

Teaching and learning in operating theatres

Author:

Wendy MN Reid FRCOG

Consultant Gynaecologist, the Royal Free Hospital & Associate Postgraduate Dean, London Department for Postgraduate and Dental Education

This paper was first written in 2003 as part of a project led by the London Deanery to provide a web-based learning resource to support the educational development for clinical teachers. It was revised by Judy McKimm in 2007 with the introduction of the Deanery's new web-based learning package for clinical teachers. Each of the papers provides a summary and background reading on a core topic in clinical education.

Aim

This paper provides the opportunity to explore how learning may be structured and effected within the operating theatre environment.

Learning outcomes

After studying this paper you will

- Be able to develop and structure learning objectives within the Operating theatre
- Be able to facilitate learning by observation in the Operating theatre
- Facilitate learning from allied healthcare professionals and the observation of teamwork
- Deconstruct procedures to allow structured learning of practical skills and tasks
- Build case-based experiential learning from operating theatre episodes

Contents

- Introduction
- Context for learning
- Enabling learning - deconstructing the task
 - Task 1 – begin at the beginning
 - Task 2 – participating in surgical procedures
 - Task 3 – facilitating understanding of surgical cases
 - Task 4 – working and learning in multi-professional teams
- Putting it into practice
- Summary and progress review

Introduction

The Operating theatre is an alien environment for inexperienced learners and may be deemed hostile and uninviting. The role of teachers in such a specialised environment should be to encourage interaction rather than passivity, seek out the learning opportunities that exist even when the focus is appropriately on the clinical case rather than the learner, encourage learners to reflect on their experiences in a structured manner and to develop meaningful reflection. The observational element to learning in unusual environments will be explored in this paper. How learners interact with the learning environment is important particularly in the context of life long learning and continuing professional development. How to structure the lessons to be learnt from building simple tasks into the matrix of a clinical skill will be practised.

This paper will demonstrate ways in which learners can be stimulated to look positively at all experiences gained in a specialised setting such as the Operating theatre.

Context for learning

The old adage of 'See one, do one, teach one' should have no place in the modern world of healthcare where patients have a right to expect the highest standards from all healthcare professionals delivering care. There are however useful lessons to be learned from just 'being' in a learning environment if that environment encourages interaction and participation.

Quotes from 4th year Medical Students:

'Being in theatre makes me feel like I am in the way. The only time anyone talks to me is if I am about to de-sterilise something.'

'There is no point in going to operating lists because all I see is the back of the surgeons head.'

The paper *Teaching and learning through active observation* looks specifically at how clinical teachers can use observation as part of active learning in a range of clinical situations.

As in all specialised arenas there are procedures that need to be understood and learned as the student progresses along the professional curve. Techniques that are 'every day' to the professionals (such as scrubbing up) can be seen to be bizarre and seemingly difficult to learn for the student.

There are many learners in the operating theatre and relatively junior learners need to be encouraged to find a place in the hierarchy where they can access appropriate learning without feeling as if they are in a hopeless competition with the 'senior learner'. All learning is valuable and good teachers recognise the impact good learning at all levels has on the team.

Activity

Imagine you are a student health care professional. You are in the Operating theatre and have been told the next patient, Mr Brown, is about to have a right inguinal hernia repair. You are asked to watch the repair.

Jot down what would kind of things you watch for.

My thoughts:

- How the operation is done
- How the surgeon interacts with the team
- How the patient looks in the operating theatre
- How the surgery differs from what you expected

You may have a completely different set of responses, and for a learner to make any sense of watching a procedure in the operating theatre a context must be proscribed.

As healthcare becomes fragmented the material for learning in clinical situations is more difficult to access. Much surgery is now performed on day case operating lists with pre-operative clerking clinics and rapid discharge protocols. No patient comes to the operating theatre without a number of prior interactions with healthcare professionals. For a student/trainee in the operating theatre the context of the operation for the patient is the most important 'missing link'.

Enabling learning - deconstructing the task

By deconstructing the task and identifying exactly what the learning objectives should be at each stage of learning or for different situations, things are made much clearer both for the student/trainee and for the teacher.

For more about writing learning outcomes, look at the e-learning module: *Setting learning objectives*

Task 1 'Begin at the beginning'

Here the learning objective might be to observe the context in which a patient is cared for immediately prior to surgery and to understand the procedures undertaken.

Example 1:

Ask the learner to observe the preparation of the patient as he arrives in the anaesthetic room prior to the surgery and consider

- How is the patient put at ease
- What are the checks performed and why are they done

- What does the anaesthetist do on meeting the patient
- How does the team interact

The learner may then in a reflective session discuss how communication could be improved and consider how patients with differing needs would be managed.

Learners can be encouraged to talk to patients with the healthcare professionals in the anaesthetic room. Learning to converse with patients under stress in a controlled environment is stimulating and will encourage a sense of ownership for the next phase of the procedure in the operating theatre.

Example 2:

Ask the learner to 'shadow' a patient from the ward down to theatre and follow through the whole clinical episode. Many medical students for example only observe a fragment of a clinical episode although as pre registration house officers they may be expected to be involved in decisions at all stages of care. The experience of being 'in the patient's shoes' can allow the student to explore their feelings of empathy, fear, superiority etc with some insight into the world of the patient.

Example 3:

Ask the student/trainee to 'shadow' one of the surgical team. Ask them to observe how that team member interacts with others and reflect on the role of that individual in the care of the patient.

Added extra

An exploration of patient consent can begin at this stage of learners' experience in the operating theatre.

Task 2 Participating in surgical procedures

Here the learning objective might be to facilitate students/trainees' participation in procedures and acquisition of clinical skills relating to surgery.

Quote from a clinical teacher:

' I cannot see the point of medical students coming to the operating theatre if they don't want to do anything'

Many learners will have practised a number of tasks in clinical skills laboratory settings. The advantage of reality based clinical teaching is that the purpose of those skills becomes not only clear for a particular task but also context specific. The operating theatre provides a disciplined space for tasks to be observed, discussed and practised.

Activity

Make a list of tasks, define how far along the 'observe, learn, practice' road an individual student might perform.

Possible responses may include:

- Scrubbing up to assist
- Assisting handling the patient in theatre
- Doing simple procedures i.e. catheterisation, inserting intravenous cannula
- Assisting in the aseptic preparation and draping of the patient

There many simple tasks that are vital to the whole patient episode. Students and trainees that are able to move from the simulated to the realistic setting often feel well-supported working as part of a team, with appropriate, visible supervision as in the Operating theatre.

Example 1: Scrubbing up

Ask the learner to explain the principles behind the aseptic approach to surgery.

Review the operating department's protocol for asepsis and prevention of infection.

Give some historical context e.g. Lister and the invention of antiseptic techniques, Semmelweiss and puerperal sepsis linked to medical students and dissection.

Student/trainee to observe expert, practice with expert, checklist appraisal of technique.

Task 3 Facilitating understanding of surgical cases

'To teach is to learn twice over', Joubert, *Pensees*, 1842

Here the learning objectives are focussed around enabling the learner to understand what is going on in the operating theatre, to tap into the flow of information, to understand the terminology used and reasons for decision-making and actions.

Quote from Consultant surgeon:

'Learning surgery is a postgraduate task, undergraduates don't know enough anatomy to get anything out of a few hours in theatre.'

Activity

Imagine you are a student healthcare professional in the operating theatre observing a bowel resection for a cancer.

What will you expect to learn from the procedure?

Possible responses may include:

- Observing the surgical technique for handling bowel compared to other tissues

- Hearing the discussion about anastomosis versus stoma formation
- Seeing cancer in the clinical setting
- Observing teamwork during a major surgical procedure

For any learner to absorb the flow of complex information in 'surgical code' during a major procedure is difficult. As a teacher what can you do to act as a 'translator' or facilitator?

Try to develop a template for discussion of individual cases in the operating theatre.

A template may include:

- Clinical reason for surgery
- What should be achieved
- What are the features about this procedure that make it different
- Review of understanding of the procedure and its place in the care of the patient

Example 1

Ask the student/trainee to familiarise themselves with the case notes during the preparatory phase of the operation.

Ask them to discuss the symptoms, how they think the patient felt when the operation was discussed, what they think the patient's expectations from the surgery will be.

Remembering distant anatomy teaching is more likely if the anatomy knowledge required makes sense in this clinical context. Many learners are inhibited by lack of confidence as regards terminology. Ask them to explain the anatomy in terms they would use to a patient before exploring the 'medical language' translation.

Look at the specimen removed for pathology prior to it being sent out of the department. Students are often surprised by the innocuous appearance of cancer and the extent of surgery performed.

Go through the patient information literature about the procedure and ask the student to review it in medical terms to reinforce their understanding,

Look at the surgeon's operating record for the case notes at the end of the procedure. Ask the student to summarise the procedure in terms relating to the overall care of the patient, including a discussion of risk.

Check against your template.

Task 4 Working and learning in multi-professional teams

Here the learning outcomes relate to inter- and multi-professional team working, development of personal and professional attitudes and values and understanding the role and responsibilities of members of professional groups,

Healthcare students and trainees often isolate themselves and their learning in professional groups. The operating theatre environment offers an opportunity for each group to interact with others and widen understanding of multi professional working practices.

Activity

If you were a student/trainee in your professional group how would you learn from a member of another group in the Operating theatre?

Possible responses may include:

- Learning a task e.g. connecting the monitoring equipment
- Appreciating another professional's role in the care of the patient
- Asking for advice from another professional not usually encountered in training i.e. medical student from Operating Department Assistant.

Using the template developed in Task 3 review your responses and further develop the template.

Template may include:

- Explain the roles of the different healthcare professionals in this case.

Have a look at the e-learning module *Interprofessional education* for more ideas about how to develop learning amongst professional groups and facilitate team working.

Putting it into practice

There are many opportunities for learning to take place in different clinical situations. The examples below provide ideas for introducing structured learning events for students and trainees in different specialties and situations. Read through these and try to identify activities which you might like to introduce into your own surgical teaching.

Example 1: Obstetrics

A woman is about to be delivered by elective Caesarean section under epidural anaesthetic. During the procedure

- Observe the interaction between the surgical team and the woman and her partner
- Identify how members of the multi professional team perform

- Observe the method of delivering the baby and define the physiological changes that take place in the mother and the baby

Example 2: Orthopaedic trauma surgery

A 19 year old man has a compound fracture of the tibia. During the procedure

- Observe the role of the anaesthetic team in maintaining homeostasis
- Review the anatomy using the x-rays and the visible anatomy at surgery
- Note down any differences in the management of an acute trauma case compared with elective surgery

Example 3: Gynaecology

A 38 year old woman is having a laparoscopic sterilisation. During the procedure

- Review the case notes and discuss alternatives that may have been offered
- Observe the procedure and comment on the benefits and risks of laparoscopy
- Review the consent form and discuss the failure rate of contraceptive procedures
- Observe the monitoring equipment and the person responsible for connecting it

Example 4: Neurosurgery

A 52 year old man is having a craniotomy to biopsy a suspicious mass in his cerebellum. During the procedure

- Observe the anaesthetic monitoring and discuss the physiological responses seen
- Discuss the symptoms expected in the light of the anatomical position of the tumour
- Rehearse how you would discuss the operative findings with the patient's relatives

Example 5: GI Surgery

A 54 year old woman is having a laparoscopic cholecystectomy. For technical reasons a laparotomy becomes necessary. During the procedure

- Note down how the surgeon communicated this change in plan to the team
- Review the case notes and consent form and note down what you think the patient is expected to have understood
- Review the anatomy and reflect on the reasons for difficulty
- Go with the surgeon after the case and observe how he/she explains this to the relatives/patient.

Example 6: Vascular surgery

A 78 year old man is having a laparotomy for a dissecting aortic aneurysm. During the procedure

- Observe the interaction between the operating department and the pathology services
- Review the pathology of atheroma by inspecting the specimen
- Palpate the pulses in the feet before and after the procedure
- Observe the surgical technique and discuss the suture material used
- Reflect on the symptoms preoperatively and the advice you might give the patient postoperatively

Example 7: Transplant surgery

A 23 year old woman is receiving a cadaver renal transplant. During the procedure

- Observe how the donor organ is maintained
- Reflect on the changes this patient may expect in their quality of life
- Consider how would you take consent for use of an organ for transplantation in a 'brain dead' donor
- Observe the physiological consequences when the kidney is in place

Example 8: Theatre etiquette

On your arrival in the Operating theatre introduce yourself to the nurse in charge and the surgeon.

Ask if you may:

- Talk to the patient in the anaesthetic room
- Assist with the anaesthetic
- Assist with catheterising the patient if required
- Scrub up as an assistant for the case
- Accompany the patient to the recovery room
- Go through the surgical operation note with the surgeon

The tasks and examples given throughout this paper demonstrate:

- ways in which teaching in the Operating theatre can be made interactive
- how templates can be developed to guide learning in complex situations
- how deconstructing techniques and procedures renders them accessible for all learners
- ways in which students/trainees can move to participating in learning as opposed to being recipients of teaching
- ways in which learners can interact with and learn from different healthcare professionals in the specialised setting
- how learners can observe healthcare professionals responding to challenges and stress
- how students/trainees can participate by observing doctor-patient interactions in the operating theatre
- the learners' understanding of basic sciences in the interpretation of events in the Operating theatre

- how student/trainee involvement in practical procedures can progress from the skills laboratory to the clinical setting
- how learners can be encouraged to reflect on the multi professional care of patients in this setting

Activity

Review your work over the past week and identify an operating list where students were present.

Reflect on what they might have learnt.

- Develop a template for that session to assist their learning.
- Start by identifying what your objective for them would be for that session.
- What information you would give them prior to the operating list
- How would you encourage them to reflect on their experiences?

Summary and progress review

This paper explores teaching in a particular setting.

For teaching in a wider range of clinical contexts look at the e-learning modules such as *Facilitating learning in the workplace*, *Teaching clinical skills* or *Workplace based assessment*.

You might also like to look at some of the other papers in this series:

- Using the consultation as a learning opportunity
- Integrating teaching and learning into clinical practice
- Teaching and learning through active observation

Not all learners are equally confident in new environments and the professional hierarchies encountered in specialised settings can make teaching didactic rather than inclusive. By thinking about the processes that are familiar to the healthcare professionals within the Operating theatre it becomes possible for the teacher to encourage learner participation and interaction.

Progress Review - reflection and advancement of the paper

- Reflect on the objectives you set the learners.
- What do they find difficult/stimulating about learning in the Operating theatre?
- How would you modify your template to assist more experienced learners or students from a different discipline?
- How does the formal assessment of skills fit into your template?
- How does the learning community of the operating theatre benefit from teaching students and trainees?