching provided¹⁻³. Despite the introduction of videoconferencing platforms²⁻⁶, procedures like physical examination are best taught in-person. The challenge was: How to teach physical examination skills effectively, when the students cannot join you in the classroom?

Our solutions

We created a virtual teaching session -- simulating the patient/clinician interaction. Using Virtual Reality headsets repurposed as camera-mounts, and tablets attached to facilitators we were able to give students a doctor's perspective. The facilitator may then act as an "avatar" for the student, who directs the encounter. This teaching session, which we have named "Robo-Tim", allows for interactive teaching of a practical procedure while also maintaining safe social distancing.



What we did

- Tutored four 3rd year medical students from Leeds University
- For Four weeks, every Wednesday
- During the second wave of the pandemic
- Feedback was collected before and after these sessions

Feedback was very positive, with students praising the novel solution to social distancing. Whilst it must be acknowledged that the approach was inferior to true in-person teaching, students felt the interactive, first-person style was the most engaging they had encountered during their training in the pandemic. "Robo-Tim" allowed students to practise their skills in a supported and safe simulated environment.

Discussion

Virtual Reality Technology can be expensive and cumbersome. As a first-person simulated teaching-approach, "Robo-Tim" offers a cheap and simple alternative that makes use of available technology, smartphones with cheap virtual reality headsets, and accepted video-conferencing platforms.

Other advantages

- Group-Participation
- Immediate Feedback
- Live-video technique avoids the "uncanny valley" of VR

Conclusion

We recommend the use of 'first-person' filming approaches, and of 'student-directed avatars', in video-conferencing to replicate simulation-based teaching

Until students are permitted to gather in classrooms again, teachers are tasked with innovating workarounds to the paradoxical challenge of teaching tactile, 'hands-on' skills through the computer screen. The methods, which we trialled in "Robo-Tim", would be of value to clinical teachers facing the challenge of delivering skills-based education in the socially-distanced context of the global pandemic



References

1. Karimian Z, Farrokhi MR, Moghadami M, et al. Medical education and COVID-19 pandemic: a crisis management model towards an evolutionary pathway. *Education and information technologies*. Published online September 20, 2021;1-22. doi:10.1007/s10639-021-10697-8
2. Sani I, Hamza Y, Chedid Y, Amalendran J, Hamza N. Understanding the consequence of COVID-19 on undergraduate medical education: Medical students' perspective. *Annals of Medicine and Surgery*. 2020;58:117-119. doi:10.1016/j.amsu.2020.08.045
3. Franklin G, Martin C, Ruszaj M, et al. How the COVID-19 Pandemic Impacted Medical Education during the Last Year of Medical School: A Class Survey. *Life (Basel, Switzerland)*. 2021;11(4). doi:10.3390/life11040294
4. Ferrel MN, Ryan JJ. The Impact of COVID-19 on Medical Education. *Cureus*. 2020;12(3). doi:10.7759/CUREUS.7492
5. Chakraborty M, Reddy YAK, Ghoshal JA, Amudharaj D, Tripathi M. Preparedness of medical students towards e-learning conducted during COVID-19 lockdown: A cross-sectional descriptive study. *Journal of education and health promotion*. 2021;10(1):302. doi:10.4103/jehp.jehp_1125_20
6. Keržič D, Alex JK, Pamela Balbontín Alvarado R, et al. Academic student satisfaction and perceived performance in the e-learning environment during the COVID-19 pandemic: Evidence across ten countries. *PloS one*. 2021;16(10):e0258807. doi:10.1371/journal.pone.0258807
- Pottle J. Virtual reality and the transformation of medical education. *Future Healthcare Journal*. 2019;6(3):181. doi:10.7861/FHJ.2019-0036



Impact of COVID-19 on delivery of Advanced Trauma Life Support® (ATLS®) courses in the United Kingdom

Shah S¹, Gizzi A², Super J¹, Forty J³, Shetty R¹, Slater G^{1,3}

INTRODUCTION

The Advanced Trauma Life Support® course (ATLS®) is an internationally recognised trauma course. ATLS® is a mandatory course for many surgical trainees in the UK. The UK delivery of ATLS® courses is managed by the Royal College of Surgeons of England (RCS England) in the UK through the ATLS® UK Steering Group. ATLS® course delivery was restricted during 2020 as were other RCS England courses. We present the impact of the COVID-19 pandemic on the delivery of ATLS® Reverification, Instructor and Provider courses in 2020.

AIMS

To assess the level of disruption caused by the COVID-19 pandemic on delivery of ATLS® Reverification, Instructor and Provider courses in the UK in 2020.

METHODS

Information needed for this study was collected directly from an online database from the Royal College of Surgeons.

RESULTS

Compared to 2019 the number of Reverification courses taught in 2020 fell by 34% (44 to 29); for Instructor Courses it fell 50% (12 to 6); and for Provider courses it fell 55% (208 to 93). Compared to 2019 the number of participants attending all ATLS® courses in 2020 fell 56% from 4095 to 1821. The number of participants attending a Reverification course in 2020 fell by 34% (515 to 341); for Instructor Courses it fell 52% (190 to 91); and for Provider courses it fell 59% (3390 to 1389). By 2021 numbers had almost fully returned to pre-COVID levels.

	2019		2020		2021	
	Number of participants	Number of courses	Number of participants	Number of courses	Number of participants	Number of courses
Provider Course	3390 (100%)	208	1389 (41%)	93	2999 (88%)	202
Instructor Course	190 (100%)	12	91 (48%)	6	199 (104%)	14
Reverification Course	515 (100%)	44	341 (66%)	29	501 (97%)	43

Table 1. Summary of effect of COVID-19 pandemic on ATLS course delivery

CONCLUSION

The COVID-19 pandemic had a very significant impact on the delivery of ATLS courses in the UK. Although delivery of courses resumed in 2021 there is a backlog of participants trying to get on each of the courses. ATLS® Provider status is valid for four years after which practitioners need to reverify. After carefully considering potential clinical risks the ATLS® UK Steering Group has extended the Provider status by over a year if candidates complete mandatory e-learning. To help address the backlog, the Steering Group is currently developing the reverification course as a fully online course.

1. Department of Trauma and Orthopaedics, Maidstone and Tunbridge Wells NHS Trust
2. Education Programme Manager, Royal College of Surgeons of England
3. ATLS® UK Steering Group

Implementation of EPAs for Final Year Medical Students: Evaluation

Prof Stephen Tobin

Associate Dean, Professor of Clinical Education
Dr J McDonald (Portfolio); Dr C Joyce
(Assessment)



WESTERNSYDNEY.EDU.AU

Purpose: Progressive Assessment/Feedback

Increase feedback and formative assessment in clinical years
Evidence of preparation for internship

- Pilot project of EPAs
- Rapid implementation 2020 (evaluation built-in)
- Some students working as Assistants-in-Medicine
- 70% working in 2020,2021, 30% students
- 30% working in 2022, 70% students
- Progressive assessment of two streams final year using EPAs

System

- Webinars, Clinical School staff, Presentations, Guides
- Monitoring, Coaching
- MyKnowledgeMap Portfolio -> Myprogress app (York, UK) 'bespoke'
- Late 2020: 3161 EPAs Average 28 (4-months)
- 2021: 6200 EPAs Average 51 across whole year
- Analysis: needed 10+, done well – detail of feedback/actions
- Tested: pass/fail Case-based scenarios (replaced final OSCE)

Assessment preview

Year5 PARTICIPATION IN WARD ROUND 2021

Year 5 PARTICIPATION IN WARD ROUND

What's up this EPA are many components. Not all will occur on every ward round. Consider the question and the student's current supervision level going forward.

WARD ROUND

This question must be completed to submit your assessment.

The clinical unit, the timeline, how busy

COMPLEXITY OF WARD ROUND

This question must be completed to submit your assessment.

Please select

PARTICIPATION WITH COMPONENTS/TASKS ON THE WARD ROUND

This question must be completed to submit your assessment.

Punctual attendance
Presents and contributes as requested
Understands/justifies management decisions
Recommends medications and/or directly observes medication changes
Participates in patient & family discussions
Advocates for patient with special circumstances
Documents in well (if permitted by UMS)
Reviews progress or seeks assistance for patient

FEEDBACK

FEEDBACK

This question must be completed to submit your assessment.

What went well, what could be improved

SUPERVISION LEVEL, FOR NEXT TIME

This question must be completed to submit your assessment.

Please select

ACTIONS, AREAS TO WORK ON

This question must be completed to submit your assessment.

Comments from student or AIM

SUPERVISOR/CLINICIAN POSITION

This question must be completed to submit your assessment.

Please select

Year. 5 – EPAs mapped to JMO tasks (& WSU Graduate Outcomes)

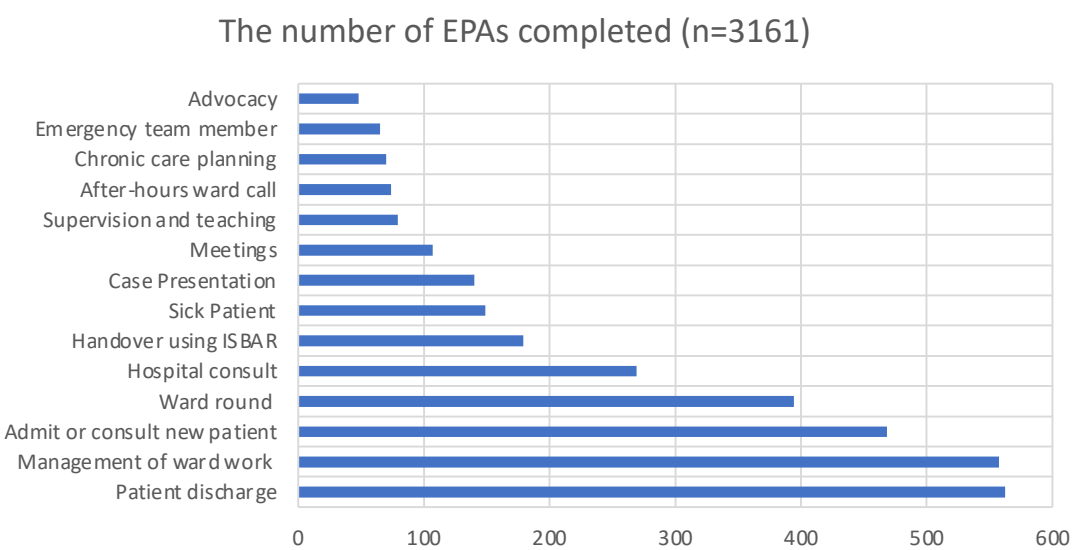
- Admit/consult new patient
 - Participate in ward round
 - Manage ward work
 - Handover using ISBAR
 - Arrange referral
 - Manage sick patient
 - Participate in Meetings
 - MDTs, M&M, ward meetings
- Discharge patient
 - Plan/adjust chronic care plan
 - Advocate for patient
 - Do Case Presentation
 - Be emergency team member
 - Attend after-hours ward call
 - Provide supervision/teaching
 - Junior med students, other HCWs

Supervision levels

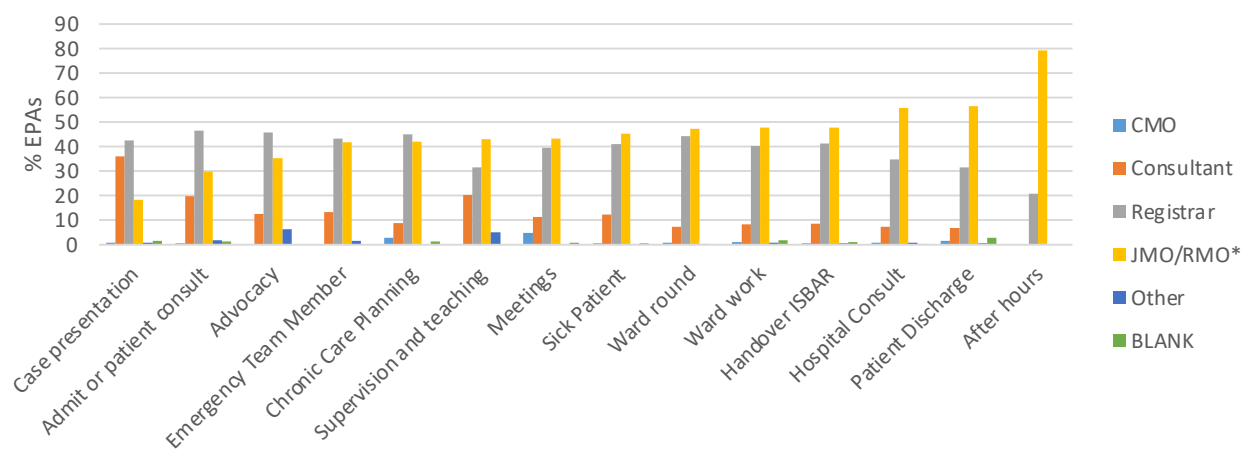
As this is about 'doing', an observe/watch level is not used

- Directly supervision
 - Supervisor present ("I need to be there")
- Nearby/indirectly supervision
 - Supervisor nearby in hospital ("I can be there quickly")
- (Usually) independent
 - Supervisor contactable (elsewhere)

2020 data: EPAs completed mean = 28

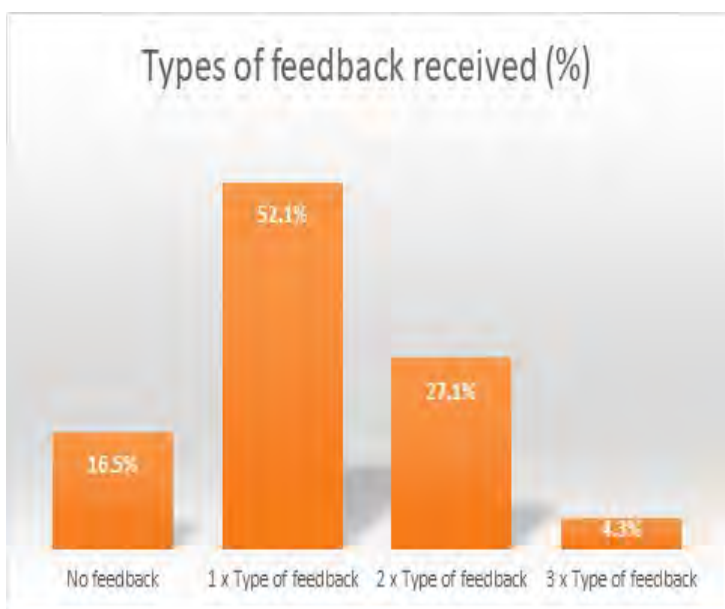


Who were the observers/supervisors?

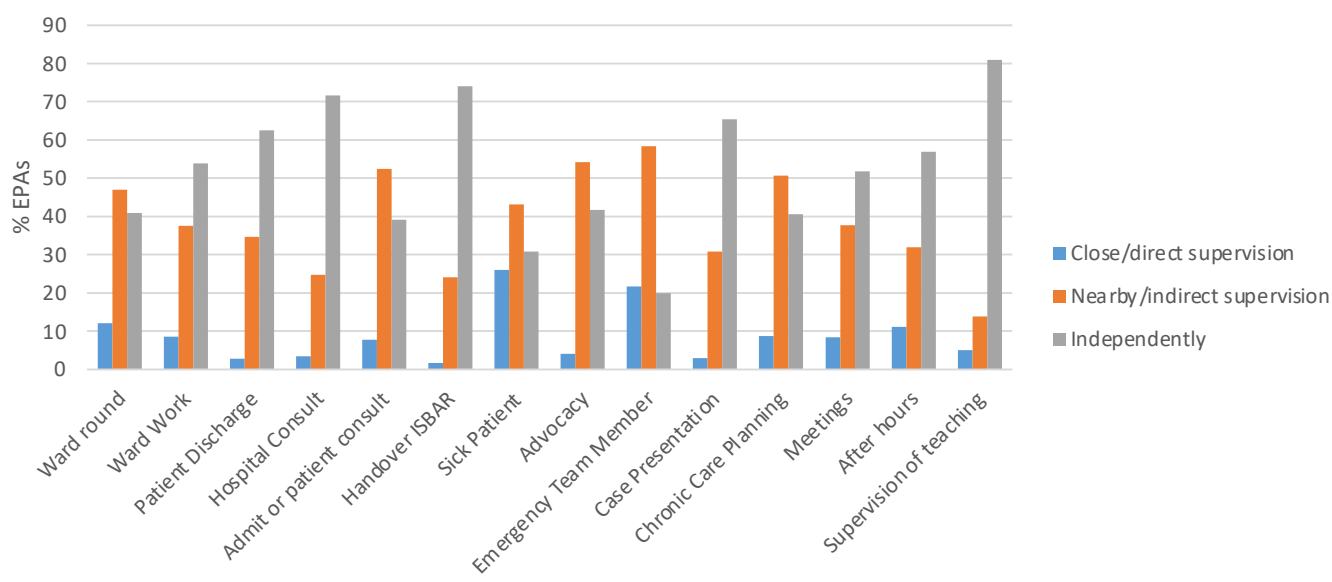


Exploring feedback (Admit/consult new patient EPA)

1 What student did well 2 Area for improvement 3 Strategy to enact



Level of supervision: grey, 60% independent



Impact

- First extensive implementation in Australian medical school
- Supervisor term reports had more information.
- Progressive use -> rich data -> better preparation for internship
- No OSCEs required
- More EPAs: Before & After Surgery, Mental Health x8, Paediatrics x4
- Continued in 2021-2022: early evaluation similar

s.tobin@westernsydney.edu.au

Mental skills - the next key surgical skill?

Timothy Boddice, Thomas Harrington-Vogt, Christopher Lewis, Raveen Jayasuriya,
James Tomlinson, Shekhar Biyani, Helen Church
Email: Timothy.boddice@gmail.com



KEY POINTS

Trainers and trainees are highly receptive to the concept of mental skills training, believing it can improve surgical outcomes.
The vast majority would like further training in this area

Introduction

Mental skills training (MST) may allow an individual to remain focussed, and deal with unwanted emotions in stressful situations.

Such techniques are commonly used in sport to aid performance and have more recently been shown to help foundation trainees in stressful situations. They are not routinely taught in postgraduate surgical training.

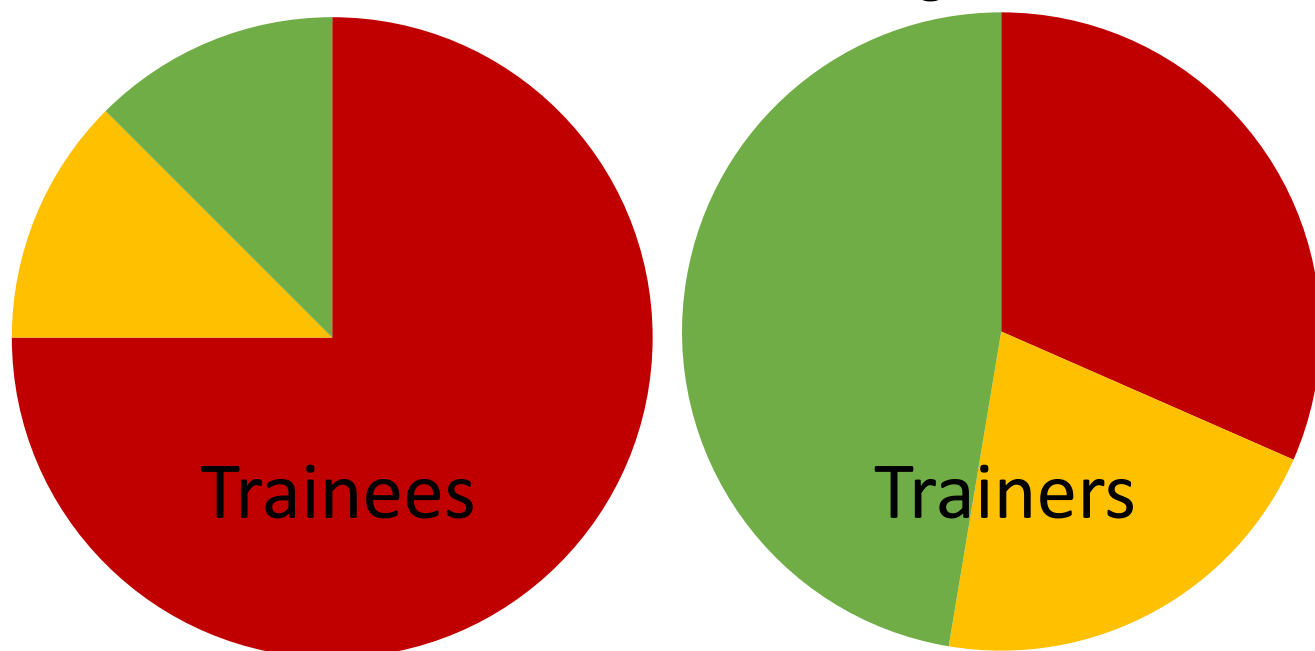


Methods

17 question survey on attitudes to mental skills training was developed with ethical approval.

Survey distribution to trainees and faculty attending two ST3 surgical bootcamps for Urology (National) and Orthopaedics (Regional) in October 2021.

I have previously had training in mental skills and/or metacognition

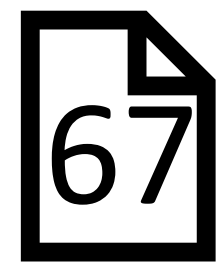


I have a good understanding of mental skills and their application



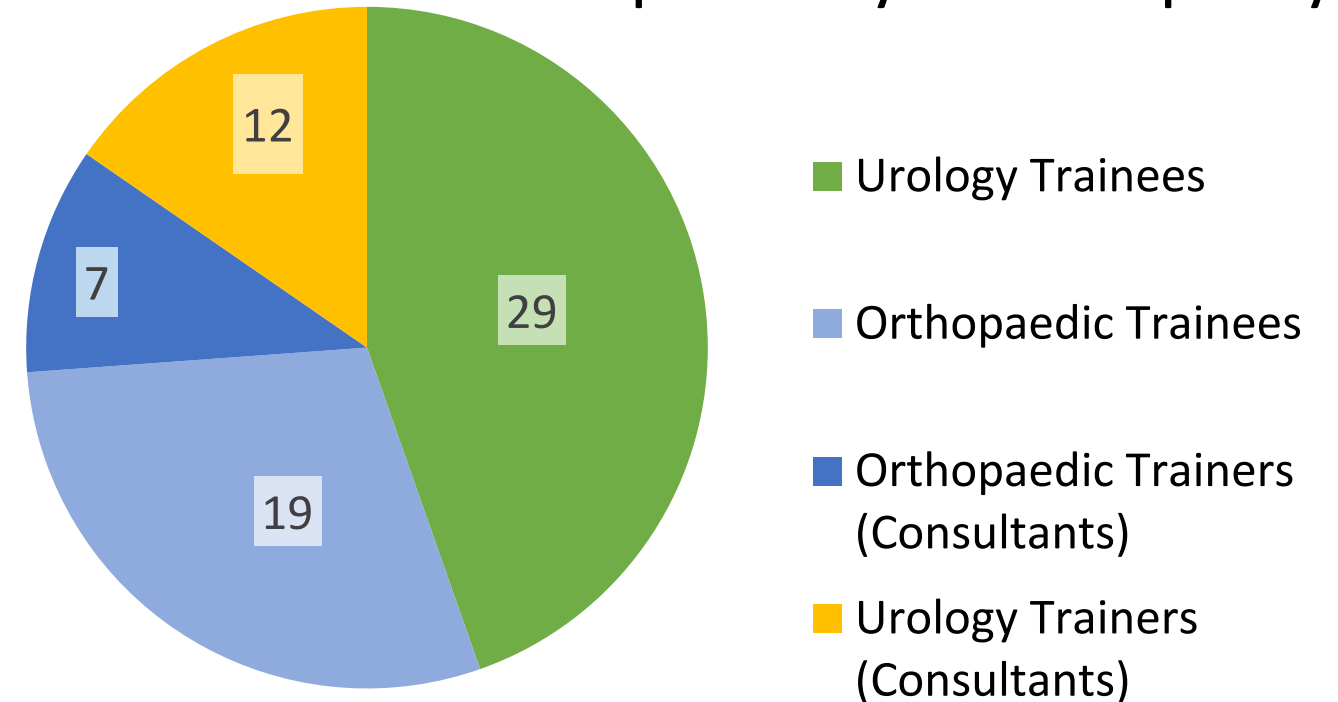
■ Strongly disagree or Disagree ■ Neutral ■ Agree or Strongly Agree

Results



67 responses

Respondents by Grade and Specialty



33% Were confident in the use of mental skills

Prior awareness of mental skills training

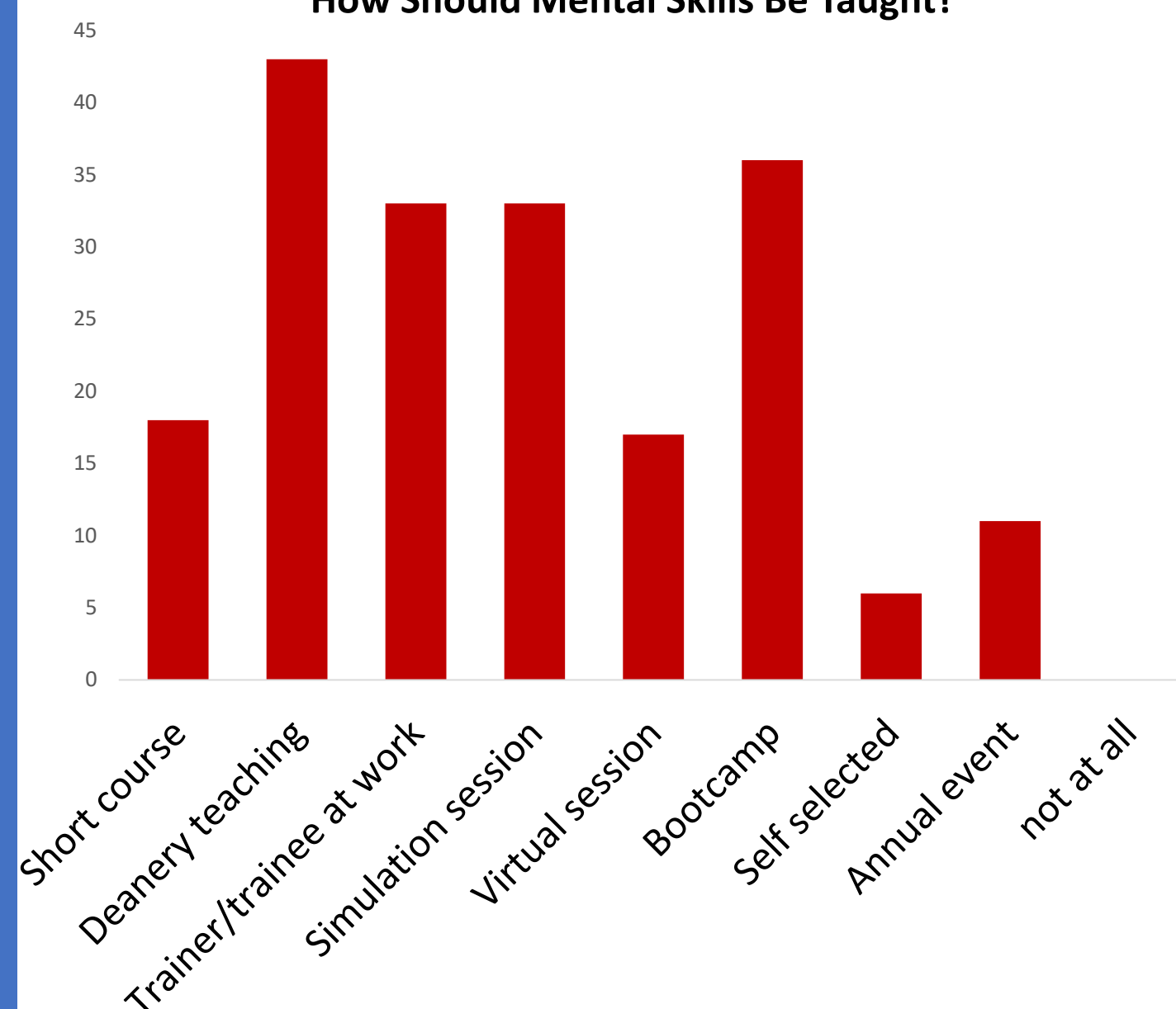
Consultants 74% > 37% Trainees

84% Felt good metal skills = good patient outcomes

97% Felt metal skills training was useful in additional to technical skills

97% Wanted more mental skill training

How Should Mental Skills Be Taught?



Mental skills...

... are poorly taught and poorly practiced clinically
... training is in demand
... should be introduced in early surgical training



Abstract

Incorporation of formal Basic Surgical skills session into the surgical block for 4th year medical students-impact on skills acquisition and interest in surgical career

Jan Sher Khan, Bushra Riaz, Nikola Henderson
Ninewells Hospital Dundee, Scotland

Background:

Basic surgical skills being cornerstone of surgical domain and practice, we felt need to make it regular part of the four weeks surgical block for 4th year students of Dundee School of Medicine.

Aims/Objectives:

Make this session formal part of the surgical block and analyse its impact on the students' perception of acquisition of skills and interest in surgery.

Method:

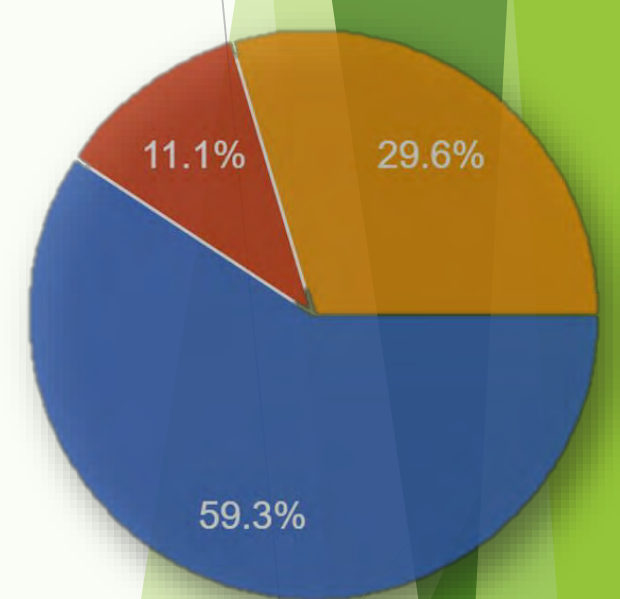
Two hours session was organized in the clinical skills centre at the beginning of each block, starting from Sep, 2021. Core trainee level fellows in general surgery were the tutors for these sessions. All the basic skills like safe handling of surgical instruments, simple interrupted and continuous suturing, sub-cuticular suturing and instrumental and hand knot tying were demonstrated and then the students were let to do hands on practice of these skills. Feedback was collected from students via google forms and analysed.

Results:

42 students in four blocks have so far attended the session. 100% of the students agreed that it was an appropriate idea to introduce this course. 58% students rated the overall event as excellent while 42% as very good and no one rated as poor. More than 90% of the students thought that introduction of this session has increased their confidence in performing surgical skills and is useful for their surgical block, especially the theatre sessions. In terms of having an impact on interest in surgery as a career, 64% responded as positive, 14% as negative and 21% were not sure of that.



Impact on confidence in performing and acquisition of basic surgical skills



Impact on interest in surgery as a career

Conclusions:

Making basic surgical skills sessions as regular part of medical students teaching not only improves their confidence in performing these skills but also is having impact on interest of students in surgery as a subject and as a career.

Return to Training: Supporting Orthopaedic Trainees



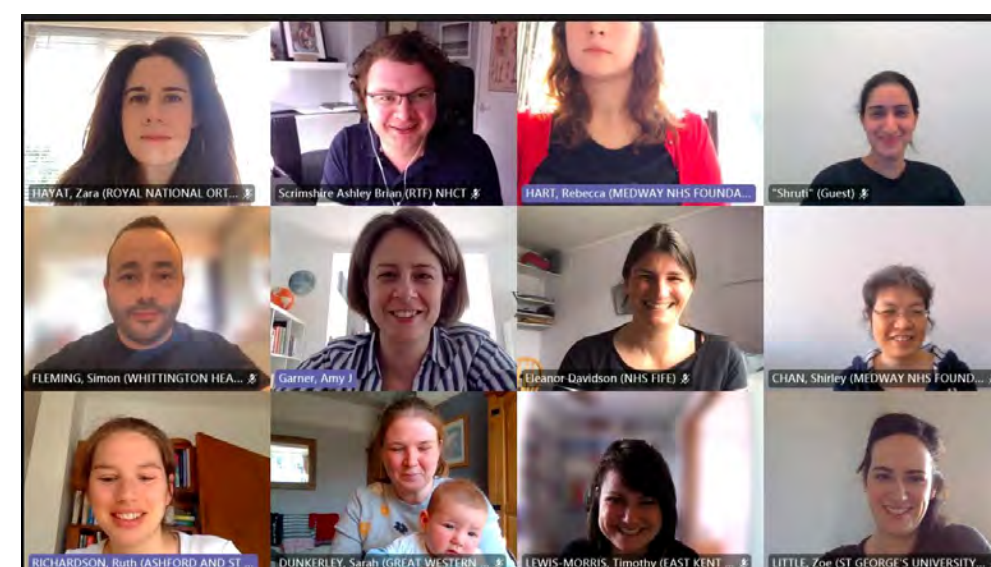
Health Education England



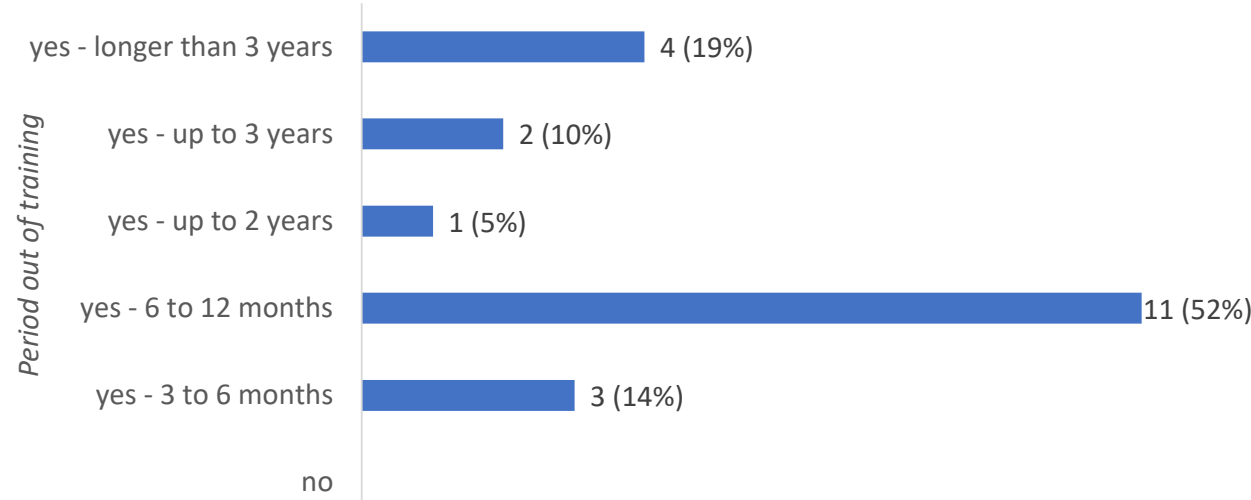
Rebecca Hart¹, Zoe Little², Ruth Richardson¹, Sarah Siddiqui³, Matthew Solan⁴, Shirley Chan⁵

¹ Specialist Registrar in Trauma and Orthopaedics, KSS Deanery, ² Specialist Registrar in Trauma and Orthopaedics, South West London Deanery, ³ National Supported Return to Training Fellow and Core Surgical Trainee London Deanery, ⁴ T&O Training Programme Director KSS Deanery, ⁵ Supported Return to Training Champion for KSS School of Surgery

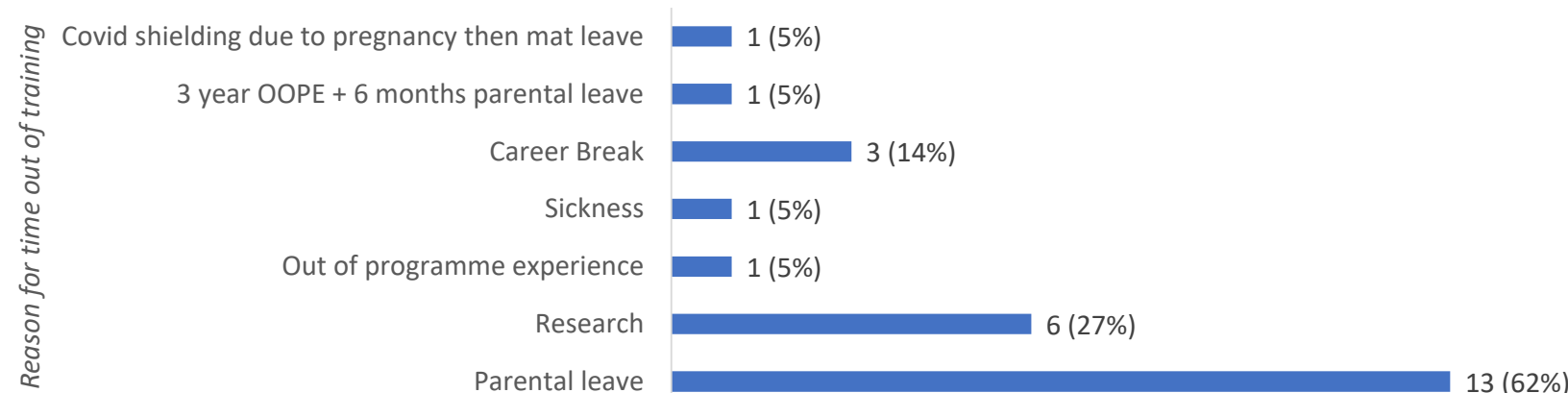
- At any one time, approximately **10%** of the UK junior doctor workforce (~5000 doctors) take time out-of-training
- The Bawa-Garba case and COVID-19 shielding has highlighted the need for better management of trainees returning to work (RTW)
- The authors designed the first UK RTW course for orthopaedic trainees, with the aim to improve confidence, skill and patient safety



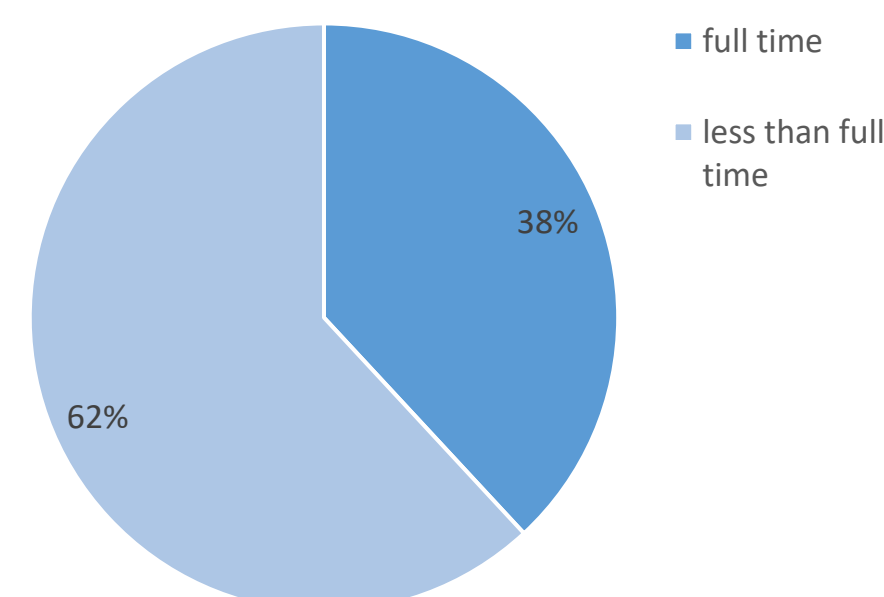
Have you had a period of time out of training for 3 months or greater?



Why did you take time out of training?



Will you be returning to work?



What components of the course did you find most useful or relevant?

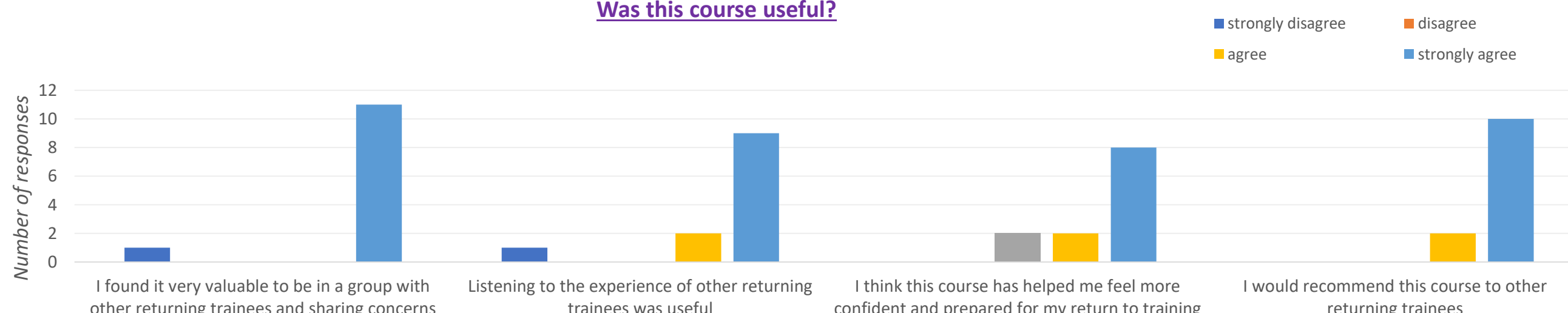


What are you most worried about on returning?



Number of responses: n (%)

Was this course useful?



There has been an overwhelmingly-positive response to the support offered on our RTW course.

All attendees felt more confident about returning to work.

It is vital to adequately support returning trainees in order to ensure patient-safety and safeguard the wellbeing of our workforce.

Scotland's Improving Surgical Training (IST) pilot: a tale of two cultural webs

Adarsh P Shah¹ | Kim Walker¹ | Lorraine Hawick¹ | Kenneth G Walker² | Jennifer Cleland³

¹ Centre for Healthcare Education Research and Innovation (CHERI), University of Aberdeen, UK; ² NHS Education for Scotland, Inverness, UK; ³ Lee Kong Chian School of Medicine, Nanyang Technological University Singapore, Singapore.



Centre for Healthcare Education Research and Innovation (CHERI)


INTRODUCTION


“Improving Surgical Training” (IST) was proposed to rebalance tensions between service and training and to restore the trainee-trainer relationship. Curricular reforms such as IST are not simply about finding novel solutions to current problems. Similarly, enacting change is more than inducting and sustaining culture change. It is about thoroughly understanding the context in which the change is to occur. Understanding the context and mechanisms of change linked to introducing IST is critical.


AIM

How does the culture at training institution(s) influence enactment of IST recommendations?

METHODS

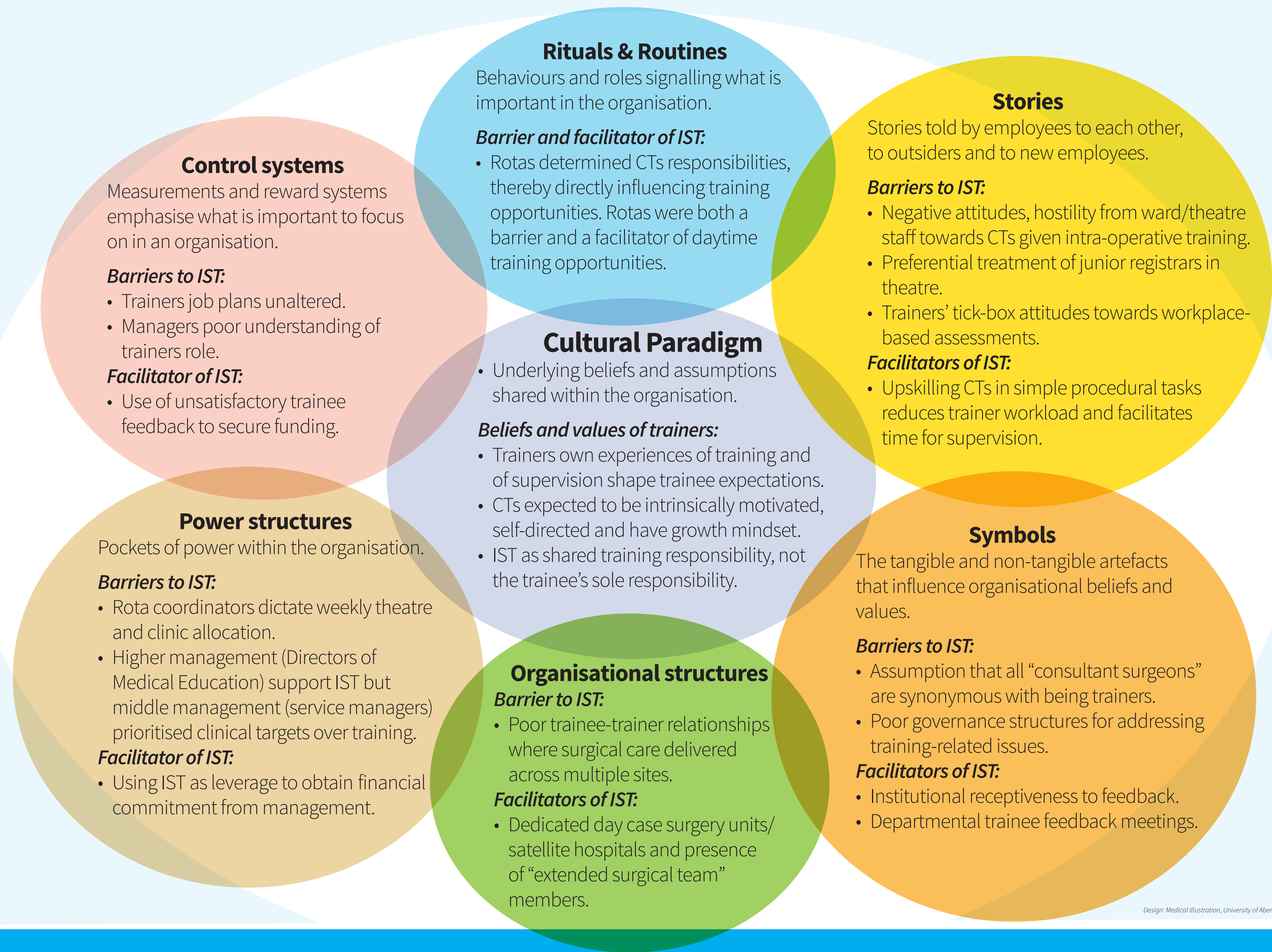
 A qualitative study

 Interviews with core surgical trainees (n=46) and trainers (n=25) involved in IST across Scotland were transcribed.

 Initial inductive (data-driven) analysis indicated many explicit and implicit issues/factors acting as barriers or facilitators to the implementation of IST. We carried out a secondary analysis using Johnson’s cultural web (Johnson, 1988).

RESULTS

Data analysis revealed seven themes: cultural paradigm, rituals and routines, stories, symbols, power, organisational structures, and control system. Using Johnson’s theoretical framework for analysing organisational culture, we depict the interplay between these elements below.



Design: Medical Illustration, University of Aberdeen

CONCLUSION

In using the cultural web theory to analyse organisation culture in the context of IST implementation, our data foregrounds the deep-seated values and beliefs, behavioural practices, and symbolic routines that can be perceived as resistance to change which can inform strategies for future curricular change.

Correspondence to: a.shah.19@abdn.ac.uk | This study was funded by The Royal College of Surgeons of Edinburgh

REFERENCES: Johnson, Gerry. 1988. “Rethinking Incrementalism.” Strategic Management Journal 9 (1): 75–91. <https://doi.org/https://doi.org/10.1002/smj.4250090107>.

RETURN TO INDEX

SURGEONS' ENGAGEMENT IN CRITICAL REFLECTION ON THEIR EDUCATIONAL PRACTICE



Introduction

Changes in the medical education and surgical landscape demand a greater level of educational sophistication and commitment from surgical educators. However, current work pressures limit time and energy for educational development and reflection. This is concerning, as excellent education and training and high-quality patient care are often linked (Faculty of Surgical Trainers, 2017).

Aims

To explore surgeons' attitudes to teaching and education in surgery and their engagement in critical reflection on their educational practice.

Methods

Sample: 9 surgeons (range of seniority, specialty and educational experience)
Recruitment: via local 'Cutting Edge' society email list
Data collection: individual interviews (online)
Data analysis: reflexive thematic analysis (Braun & Clarke, 2006)

Results – 5 themes

1. Teaching is important and valuable in surgery.
"I really enjoy it [teaching] and it adds an extra dimension to the job that I wouldn't want to lose." (Mr Norris)
2. The current system does not support educational excellence in surgery.
"You've got a system that really is only concerned about service, and the system does not recognise or value trainers... they pay lip service to the funding of it." (Mr Lyon)
3. Service pressures are perceived as a barrier to teaching and developing as educators.
"Service management sometimes conflicts with the ability to teach." (Mr Eccleston)
4. Critical reflection on educational practice is mostly informal.
"I'm not sure whether or not formally critically reflecting and writing it down makes any impact on whether or not you're successful as a teacher." (Mr Wolfe)
5. Motivation to reflect and develop as educators comes from wanting to strive for excellence.
"My drive for critical reflection is the drive to be better." (Miss Carman)

Discussion

Surgeons want to strive for excellence in all aspects of their profession. We must develop systems and structures which recognise teaching excellence on an equal footing to clinical and research excellence.

Improvements are needed to:

- ✓ Encourage surgeons to seek feedback on their teaching.
- ✓ Educate surgeons about available support and resources.
- ✓ Address the perceived conflict between training and service.
 - ✓ Promote leadership in surgical education.
- ✓ Create communities of practice for shared learning and improving care (Lave & Wenger, 1999).



Systematic review of different methods to collect undergraduate student evaluation of teaching for clinical skill training through clinical skills laboratories in last 10 years

Mr Cho Ee Ng¹, Dr Sharon KP Tam¹, Mrs Cathy Carr²

1. Newcastle University
2. Clinical Assessment Team (OSCE), University of Liverpool

Introduction

As part of the undergraduate curriculum, simulation for practical skills training is common. The use of clinical skills laboratories provides a safe environment for the student to be familiar with the procedure.

However, there is variability when it comes to the students' evaluations of the standard of teaching (SET), which makes it challenging for educators to adapt to their needs.

Aims

1. To examine how is clinical skills training being evaluated by students
2. To identify if any feature of the student evaluation is useful to evaluate the undergraduate procedure training.

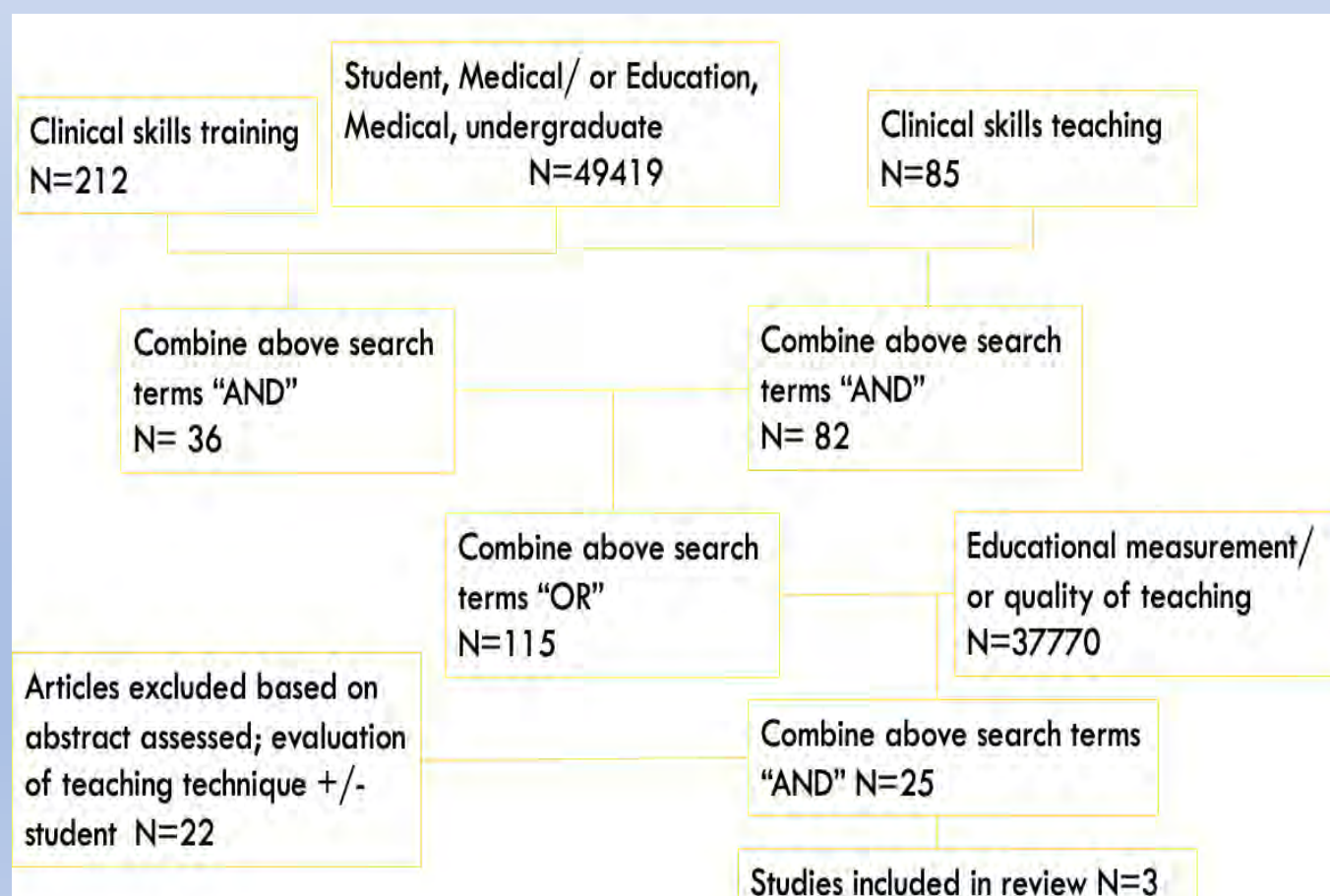
Method

A systematic review of the literature was conducted on "the different methods used to collect undergraduate medical student evaluation on clinical skill training through clinical skills laboratories"

Medline, Pubmed and Embase databases search was performed using keywords "undergraduate medical student", "feedback", "evaluation of teaching", and "quality of teaching".

Articles were limited to those published between January 2009 - January 2019 as prior to that there were no clinical skills laboratories.

The following is the PRISMA diagram of the search.



Results

- Three articles met the inclusion criteria, including two experimental studies and one review.
- These studies were heterogeneous in design and methodology.
- They featured a wide range of evaluation techniques: 5-point Likert scale, student test-scores and satisfaction questionnaires.

Study	Population	Method used	Evaluation technique	Analysis technique
Gormley, G et al, 2009 ¹ experimental	2 nd year medical students at Queen's University Belfast	Questionnaire for student developed based on literature review and focus group	E-learning vs F2F 5-point Likert scale ranging from 1=Strongly disagree to 5=Strongly agree.	88.5% response rate Simple descriptive statistics
Tolsgaard, M, 2013 ² review	1 st year medical students, University of Copenhagen	Randomised trial comparing student teachers and associate professors	IV cannulation and catheterisation Student test-scores, Satisfaction questionnaires	Parametric analysis with p-value for student scores and questionnaire responses
Abay, E et al, 2017 ³ experimental	3 rd year medical students, Hacettepe University Faculty of Medicine	Tutors included interns, nurses and physicians, all receive 10 hours initial training. Evaluation questionnaire by author	Multiple skills Student test-scores Blinded trained assessors Higher points for increased proficiency and preferred tutor	85% participation Cronbach's alpha for internal consistency Non-parametric analysis with p-value

Discussion

Why only undergraduate related publications examined?

Difference in pedagogy in postgraduate training – students have more prior clinical exposure

Significance of the review

Increase number of skills lab with mixed tutors

1. Dedicated staff i.e. clinical skills tutor, teaching fellow
2. Ad-hoc staff i.e. ACTs, junior doctors, senior doctors

Does SET correlate with student learning?

Uttl, B et al, 2016 performed meta-analysis of teaching effectiveness and concluded that there was no relationship between SET and student learning

Validity of collecting SET

1. Lack of standardise validated tool to support goals
2. Undergraduates evaluation - Does it assess teaching effectiveness?
3. Accountability to stake holders – to be used alongside student academic assessments

Conclusion

There are limited evidence on the use of SET

Medical educators should instead focus on:

- effective teaching methods
- achieving of learning objectives
- reflecting on methods used to support goals
- accountability to stakeholders

The Influence of Legal Events involving Reflective Practice on the Views of Surgeons

Ian Rudd

Imperial College London & Maidstone & Tunbridge Wells NHS Trust

Introduction

Reflective practice (RP) is considered essential for development by allowing professionals to ‘make meaning of complex situations and enabling learning from experience’. Sharing RP may enhance this process and allow for an authentic assessment of a surgeon.

In 2016 Health Education England sent a letter to trainees after a case where a trainee’s written RP was used against them in court. And the high-profile case of Dr Bawa-Garba, a paediatric trainee convicted of gross negligence manslaughter in 2015, caused considerable disquiet in the medical and surgical community. Much of this concern focused on the alleged uses of Bawa-Garba’s reflections in the case against her.

In response, many argued that trainees should refuse to engage with RP:

‘Lie. Unless you are certain that your e-portfolio is completely protected against legal might, this is your only sensible recourse. Lie with enthusiasm. Lie constructively. Lie consistently. Lie even to yourself.’ (Letter to BMJ, 2018)

I sought to explore the current view of RP amongst surgeons in the UK and investigate the repercussions of these events.

Reflective Practice: ‘A form of mental processing with a purpose and/or an anticipated outcome that is applied to relatively complicated or unstructured ideas for which there is not an obvious solution’ (Moon, 1999: p98)

Methods

A qualitative study, based on a social constructivist ontological worldview, employing phenomenological principles. A literature review was undertaken and semi-structured interviews conducted on a one-to-one basis, using an interview guide. Audio recordings with subsequent transcription and thematic analysis were carried out. This study was undertaken for my Surgical Education Masters dissertation at Imperial College London.

Participant	Grade	Speciality	Educational Experience
Trainee 1	CT2	Core Surgery	Undertaking PGCert in Med Ed
Trainee 2	CT2	Core Surgery	
Trainee 3	ST5	Urology	
Educator 1	Consultant	Paediatric Surgery	Educational & Clinical Supervisor
Educator 2	Consultant	Paediatric Surgery	TPD, MEd, SAC member
Educator 3	Consultant	OMFS	DME, TPD, SAC member, PGDip Med Ed

Results

5 themes are presented: ‘The meaning of RP’; ‘Surgeons value true RP’; ‘How do surgeons learn to reflect?’; ‘Sharing and assessing RP’; ‘The impact of legal events’.

The meaning of RP

Most participants associate RP in surgery with what Fish (2012) referred to as ‘technical reflection’ focusing on the knowledge, and particularly the skills, required by the trainee. RP was nearly always associated with events where negative outcomes had occurred. ISCP and appraisal were predominantly viewed as a hindrance to useful RP.

‘You end up writing something that isn’t really a reflection, it’s just filling in a box. I think really reflecting on something is useful. [...] It feels like I’m being forced to reflect so that someone can say: ‘see, this doctor reflected’. Whereas it would actually much more useful to reflect on things that I don’t put in my appraisal.’

Surgeons value true RP

Although the practicalities of RP were questioned, every participant placed a high value on RP. This view was often expressed emphatically. Many volunteered that they thought RP promoted lifelong, independent learning and was essential to be a surgeon.

‘If you’re not prepared to open up your thinking to why you made a decision [...] can you really be a ‘good doctor’?’

‘I think it’s really important for anybody in any kind of job where it matters what happens... which is any doctor but particularly surgeons.’

Sharing & Assessing RP

There was a recognition of the benefits of sharing RP, particularly to gain a more experienced perspective and to demonstrate insight to their trainers. Generally trainees were happy to share RP with educators they were familiar with. Educators valued evidence of RP highly in the assessment of trainees but were concerned that it might change the honesty of the RP.

‘I would like to know, if I’m managing them in their training, to know where they sit on the spectrum of very reflective right way down to no insight.’

‘The trouble is, if you know your reflections going to be looked at you probably reflect in a different way and you probably write something different.’

How do Surgeons learn to reflect?

Several participants commented that RP is something that is difficult to do well. Their comments often implied that this was a view that was not universally shared by the educational system. The predominant view was that there was insufficient teaching of RP.

‘It’s often regarded as a bit fluffy and a bit soft and a bit sort of, you know, beanbags and cardigans and decaf coffee, but actually, when you’re faced with patients who’ve suffered harm [...] it’s actually really tough stuff’

The impact of legal events

All participants were familiar with the Bawa-Garba case and many brought the case up before it was mentioned. Most participants thought the RP had formed part of the legal proceedings against her.

‘The fact that the reflections she then shared with a trainer, were then used against her in court, undermines the whole business’

All but 1 surgeon said it had made them or their trainees less open with their RP.

‘If I just don’t make the right judgment call or I am a little too honest in this particular area of my portfolio... oops! [laughs] That could be it’

‘We saw an enormous change of practice around there because suddenly, everybody started not sharing their reflections’

Some suggested this was temporary effect but others reported it was ongoing.

‘Probably like all these things, the pendulum swung fiercely one way, fiercely the other and it’s coming back towards the middle’

‘When we were encouraged to reflect about Covid [...] people will say things like, “okay, I’ll write this but maybe I won’t write too much” and they may not be alluding to that case in particular, but I think [it’s] because of that case’

Discussion/Conclusion

Recent legal events have made surgeons more reluctant to openly share their RP (despite the role of RP in those events being overstated). Surgeons still place a high value on RP and the effects of those legal events may be mitigated by:

1. Ensuring that RP is clearly and tightly defined;
2. Moving away from technical or narrative reflection;
3. Encouraging surgeons to reflect on what goes well;
4. Reducing the role of the ISCP in RP;
5. Ensuring that assessing RP is a holistic, well-planned process;
6. Recognising how difficult RP can be, and giving it the commensurate level of attention and training.



@Ian_Rudd1

i.rudd@nhs.net

The Effect of Pre-Operative Emotional Visual Stimuli on Simulated Laparoscopic Surgical Performance: A Pilot Cohort Study

Andrew Keenlyside¹, Beatrice Rae¹,
Paul Brennan², Mark A Hughes²

¹ School of Medicine, University of Dundee, Ninewells Hospital and Medical School, Dundee
² Department of Clinical Neurosciences, Royal Infirmary of Edinburgh, BioQuarter, Edinburgh

Overview:

Healthcare delivery is an emotionally charged environment. Continuously increasing financial, staff, and demand pressures on the NHS make exposure to stress unavoidable in modern healthcare delivery, and surgery in particular. Exposure to stress prior to surgery can negatively impact performance. The management of stress is an essential non-technical skill required for safe practice. However, the effects of pre-operative exposure to emotional visual stimuli on surgical performance are poorly understood.

Aims:

To investigate the effect of differentially emotive visual stimuli on subsequent simulated laparoscopic surgical performance amongst novice, simulator-naïve medical students. (figure 1)

Methods:

A single centre cohort study of thirty medical students was conducted. Participants were randomly allocated into groups to view either positive, negative, or neutral (considered control) emotionally charged images (figure 2). Participants focused for 5 seconds on the image prior to completing a peg-threading laparoscopic task (during which performance metrics were recorded: time, distance, speed, acceleration, motion smoothness, and ambidexterity). 8 task cycles were completed, 3 control practices, followed by 5 with stimuli in concordance with their group.

Results:

Students exposed to positive visual stimuli showed more rapid improvement in logarithmic trendlines over the exposure phase (tests 4-8) compared to the negative stimuli group when standardised against control and first performance outcomes for time (figure 3), distance, acceleration, and motion smoothness (figure 4). Similarly standardised trendlines for speed (figure 5) and ambidexterity measures saw no differences in improvements between positive and negative stimuli groups.

Conclusion:

Exposure to positive visual stimuli resulted in mild non-significant improvements in some surgical performance metrics compared with negative or control stimuli.

Discussion:

The non-significant performance benefits seen from the presence of positive stimuli as opposed to the absence of negative stimuli alone therefore provides suggestion of greater improvement in training for trainees in a positive or supportive environment. There is an opportunity to more closely examine and further understand the emotional factors of performance for surgeons and surgical trainees.



Fig.1 - Image of Eosurgical Eosim laparoscopic training simulator:
www.eosurgical.com



Fig.2 – Example images of A – Low arousal (calm), positive valence (pleasant) image of a cat, B - High arousal (alarming), negative valence (unpleasant) image of tigers hunting, and C - a neutral image of a bus.

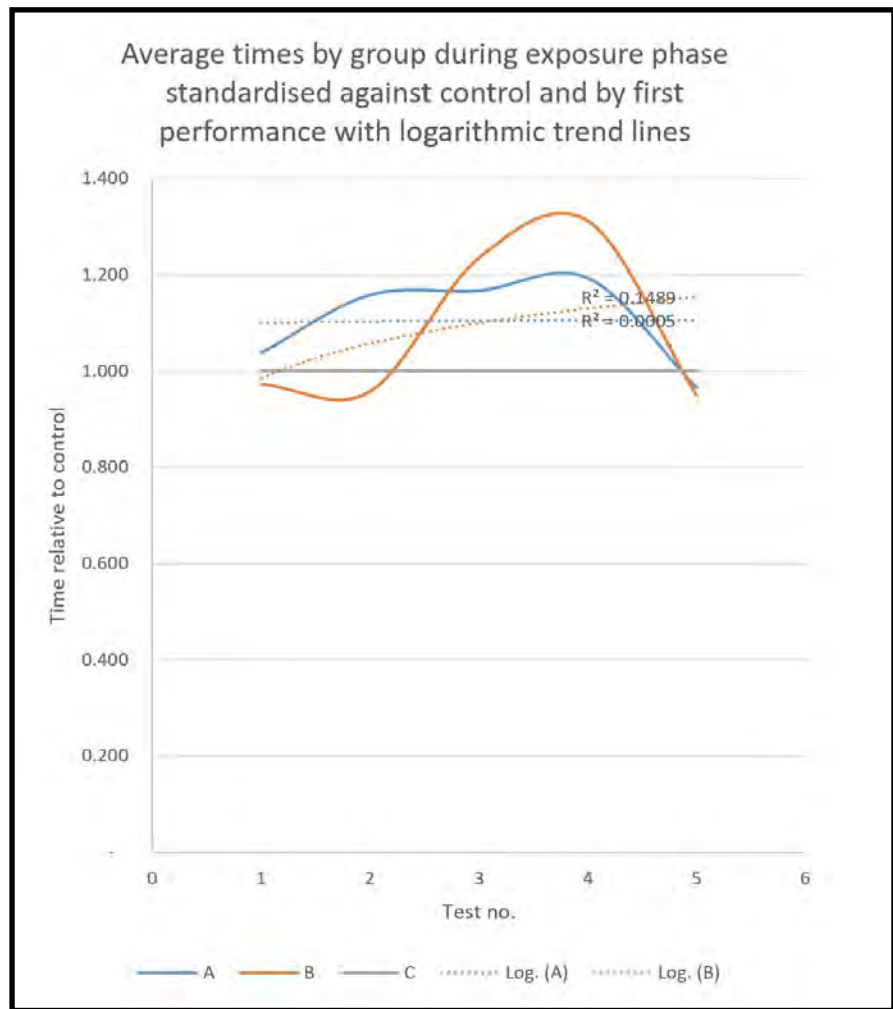


Fig.3 – Average time by group during the exposure phase standardised against control and by first performance with logarithmic trendlines.

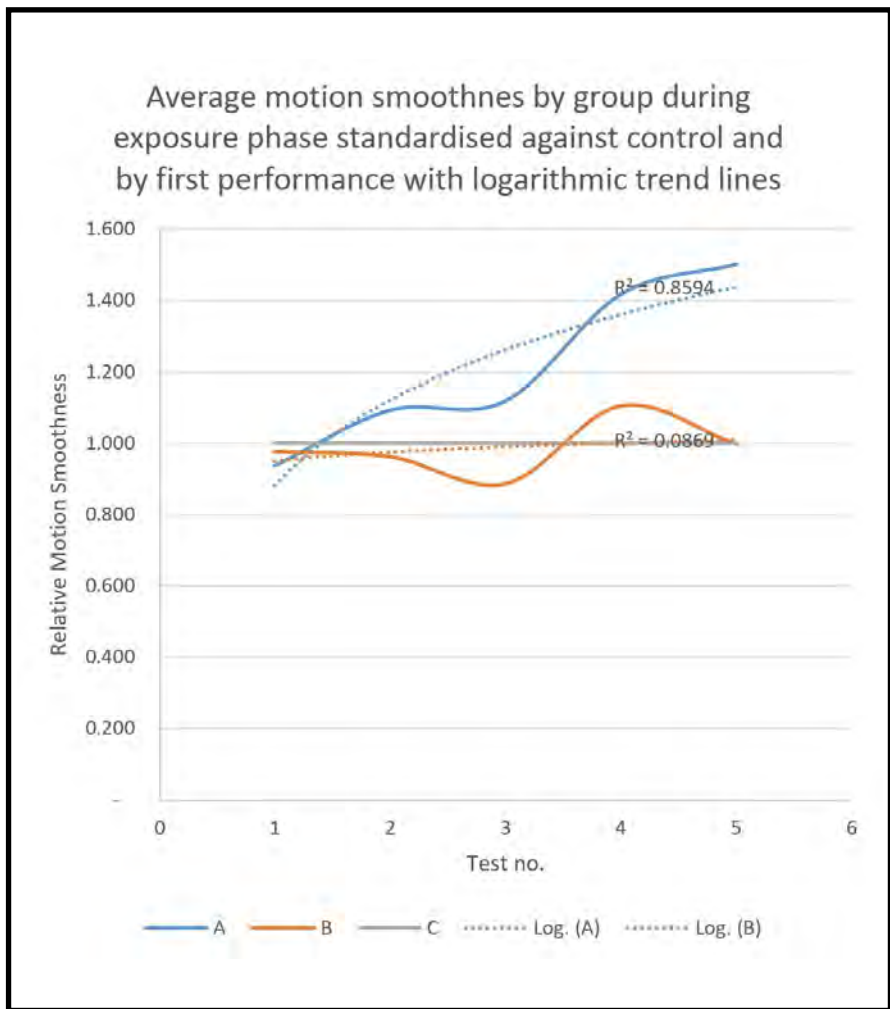


Fig.5 – Average motion smoothness by group during the exposure phase standardised against control and by first performance with logarithmic trendlines.

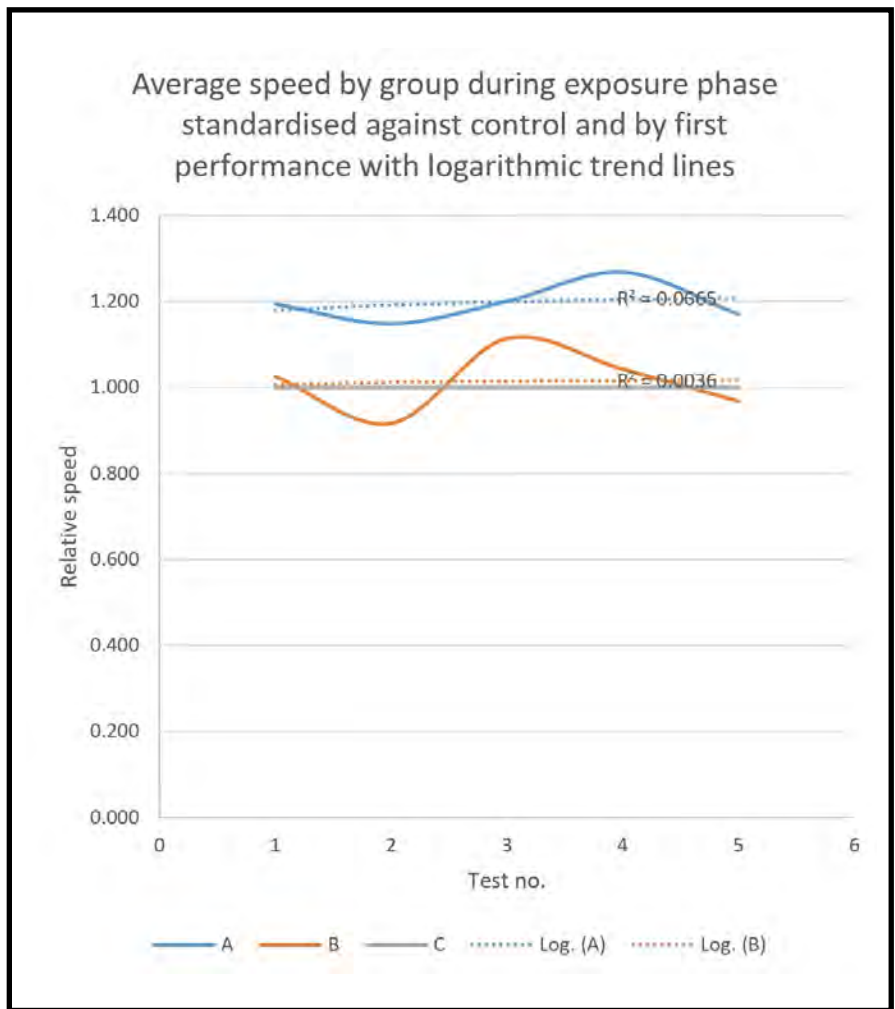
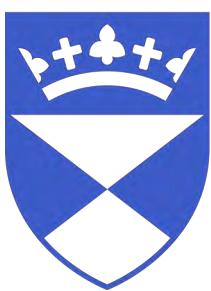


Fig.4 - Average acceleration by group during the exposure phase standardised against control and by first performance with logarithmic trendlines.

Conflict of Interest:

Mr Mark Hughes is a Founder & Director of Product Development for eosurgical and Mr Paul Brennan Founder & Director of Sales and Marketing for eosurgical. Eosurgical develops and sells the surgical simulators used in this study.



University
of Dundee



The Operating Theatre as a Classroom: A Scoping Review of the Operative Learning Environment

Author: **Lucie J. Wright**, Plastic Surgery Registrar. Nottingham University Hospitals NHS Trust.

AIMS

To map the literature examining the clinical learning environment of the operating theatre and identify areas of future research.

METHODS

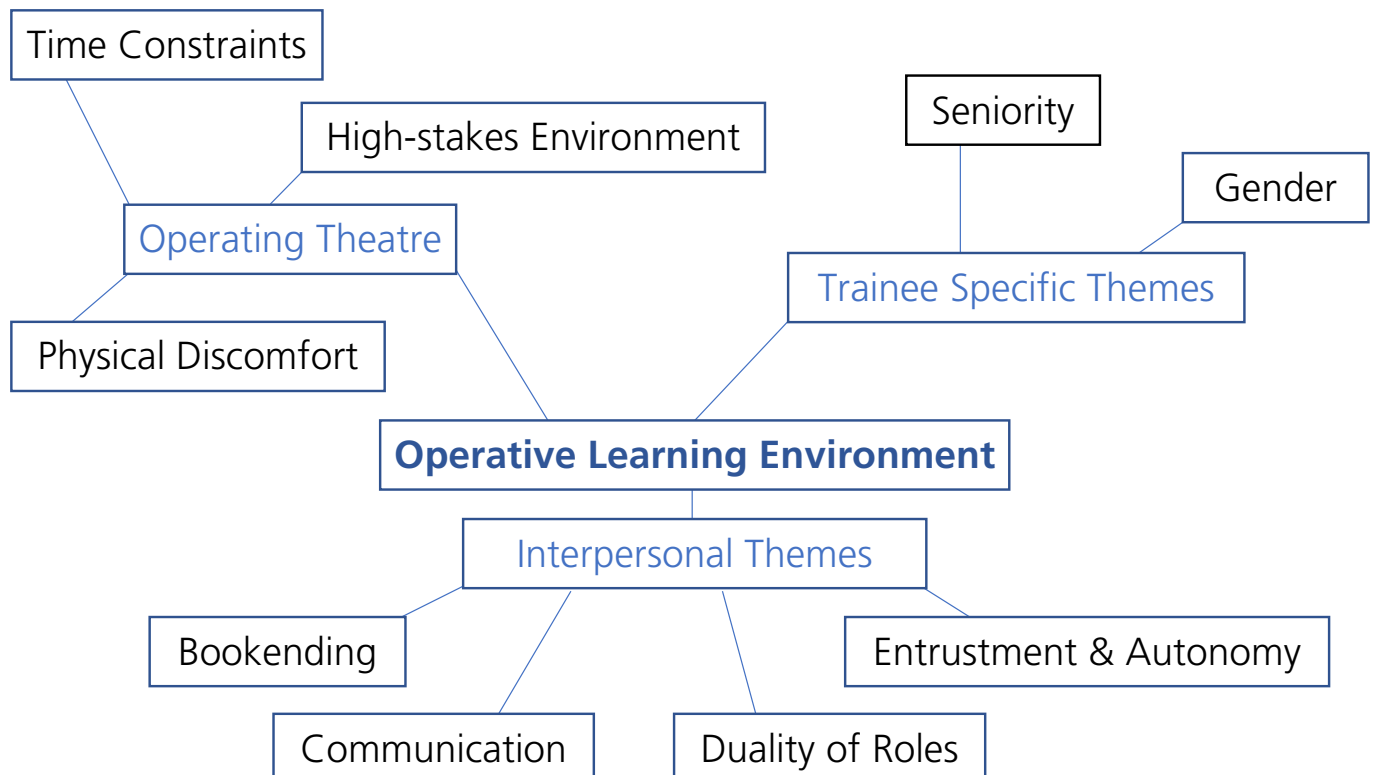
A literature search was performed using MEDLINE, CINAHL and PsychINFO. Further data were gathered from 'grey literature' sources. Through an iterative process, relevant sources were reviewed and thematically coded to map the topic and identify gaps in collective knowledge.

RESULTS

19 papers were included in this scoping review.

Thematic summary with 3 major sub-themes:

- 1. Operating Theatre:** Can be a hostile classroom characterised by:
 - Extreme temperatures
 - Distractions from noise
 - Time limitations
- 2. Trainee Specific:** gender and level of seniority of trainee appear to influence the perception of the operative learning environment
- 3. Interpersonal:** dynamic between trainee and trainer is pivotal and complex



CONCLUSION

Operating theatre can be simultaneously:

- Hostile and collaborative
- Discriminatory and an arena for mentorship

In Association with:



THE ROYAL
COLLEGE OF
SURGEONS
OF EDINBURGH



THE UNIVERSITY
of EDINBURGH

[RETURN TO INDEX](#)



The perceived influence of COVID-19 on core surgical training in the United Kingdom

Pedram Panahi, Shaikh Sanjid Seraj, Pushpa Veeralakshmanan, Mr. Jonathan Unsworth-White
pedram.panahi@nhs.net

1. Introduction

- Surgical training has been affected by **COVID**.
- Firstly**, many surgical trainees were **redeployed** in line with guidance published by the Royal Colleges of Surgeons.
- Secondly**, operative capacities were **limited** to allow for the additional bed spaces required for COVID admissions.
- Thirdly**, numerous elective surgical cases were **cancelled** and non-operative interventions encouraged to both reduce the risk of COVID transmission, and to also account for the increased risk of morbidity and mortality observed in patients with peri-operative COVID.

2. Aim

- Investigate the **perceived impact of COVID on core surgical trainees** and their surgical career progression in the UK.

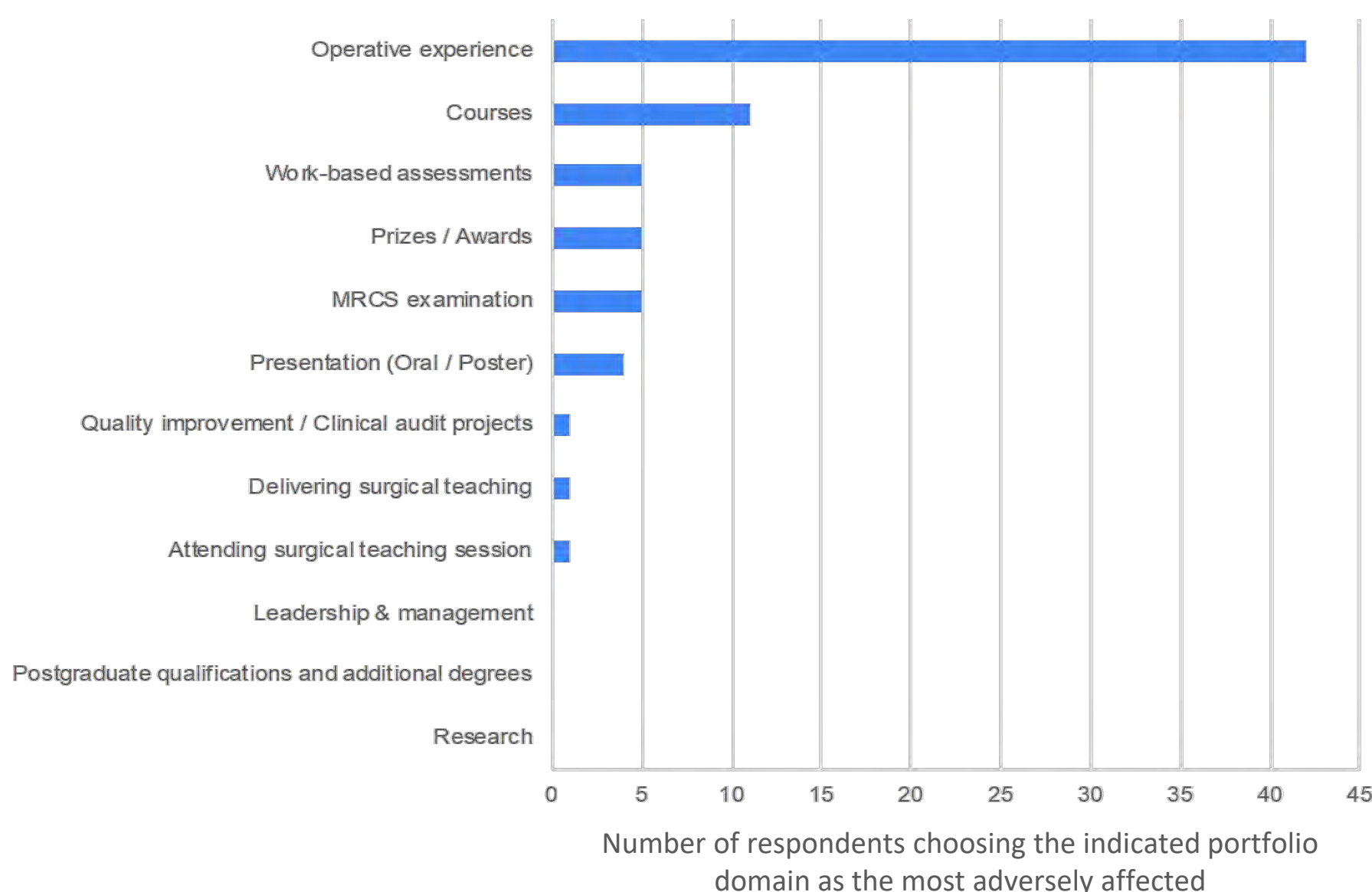
3. Methods

- An online survey was **piloted** and subsequently devised using Google Forms.
- The survey considered **demographics, impact on commonly assessed portfolio domains, academia and personal wellbeing**.
- The survey was distributed to **core surgical trainees** across the UK.

4. Results

- 75 trainees** responded, 35 were in the first year and 40 in the second year of their surgical training programme.
- Median number of **10 days (IQR 0 - 30)** of redeployment.
- Median of **2 days (IQR 0 - 14)** of sick leave due to confirmed / suspected COVID.
- A **drop** was observed in the respondents' global perception of their portfolio quality.
- 42 respondents (56%) felt that **operative experience** was the **most adversely impacted** portfolio domain (Figure A).
- The **least impacted** domains were the ability to **deliver teaching** and **work on leadership / management qualities**.

5. Figure A



6. Results continued

- 15 respondents (20%)** planned to complete an additional qualification and were prevented from doing so owing to the pandemic.
- Median of **2 courses (IQR 1 - 3)** were cancelled.
- Median of **2 conferences (IQR 1 - 2)** were cancelled.
- Of the 43 respondents who had their MRCS exam postponed, **67% (n=29)** felt that they performed less well as a result of the postponement.
- Of the 18 unsuccessful ST3 applicants who were asked whether they felt that the pandemic played a significant detrimental role, **89% (n=16)** said yes and 6% (n=1) said maybe.
- 63 respondents (84%) felt **more stressed as a result of the pandemic**.
- 44 respondents (59%) indicated that they have **lost confidence as a surgeon due to the pandemic**.

7. Conclusion

- A **marked negative impact** was observed in several domains affecting both surgical training and career progression.
- Allocated theatre time** was the **most adversely affected** domain.
- In order to maintain optimal patient care, these factors need to be addressed in surgical training schemes as the pandemic continues.

8. Limitations

- Survey studies such as this are more likely to entice trainees who have concerns that they wish to voice as opposed to trainees who are content with their training status.
- The sample size is relatively **small**.
- Survey studies are at risk of **recall bias**.

References

- RCS England. Guidance for surgeons working during the COVID-19 pandemic. Surgical Royal Colleges of the United Kingdom and Ireland. Published 2020. Accessed August 28, 2021. <https://www.rcseng.ac.uk/-/media/files/rcs/coronavirus/joint-guidance-surgical-support-during-covid.pdf>
- Carenzo L, Costantini E, Greco M, et al. Hospital surge capacity in a tertiary emergency referral centre during the COVID-19 outbreak in Italy. Anaesthesia. 2020;75(7):928-934.
- Nepogodiev D, Bhangu A, Glasbey JC, et al. Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: an international cohort study. Lancet. 2020;396(10243):27-38.
- Khan KS, Keay R, McLellan M, Mahmud S. Impact of the COVID-19 pandemic on core surgical training. Scott Med J. 2020;65(4):133-137.

THE USE OF TECHNICAL AND NON-TECHNICAL LEARNING OBJECTIVES IN SIMULATION BASED SURGICAL TRAINING

A SCOPING REVIEW

AMALIE A. ROSENDAL^{1,2}, SIGURD B. SLOTH³, MAGNUS BIE², JAN D. RÖLFING^{1,2,4}, RUNE D. JENSEN^{1,2}

BACKGROUND

- **Simulation based surgical training (SBST)**
 - Improves patient safety
 - Teaches technical and non-technical skills separately
- Recent literature suggests surgeons rely on technical and non-technical skills simultaneously

AIM

- Investigating the relationship between technical and non-technical learning objectives in existing literature
- Mapping the development of publications within SBST over time

METHOD

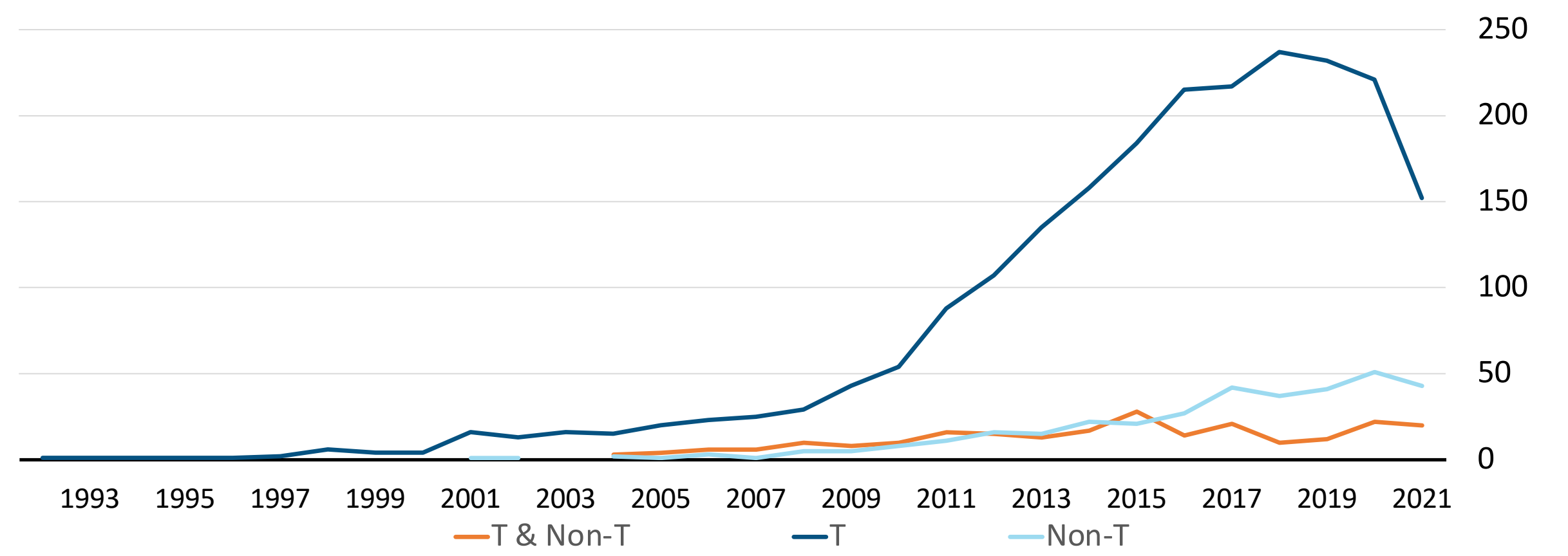
- Systematic literature search of four databases
- **Inclusion criteria:**
 - Empirical studies in SBST addressing both technical and non-technical learning objectives
- **Exclusion criteria:**
 - Reviews
- **Analysis of:**
 - Technical and non-technical assessment tools
 - The relationship between technical and non-technical learning objectives

RESULTS

	Validated	Unvalidated
Technical assessment tools	46%	54%
Non-technical assessment tools	46%	54%

- **Most frequent technical assessment tools:** Procedure related outcomes, OSATS, and simulator based metrics
- **Most frequent non-technical assessment tools:** Questionnaire, NOTSS, and NASA-TLX
- 19 studies investigated the effect of a non-technical intervention on technical skills
- No consensus on the relationship between technical and non-technical skills, however, a tendency towards a dualistic relationship is seen

Number of publications on SBST based on learning objectives



Theme	Number of publications
Correlation between technical and non-technical learning objectives	12
Effect of technical skills on non-technical skills	1
Effect of non-technical skills on technical skills	34

CONCLUSION

- Current literature on SBST focuses primarily on technical learning objectives
- The majority of publications including both technical and non-technical learning objectives investigate how non-technical interventions affect technical skills
- Future studies might explore the relationship between non-technical skills and technical skills further

3137 articles identified

Non-technical learning objective
n=353

Technical and non-technical learning objectives
n=241

Technical learning objective
n=2222

Articles meeting inclusion criteria
n=102

Articles addressing the relationship between technical and non-technical learning objectives
n=47

DEPARTMENT OF HUMAN STRUCTURE AND REPAIR – ANATOMY AND EMBRYOLOGY

Leander De Mol¹, Joris Vangeneugden¹, Liesbeth Desender^{1,2}, Isabelle Van Herzele^{1,2}, Lars Konge^{3,4}, Wouter Willaert^{1,5}

¹Department of Human Structure and Repair, Ghent University; ²Department of Thoracic and Vascular Surgery, Ghent University Hospital; ³Faculty of Health and Medical Sciences, University of Copenhagen; ⁴Copenhagen Academy for Medical Education and Simulation (CAMES); ⁵Department of Gastrointestinal Surgery, Ghent University Hospital

USING AN APPLICATION TO MEASURE TRAINEES' PROCEDURAL KNOWLEDGE BEFORE CHEST TUBE INSERTION

Objective

- Educational assessments must be validated prior to their implementation
- Touch Surgery™ (Digital Surgery LTD, London, UK) is a medical simulation application, offering users a learn and test mode
- Our goal was to collect validity evidence for the chest tube insertion (CTI) test mode using Messick's contemporary framework

Methods

- Novice, intermediate and experienced participants provided informed consent and demographic information
- All participants familiarized with the application
- All participants completed the CTI test mode. The resulting percentage score was recorded
- Validity evidence was collected from four sources:
 - Content
 - Intermediate and experienced participants completed a post-test questionnaire assessing perceived realism, relevance, and utility of the assessment
 - Response process
 - All users were provided with identical familiarization and instructions
 - Relation to other variables
 - Mean scores of the three groups were compared
 - Consequences
 - A pass/fail score was established using the contrasting groups' method

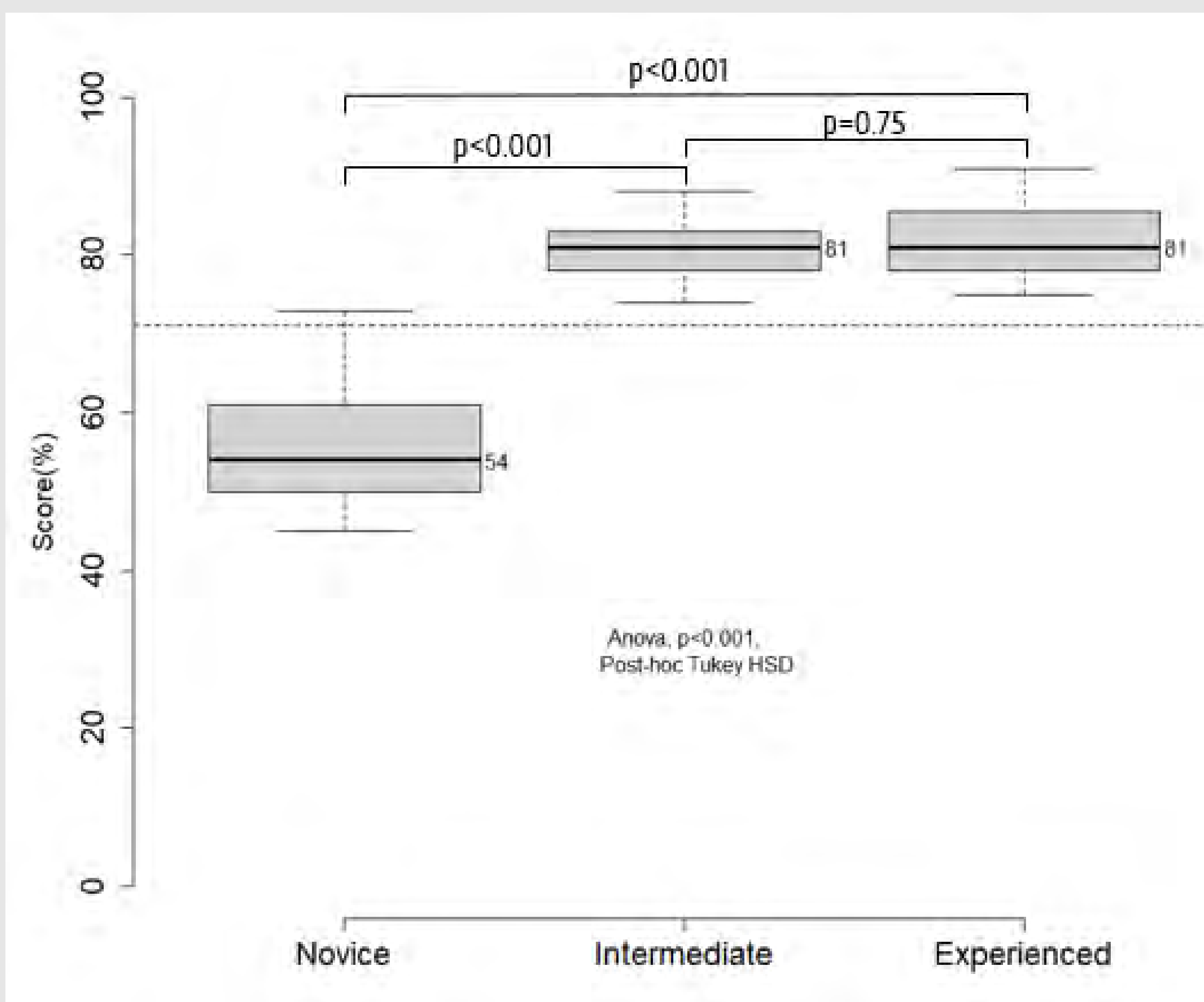


Fig. 1: CTI Test Mode performance scores of the three groups. The dashed line represents the pass/fail score.

Conclusion

The implementation of this application in surgical curricula was positively reviewed.

The CTI test mode presents a robust validity argument and can be implemented in surgical curricula to assess learners' cognitive skills prior to hands-on simulation practice. Future investigation concerning internal structure (i.e. reliability) of the assessment is advised.

Results

- Twenty-five medical students, 11 junior surgical residents, and 19 experienced surgeons participated
- Content evidence:
 - Collected by an experienced surgeon in CTI
 - Test mode is based on published guidelines and existing literature
 - 70% of respondents agreed the application is suitable to assess cognitive skills
 - 90% of respondents rated the simulation as realistic
 - 80% of respondents agreed with the implementation of TS in surgical curricula
- Difference between the three groups (Fig. 1):
 - No significant difference between Intermediates and Experienced
- Consequences evidence (Fig. 2):
 - Pass/fail score of 71%
 - Resulted in one false positive (novice that passed) and no false negatives (experienced that failed)

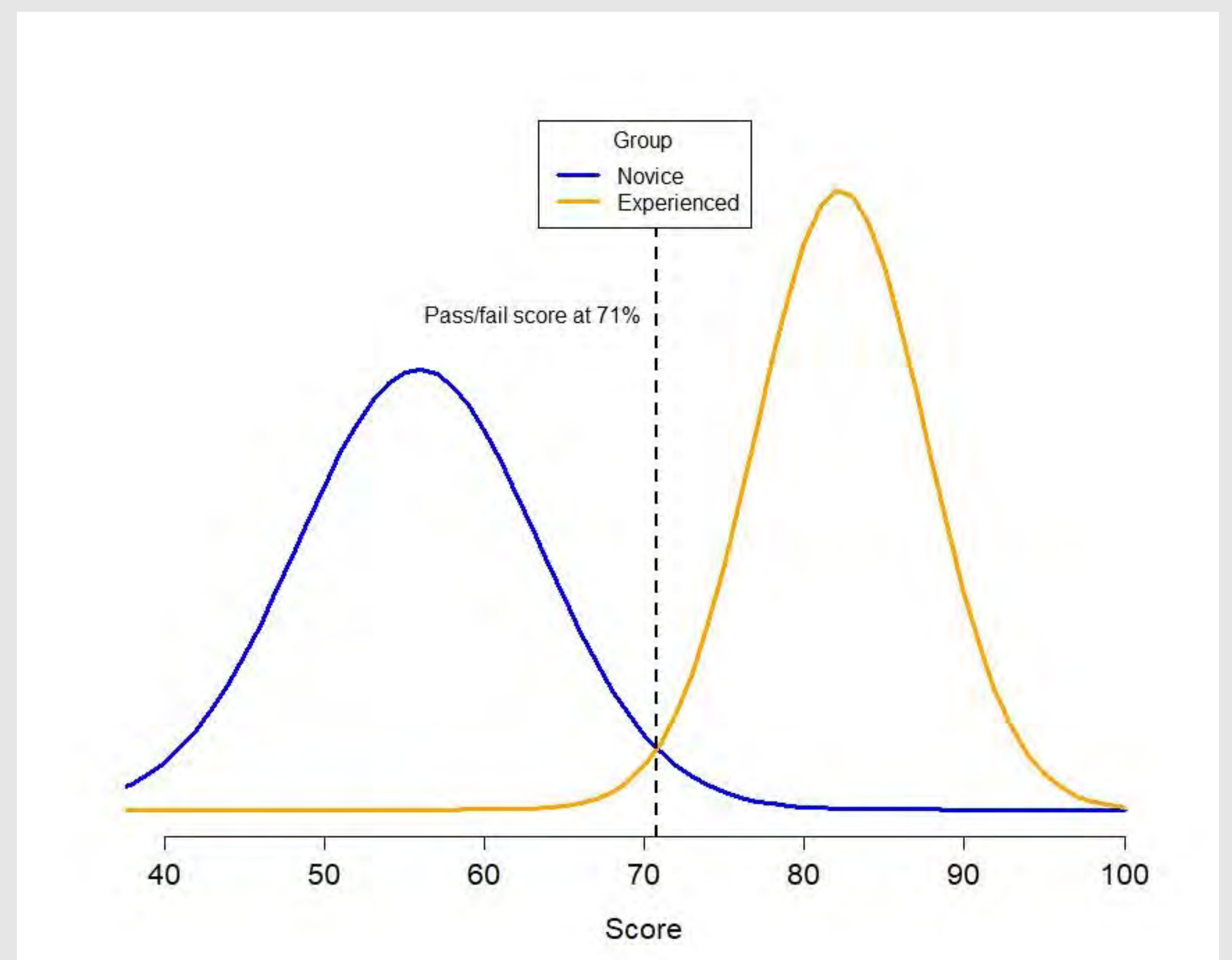


Fig. 2: Contrasting groups' method to set a pass/fail score. The intercept of the normal distribution curve of the novice and experienced group (71%) was considered as the pass/fail score.

Contact
 Leander.demol@ugent.be
www.ugent.be/ge/hsr/nl/onderzoek/anatomie-en-embryologie/overzicht.htm

Universiteit Gent

@ugent

Ghent University

Surgeon's leadership style and team behaviour in the hybrid operating room

Gilles Soenens¹ · Benoit Marchand² · Bart Doyen¹ · Isabelle Van Herzeele¹ · Peter Vlerick²

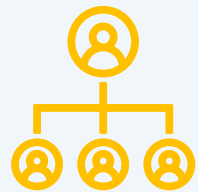
¹ Department of Thoracic and Vascular Surgery, Ghent University Hospital, Belgium

² Department of Work, Organization and Society, Ghent University, Ghent, Belgium

Introduction

Leadership = key component to successful team functioning.

The 'full range of leadership' theory is dominant in work- and organizational psychology to assess and develop leadership in teams and organizations and identifies three styles.¹



Leadership style	Short definition
Transformational	Change- and relational-oriented
Transactional	Task-focused
Passive	Laissez-fair or absent

In numerous industry sectors, used leadership style has proven to impact performance, satisfaction and motivation.²

Few studies have examined the effect of leadership on team behaviour in surgery and/or fluctuations during surgery. However, these are important to evaluate to **improve patient safety, cost-effectiveness and team performance.**³



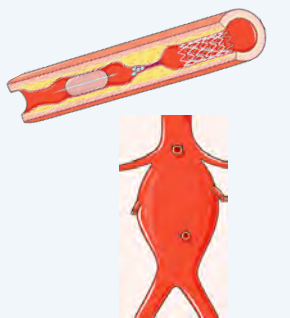
Our objective is to examine the relationship between leadership style and team behavior in the hybrid operating room via video coding.

Secondly, fluctuations of leadership style and team behavior during operations are explored.

Methods

22 Cases

- **Video recorded** using a medical data recorder
- Routine elective endovascular procedures
- Single centre study



Instruments

Behaviorally Anchored Rating Scales (**BARS**) were developed by the research team to encode the three leadership styles and three team behavior indicators: collaboration, speaking up and knowledge sharing.

Team behaviour	Short definition
Speaking Up	Openly stating one's views/opinions
Knowledge sharing	Degree of exchange of work-related information, skills, knowledge and expertise
Collaboration	Degree of supporting each other, offering help, cooperate/collaborate to complete tasks



Analysis

- Procedures were segmented into seven operative phases
1. Patient preparation, 2. Disinfection and draping, 3. Pre-procedural planning, 4. Access, 5. Lesion treatment, 6. Closure, 7. Check
- Each procedural phase was coded by one coder with psychological background, without medical experience after extensive training
- Assessment of inter- and intra-rater reliability
- Statistical analysis via multilevel regression model

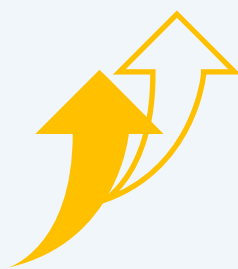
Results

47 hours of video recording

Good intra- and inter-rater reliability (ICC .83 & .77)

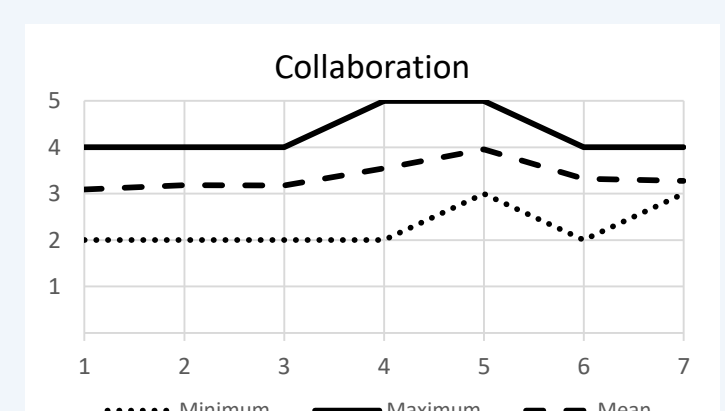
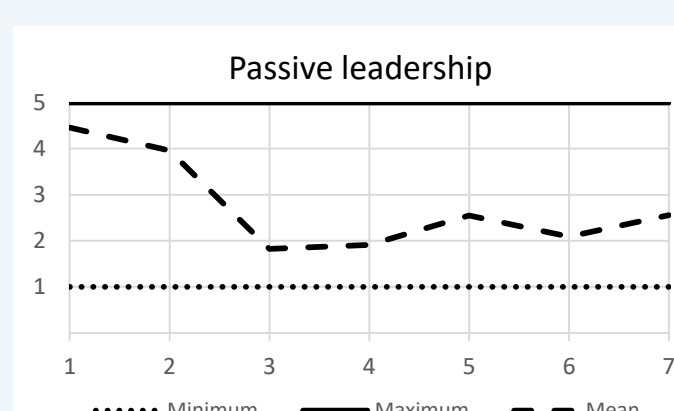
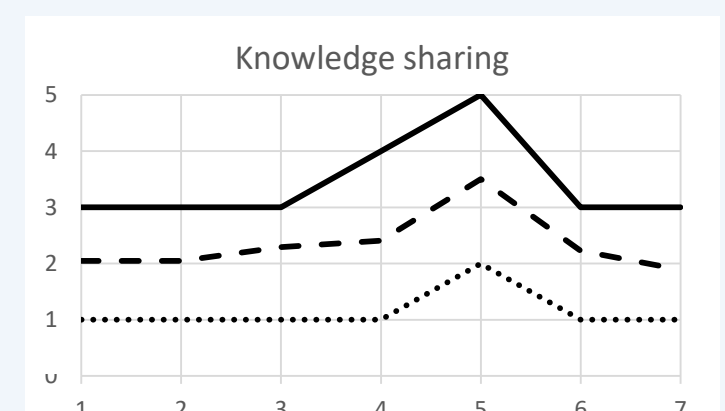
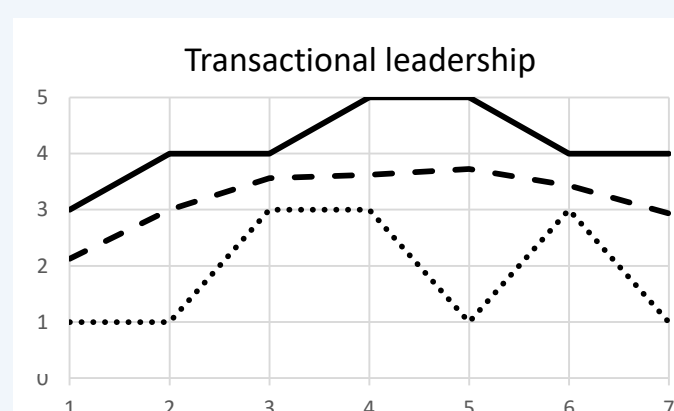
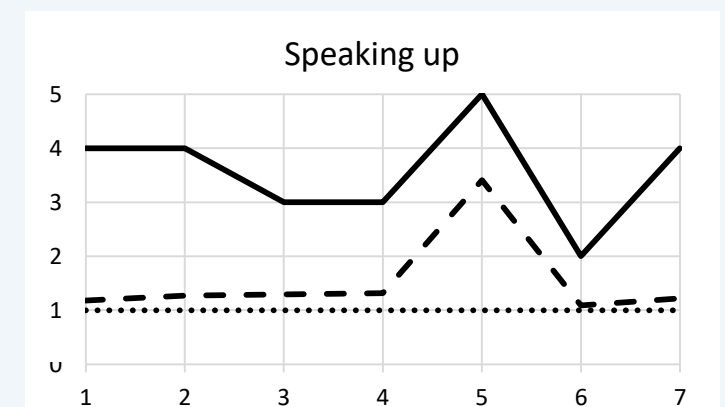
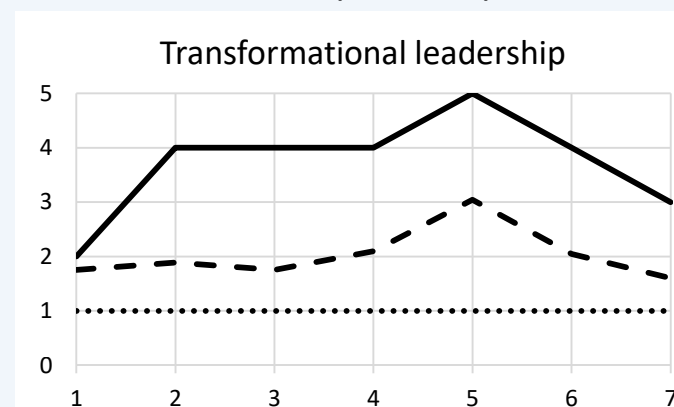
- **Transformational leadership** increases:
 - Speaking up ($\gamma=0.64$, $p < .001$)
 - Knowledge sharing ($\gamma=0.45$, $p < .001$)
 - Collaboration ($\gamma=0.20$, $p < .001$)

→ If a surgeon behaves more transformational than usual, team members will be more outspoken, share more knowledge and collaborate better.
- **Transactional leadership**: non-significant relationships with team behaviour indicators
- **Passive leadership** increases:
 - Speaking up ($\gamma=0.29$, $p < .01$)
 - Knowledge sharing, Collaboration = non-significant increase
- Surgeons' leadership style and team behaviour clearly fluctuate during a procedure, with similar patterns across different types of endovascular procedures.



Overview of mean BARS-score per operative phase (over all interventions)

X-axis: operative phases (1-7), Y-axis: BARS score (Likert scale 1-5)



Conclusion

Transformational leadership enhances team behaviour, especially during complex operative phases.

- Leadership style and team behaviour fluctuate during routine endovascular procedures.
- Future surgeons should be trained to become transformational leaders to improve patient safety and team performance.

References

1. Avolio B, Bass. Manual and sampler set. 3rd ed. Mind Garden, Inc. Menlo Park, CA; 2004
2. Braun S, et al. *The Leadership Quarterly*. 2013;24:270–283
3. Parker SH, et al. *BMJ Qual Saf*. 2011;20:570–579.

Evaluating performance of peripheral endovascular interventions: a Delphi consensus

The **ENDORATE-PVI** Framework

Gilles Soenens¹ • Lauren Gordon² • Bart Doyen¹ • Juliana Sunavsky² • Mark Wheatcroft² • Charles de Mestral² • Vanessa Palter² • Teodor Grantcharov² • Isabelle Van Herzeele¹

¹ Department of Thoracic and Vascular Surgery, Ghent University Hospital, Belgium
² Department of Surgery, St. Michael's Hospital, Toronto, Canada

Introduction

Surgical residents need to gain competency more quickly than ever.

As we move towards competency-based surgical education¹, **detailed and actionable feedback** to trainees is critical to ensure adequate and efficient skill development.



Surgical residents improve more rapidly with specific coaching.

Trainees in a video-based laparoscopic coaching program made **half the number of errors** as conventionally educated trainees.²



Recordings of endovascular surgery may improve vascular trainee coaching.

Comprehensive operative capture systems such as the **Operating Room Black Box system (ORBB)** allow for detailed assessment of performance by continuously recording and synchronizing multiple sources of intraoperative data.³



Detailed, actionable evaluation tools are needed for endovascular coaching.

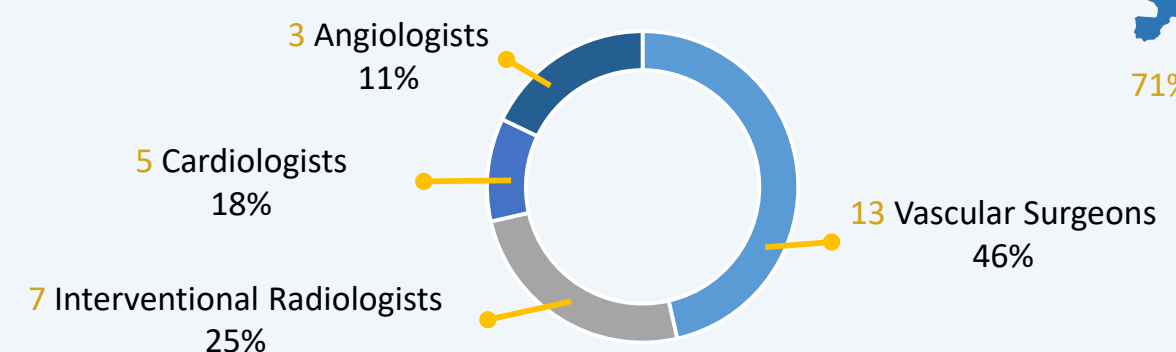
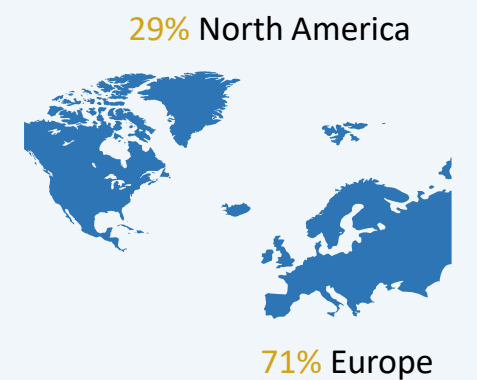
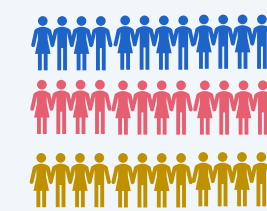
Our objective is to achieve expert consensus on the **steps, errors and events** that occur in peripheral endovascular interventions (PVI).

This consensus forms the basis for the **ENDORATE-PVI** evaluation tool.

Methods & Results

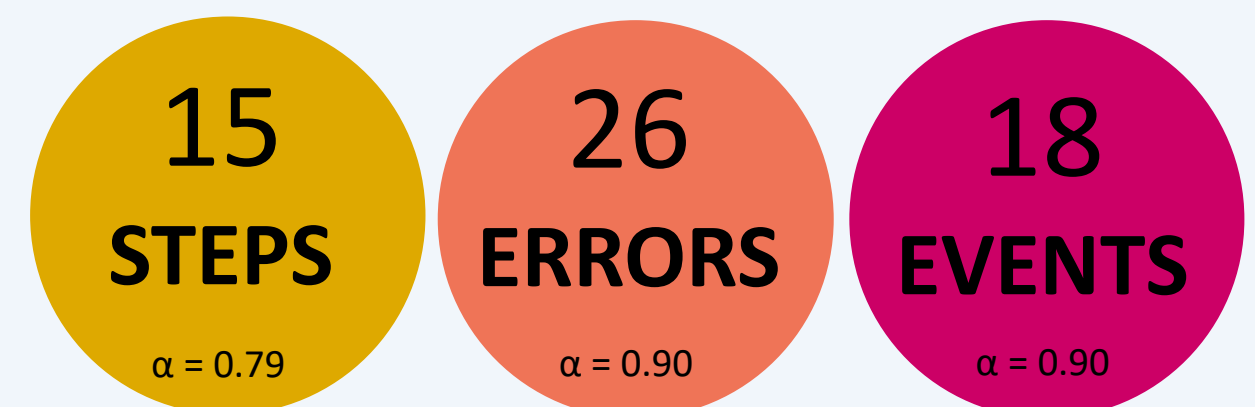
28 Experts

of 98 invited participants participated in the consensus panel.



3 Survey rounds

A modified Delphi consensus was used. After an initial open-ended survey round, iterative surveys were sent to modify the framework based on expert opinion. Consensus was reached when Cronbach's $\alpha > 0.7$. Items in the final frameworks achieved agreement (5-point Likert scale: 4 or 5) from $> 70\%$ of experts.



ENDORATE-PVI Framework

STEPS

Distinct subroutines that, when done in order, complete the intent of the surgery.

Items in framework	% Item Agreement
1. Pre-procedure planning	83
2. Access	91
3. Heparinization	96
4. Sheath introduction	91
5. Navigation to lesion	87
6. Diagnostic angiography	96
7. Choice of interventional plan / Adjustment of interventional plan	91
8. Placement of working sheath	91
9. Crossing lesion	100
10. Confirm crossing	100
11. Vessel preparation	78
12. Lesion treatment	96
13. Completion Angiogram	96
14. Removal of devices	100
15. Closure	96

ERRORS

Failure of planned [intraoperative] actions to achieve their desired goal.

Categories & example items	% Item Agreement
Category 1: Access Site	91-96
• Loss of wire/sheath access	91
• Poor access site (EIA/SFA)	96
• Inadequate closure	91
Category 2: Navigation	86-100
Category 3: Device Related	74-100
Category 4: Imaging	73-86
Category 5: Judgement	82-100
• Failure to identify thrombotic/subacute occlusion	100
• Missed causative lesion	95
• Incorrect evaluation of post deployment findings	100
• No recognition of extensive subintimal tracking	82
• Failure to maintain adequate anticoagulation	95

EVENTS

Any deviation from usual [operative] care that causes an injury to the patient or poses a risk of harm.⁴

Categories & example items	% Item Agreement
Category 1: Access site	86-91
Category 2: Vessel injury	86-100
• Arterial rupture	91
• Arterial perforation	86
• Arterial dissection	100
Category 3: Occlusion	82-95
• Occlusion of runoff	95
• Embolization	95
• Thrombosis	91
• Flow limiting dissection	82
Category 4: Device related	86-95
Category 5: Patient related	73
Category 6: Complications	77

Conclusion

The **ENDORATE-PVI** Framework is an expert consensus-derived tool of **steps, errors and events** in peripheral endovascular procedures.

- This framework is being validated on recorded endovascular procedures.
- The framework may be used to provide specific and actionable feedback to trainees.

References

- Canada RC of P and S of. Competence by Design. 2014;(March).
- Bonrath EM, et al. *Ann Surg*. 2015;262(2):205-212.
- Soenens G, et al. *Eur J Vasc Endovasc Surg*. 2021 Jun;61(6):1028-1029.
- Bonrath EM, et al. *Br J Surg*. 2013 Jul;100(8):1080-8.