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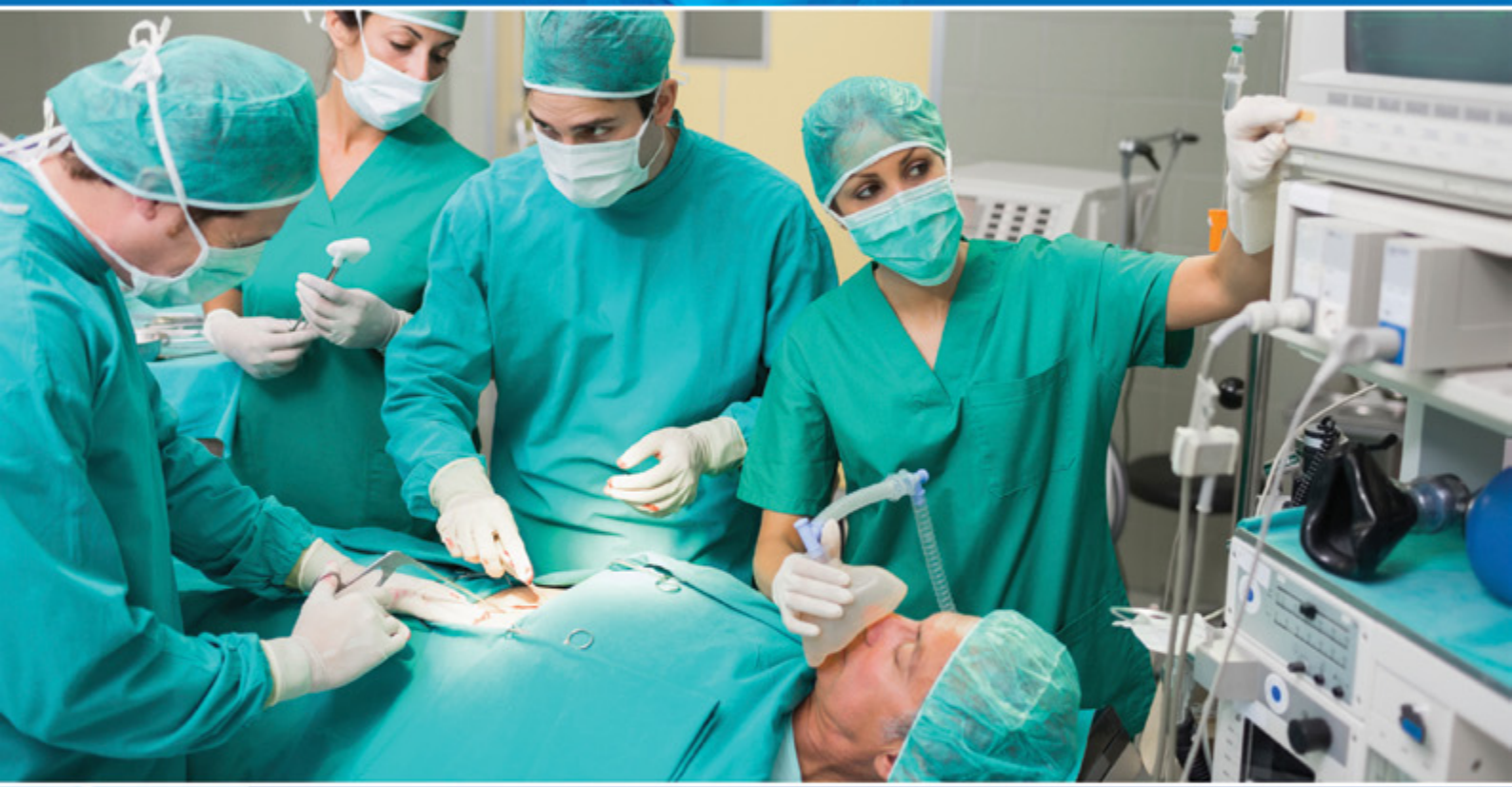

A Peer Reviewed International Journal for the Advancement of Clinical Skills

- 'docendo ac discendo' - 'by teaching and learning'

In this issue:

Foreword

Welcome to the latest edition of the International Journal of Clinical Skills (IJOCS), Volume 7, Issue 2, March 2013.

The majority of medical students will enter their first surgical session not having had contact with immediate pre- or post-operative patients, never having set foot in an operating theatre before and with an overwhelming fear of fainting, or doing something inexcusable. A study conducted in Leeds, England, describes the planning, implementation and reflection of pilot sessions which utilise innovative resources and subject specific material. Use this pilot study to help implement perioperative education for your students, thus reducing risks and ultimately improving patient outcomes.

Exposure to real patients with real problems is highly valued by medical students. With medical student numbers increasing globally and opportunities to access real patients in healthcare facilities declining, alternative arrangements have to be made to provide students with a 'real' patient experience, including the use of 'patient volunteers'. However, little is known in relation to patients' experiences of being examined by medial students for purely teaching purposes. An Australian research group present an interesting study which discusses patients' attitudes and experiences. Are volunteer patients a viable alternative to utilising patients in healthcare settings? Find out what the evidence shows.

The dynamic hip screw (DHS) is the most commonly used implant for hip fracture. One of its postoperative complications is infection, which can be associated with a high degree of morbidity and occasionally mortality. Our colleagues at the Trauma and Orthopaedic Department, Glan Clwyd Hospital, Wales, suggest a technical method for the management of deep-seated infection following DHS fixation. This novel technique has the potential to help manage early deep-seated would infection, without compromising stability of the fracture fixation or needing to perform excision arthroplasty. Utilise this technical tip to improve the quality of patient care and reduce morbidity.

Metacarpal fractures are very common with frequent presentation to Accident and Emergency Departments. However, caution is required when assessing such injuries. This interesting paper illustrates how healthy individuals can simulate a rotational deformity in the little or ring fingers of a 'normal' hand and therefore the importance of accurate clinical examination.

As always, your feedback is invaluable for the continued development of the International Journal of Clinical Skills – the only peer reviewed international journal devoted to clinical skills (e-mail: feedback@ijocs.org).

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International Journal Of Clinical Skills
P O Box 56395
London
SE1 2UZ
United Kingdom

E-mail: info@ijocs.org
Web: www.ijocs.org
Tel: +44 (0) 845 0920 114
Fax: +44 (0) 845 0920 115

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Preparation for your first surgical firm – an insight into perioperative practice

Ms Jane Nicklin CertHE ODP MA PGCE FHEA
Strategic Clinical Skills Advisor [1]
Visiting Lecturer and Former Clinical Skills Facilitator [2]

[1] Leeds Metropolitan University, United Kingdom
[2] University of Leeds, United Kingdom

Correspondence:
Ms Jane Nicklin
Department of General Practice
Strategic Clinical Skills Advisor
Queen Square House
Leeds Metropolitan University
Leeds
LS2 8NU
UK

E-mail: j.nicklin@leedsmet.ac.uk
Tel: +44 (0) 845 0920 114
Fax: +44 (0) 845 0920 115

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Abstract

Background: Traditionally at the University of Leeds (UK), medical students are allocated in small groups to their first Surgical Firm for approximately six weeks, usually during their third year. During this allocation there is an expectation from students and staff that they will spend some time in the operating theatre; preparation for this experience has habitually been neglected and the majority of students feel ill-equipped and apprehensive.

Objectives: To organise, develop and evaluate pilot sessions for medical students which introduce them not only to a simulated theatre setting, but also to the roles and responsibilities of the theatre team, the method of surgical-scrub and to provide an initial insight into the patients' journey.

Discussion: This paper describes the planning, implementation and reflection of the pilot sessions which utilise innovative resources and subject specific material. Both student and peer evaluation of the sessions is considered. The sessions highlight a range of learning models and theories which would wholly benefit the student's learning and prepare them more adequately for this environment. Suggestions are made with regard to mentoring, inter-professional learning and workshop plans. This successful pilot study encourages a similar workshop to be incorporated into the medical curriculum.

Background

Traditionally, medical students are allocated in small groups of six to their first Surgical Firm at the University of Leeds (UK) for approximately six weeks in their third year of study. During this allocation it is their expectation that they will be given the opportunity to attend the operating theatre – unfortunately preparation for this *'baptism of fire'* has habitually been neglected [1]. The majority of students will join their 'firm' not having had any contact with immediate pre- or post-operative patients, never having set foot in an operating theatre before and with an overwhelming fear of fainting, or doing something inexcusable.

This undergraduate experience, or lack of it, has become more significant since the introduction of the 'Modernising Medical Careers' UK initiative with students having to make earlier career choices alongside reduced training time in specialised fields [2]. Jamjoom et al (2009) refers to any such *discouraging* first-time experiences in theatre as actually deterring students from pursuing a surgical career [3].

Conventionally, working operating theatres are not wholly conducive to learning; previously, there have been concerns that medical students in theatre could be a potential safety hazard, namely because of their inexperience and dearth of knowledge regarding procedures, theatre protocols and aseptic technique [4]. The environment itself can be intimidating - perioperative staff are unique; they share a common history and culture with particular norms, routines, ground rules and humour [5]. Their attitude to medical students is significantly affected by the fact

that it is 'expected' that theatre staff will work, supervise and educate simultaneously [6].

Some students have a fear of fainting, others are totally unprepared for how they may react to what they may see, hear and even smell; these anxieties are only exacerbated by the lack of educational support and preparation. More recent research has recommended that dedicated teaching time should be set aside before allocation to surgical firms to address these issues [3].

Within the author's specialist area of 'perioperative practice', an opportunity was provided to organise, develop and evaluate six 2-hour, mixed-year, sign-up pilot sessions for medical students, thereby introducing them not only to the theatre environment, but also to the roles and responsibilities of the theatre team. Furthermore, the sessions would provide an insight into the patients' journey including the then, topical implementation of the World Health Organization (WHO) Surgical Safety Checklist [7, 8].

Method

The first session was called *'Surgical Skills'* and consisted of a discussion around theatre etiquette, demonstration and practice of 'scrub, gown and glove' and finished with a 'hands-on' of basic surgical instruments. During a quiet afternoon, a non-working theatre was utilised for the two hour session.

On initial medical student evaluation and the author's reflections-on-action of this session, the title was misleading and the content needed to be more appropriate to best meet the needs of mixed-year students. Surgical instrumentation was definitely beyond their needs at this stage, even more alarming – was that a fifth year student thought that perhaps *'insertion of a chest drain'* would be on the agenda!

The title was changed to *'Introduction to Theatres'* and the content altered – still to contain theatre etiquette and 'scrub, gown and glove', but to amalgamate other topics within 'the patients journey' through theatre.

The session, again in a non-working theatre, started with students changing into theatre-blues and an informal discussion in the anaesthetic room; briefly covering the setting-up, the pre-operative preparation of the patient, consent procedures, the importance of the WHO Surgical Safety Checklist [7, 8] and the local Trust Single-site Surgery Checklist. Such an opportunity also gave the students time to view the official Trust paperwork used, for example, different Consent Forms, the Patient Care Plans and the Anaesthetic charts.

On entering theatre, the students were given an opportunity to explore – walk round, touch and look at the equipment, the lights, suction, the anaesthetic machine; engagement and questions were encouraged at this stage.

Before the session moved to the scrub area, the students were informed of the different Personal Protective Equipment (PPE) that would be available and the rationale behind its choice, for example, masks, goggles and gloves. The students then spent time at the scrub-sink where a full surgical scrub was demonstrated; subsequently the students were divided into two groups with half playing the role of circulator (opened gloves and gowns and tying in), whilst the other half practiced their scrub technique. Roles were exchanged and immediate feedback was provided, including peer feedback. Finally, the students sat in theatre and talked informally about theatre etiquette, the 'who's who' and their roles, the 'dos and don'ts' and Theatre Team working.

The sessions proved to be extremely successful, all had the potential to be over-subscribed, but unfortunately the number of students participating had to be restricted due to space limitation at the scrub-sink.

The ***use of a real theatre*** (despite non-working on the day) proved to be the finest resource and allowed students to become immediately engaged – donning the appropriate attire, for example, putting a theatre hat on, was the first part of the students' transition into what previously was, as quoted by a third year student – *'A completely alien and utterly frightening environment'*.

Discussion

In consideration of Maslow's hierarchy of needs (1970), it is important that students feel psychologically safe during their first experience in such an environment; if not, learning will not promote learning [9]. During this study any earlier fears were pre-emptied by provision of such a safe, simulated, learning environment – being able to look, touch and feel comfortable within an acute area that was free of its usual urgency and stresses; this was extremely valuable to the students. Teaching mixed years and sharing of experiences also proved beneficial – students ranged from having none or very little surgical experience to fifth year students already having experience 'at the operating table'.

This *'freedom to learn'* captures small mixed-group learning at its best. Lipp and Holmes (2009) refer to Carl Rogers (1983) who coined the former phrase, as creating a learning environment where experiences are not only explored and discussed, but allow the individual to self-evaluate, understand what they want and need to know from the experience [10, 11].

The 'patient journey' aspect was effective and influenced the resulting discussions around consent, roles of theatre personnel and the then topical WHO Surgical Safety Checklist [7, 8]. The implementation of the aforementioned checklist provides a 'mandatory' introduction and briefing for theatre personnel, before the theatre list has started; no longer do 'new-comers', for example, medical students, feel estranged and uncomfortable through lack of introduction and disregard by busy theatre staff. Both staff and students alike have been empowered by this process which includes important discussion of the patients, procedures and any problems anticipated for the theatre list that day.

These feelings of enlightenment and empowerment were valuable to the student at this stage; it could be likened to Maslow's four stages of learning model (1970) or the simple Conscious Competence Ladder that represents the key learning stages people progress through and the growing awareness and basic understanding of what is going on around them and contributing, when and if they feel capable enough [9, 12]. It may also provide the student with an awareness that helps them to manage their emotions during what sometimes can be a frustratingly, slow learning process.

In reality, their Consultants' expectations of them will be quicker and at a higher level and the medical student may unwittingly under-perform through lack of knowledge, this will affect the surgeon's behaviour towards them as a teacher, resulting in a negative learning cycle. An inexperienced medical student in theatre needs support to achieve the safe practice expected from their Consultant, not discouragement [13].

The open discussion at the end of the session proved invaluable, in that students admitted to a variety of fears, like fainting, contaminating the sterile field or how live surgery may impact on their emotions, for example, feeling sick or unwell. One third year student commented, *'Feeling lost, not knowing what to do, where to stand and what to touch.'*

Lyon (2003) advocates that for students to wholly benefit from their time in theatre during surgical firms and specialities, they will need to become skilled at managing their learning across three 'related' domains (Figure 1) [5].

Thomas (2006) feels that these key steps in the learning process will only be successful if such adaptations to the new environment are highlighted to students beforehand and despite being singularly identified, the importance to the student is that it is the integration of these three domains that will contribute to their overall learning [6].

Figure 1: Lyon's 'three-domain model' of learning in theatre, Lyon (2003) [5]

The first domain	Managing the demands of the working environment and the emotional impact of surgery as work
The second domain	Managing the educational tasks, learning objectives and relevance
The third domain	Managing learning and the social relations of work in the operating theatre

Evaluation of the sessions by students was sought by completion of an evaluation form at the end of the session. The form was designed specifically for the purpose of identifying present fears, learner's needs and to determine future content (Appendix 1). The evaluation and the pilot sessions provided valuable information as evidence for inclusion of such *'Introduction to Theatres'* sessions in the Medical Curriculum before students begin their first surgical firm.

Such an evidence-based initiative would improve quality of care through clinical effectiveness and providing skills and knowledge, as well as the potential to extend the session/teaching to other healthcare theatre novices, including those who would benefit from observing specialist procedures. The main resource would be imperative; that is availability of a theatre and all its *'props'*. It would probably be necessary to run timetabled sessions in the evening or on a Saturday to guarantee free theatre time. However, with modern technology and the proposed inclusion of simulation within both postgraduate and undergraduate medical education, it may be that these sessions could be run in a Simulated Operating Theatre [14].

Simulation is defined as: *'a person, device or set of conditions that tries to present problems authentically. The student or trainee is required to respond to the problems as he or she would, under natural circumstances'* [15].

Such opportunities would help to fulfil Lyon's (2003) domains of learning by prioritising the student's agenda, allowing a degree of standardisation that real theatre cannot offer, giving valuable insight to inter-professional learning (IPL), an understanding of the roles played by other professionals and ways in which students might help rather than hinder [5].

Simulated operating theatres are nowadays more commonly found in larger training hospitals, but Professor Kneebone (2010) has gone one step further with the development of a portable 'igloo' type blow-up lower cost version in order to enhance training for nurses, doctors and surgeons [16].

The inclusion of an audio-visual teaching aid, for example, The WHO Surgical Checklist Great Ormond Street (2009) video [17], would also be really beneficial in preparation of the student; it would help to *'set the scene,'* stimulate discussion and give a wider perspective [18]. It could be shown prior to the discussion in the anaesthetic room or alternatively it could contribute more to a student's learning outcomes if it was part of a pre-workshop Virtual Learning Environment (VLE) task, i.e. blended learning.

It would be realistically possible to organise attendance and completion of an *'Introduction to Theatres'* workshop for a total of 36 students (staggered times, for three groups of 12 students) within a time period of under 2.5 hours (Appendix 2). Members of staff required could be kept to a maximum of four (three to facilitate and one to double up with 'scrub, gown and glove'). There would be some, but minimal, consumable expense to cover scrub brushes, surgical scrub, gloves and re-useable gowns. Hand-outs could include a copy of the WHO Surgical Safety Checklist and the hospital's 'Surgical Scrub Policy'.

If *'Introduction to Theatres'* was successfully incorporated into Medical Curricula, members of staff might be keen to extend their role (e.g. facilitator) into the operating theatre alongside students and their consultants, especially during the students' first few operative sessions. Working with the surgical firms would not only assist in the process of the student's *'right of passage'* into theatres, but by acting as a role model facilitators could also help to build a credible relationship with the student in practice and ultimately enhance their learning, as well as relieving some of the pressure from theatre staff [10].

Conclusion

With the increased publicity around patient safety and the importance of all healthcare students receiving adequate, timely and appropriate training for the skills that they need to manage their patients, this pilot has proven that all students could potentially be very easily, and with use of minimum resources, be better prepared physically, mentally and psychologically for their first tentative steps into theatre, thus reducing risks and ultimately improving patient outcomes.

Author Information

Jane Nicklin is an Operating Department Practitioner who is currently working on the NHS Yorkshire and the Humber Clinical Skills and Simulation Project hosted by Leeds Metropolitan University, United Kingdom. Her previous teaching role was as a Clinical Skills Facilitator at the University of Leeds teaching on the MBChB and BChd programmes.

Declarations

Full consideration was given to the ethics of this research; it was seen as a training initiative to be potentially incorporated into the curriculum and therefore it was judged that ethical approval was unnecessary as this study should be classed as a course for medical student training.

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Appendix 1: Evaluation Form

Introduction to Theatres

Date:

3rd **4th** **5th** **Year** (please circle)

Have you had any previous experiences in theatre?

How many Surgical firms have you worked with?

What is your biggest fear about theatres?

List three things that you would like to know or practice before you are asked to go to theatres?

What do you consider to be the most important thing that you have learnt today?

Any other comments?

Appendix 2: Workshop plan for 36 students

Staff allocation:
(1), *(2)* + *(3)* Responsible for registering students and following group through
(4) Take half of each group for Scrub, Gown and Glove.

Group 1 ***(with 12 students)***			
Arrive 08.45	**09.00 – 09.30**	**09.30 – 10.00**	**10.00 – 10.30**
Registration Change Preparation *(1)*	Patient journey including video *(1)*	Scrub, gown and glove Groups (in two groups) *(1)* + *(4)*	Theatre etiquette Q + A session *(1)*
Group 2 ***(with 12 students)***			
Arrive 09.15	**09.30 – 10.00**	**10.00 – 10.30**	**10.30 – 11.00**
Registration Change/prep *(2)*	Patient journey including video *(2)*	Scrub, gown and glove Groups (in two groups) *(2)* + *(4)*	Theatre etiquette Q + A session *(2)*
Group 3 (with 12 students)			
Arrive 09.45	**10.00 – 10.30**	**10.30 – 11.00**	**11.00 – 11.30**
Registration Change/prep *(3)*	Patient journey including video *(3)*	Scrub, gown and glove Groups (in two groups) *(3)* + *(4)*	Theatre etiquette Q + A session *(3)*

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