

# Teaching and Learning 'At the Bedside'

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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.

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## Aims

This paper:

- Provides an overview of bedside teaching
- Explores its advantages and limitations
- Extends conventional teaching skills to the bedside
- Applies conventional learning theories to the bedside
- Suggests some new ideas to get the most out of the bedside teaching encounter
- Highlights practical constraints
- Emphasises consideration for the patient

## Learning outcomes

After studying this paper, you will be able to:

- Adopt a structured approach to bedside teaching
- Apply a range of ideas for dealing with patient and student simultaneously

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- Why bedside teaching?
  - What are the goals for bedside teaching?
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### Introduction

Clinical teaching is concerned with the acquisition of the multitude of skills and competencies to enable effective practice in the health care professions. The learning may take place in a range of settings. Bedside teaching has always been the cornerstone of clinical teaching for the health professions.

By bedside teaching we mean patient-based and patient-orientated teaching and learning; taking place in natural health related environments. Effective bedside teaching can sometimes be a difficult juggling act to perform. The clinical teacher needs to be aware of not just the learner but also of the welfare of the patient.

Many of the environments and opportunities available for bedside teaching and learning have changed dramatically in the last 20 years or so making it more difficult. Changes in service provision mean patients spend less time in hospital and are sicker when they do so. Changes in curricula for health care professionals place an increasing importance of systematic learning of core skills and demonstration of skills acquisition and competency. Changes in the politics of health care with increased accountability and patient autonomy have also affected all clinical learning environments. Finally changes in knowledge about how individuals learn have also begun to affect the clinical learning environments and experiences teachers provided for learners.

The aim of this paper is to examine the benefits of using bedside teaching and to reflect on how to make it more effective for the learner.

### Changes In The Environment For Bedside Teaching

1. Patients spend less time in hospital
2. The patients in hospital tend to be sicker
3. Patients are more empowered – so more able to refuse to be involved in teaching
4. More tests and investigations– so patients not available
5. Many more psychosocial problems – not just physical signs
6. Patients move around from ward to ward
7. Many patients are elderly and confused
8. Hospital acquired infection is a risk with large numbers of students
9. Students and juniors are timetabled to do other “integrated activities” – so are not always available.

### Why Bedside teaching?

#### LEARNING ACTIVITY AND REFLECTION

List the potential benefits of bedside teaching and learning in education for the health professions

Suggested answers:

- Role model observation
- Real time history taking or examination
- Experience of physical signs
- Observation of communication skills
- Observation of team – working
- Context based learning

Teaching alongside clinical commitment is never easy. Trying to provide patient care whilst facilitating the learning process can be difficult. The rapidly decreasing opportunities for bedside teaching add to the problems.

Given that this teaching is difficult, why do we do it?

- Perhaps the most important reason is that it *places all the learning in context*. This will make the information easier to recall when a similar situation is encountered.
- Secondly it *prepares students and juniors for the sort of work they will face as clinicians*.

- Finally it shows *them* how a clinician uses their clinical and generic skills during their clinical work. The performance of the clinician is used to show the learner how things should be done, and this is called 'role-modelling'.

When we teach at the bedside we can show learners how we approach patients, how we deal with clinical or ethical problems, and how we interact with the patients and the material or findings generated. Our actual performance in outpatients, surgery or on the wards is a very powerful influence. We will look at this role modelling in more detail later in the paper.

What are the goals for bedside teaching?

It seems that bedside teaching is an ideal venue for the acquisition of the skills required of a health professional. It is a rich source of material but makes many demands of the clinician, learner and of course the patients. It is worth being sure that we are optimising this bedside teaching by clearly defining what exactly we are setting out to achieve with bedside teaching. This will help us to decide the methods and content we will include whether alternative venues or methods are more appropriate and how to prepare ourselves, our learners and our clinical settings. The goals of bedside teaching therefore need to be defined.

McLeod and Harden (1985) defined what they saw as the goals of all clinical teaching. These seem to represent reasonable goals for bedside teaching. It is worth considering which of these goals your teaching session is trying to achieve before you *plan* and certainly before you *deliver* a bedside session.

#### Possible Goals of Clinical Teaching

*McLeod and Harden (1985)*

- Accumulate and record information about patients
- Perform complete and orderly physical examinations
- Perform skills procedures
- Interpret data
- Solve scientific and professional problems
- Communicate information reliably
- Develop familiarity with health care services and facilities
- Develop appropriate attitudes to patients and allied health care workers
- Accumulate factual healthcare knowledge
- Acquire positive attitudes to independent learning

Where should bedside teaching take place?

#### LEARNING ACTIVITY AND REFLECTION

Spend a few moments jotting down the bedside settings you use for teaching.

- To what extent are these settings useful for teaching?
- What are the unique opportunities each setting presents for learning?
- What are the limitations of the settings for effective learning?

There are many useful learning environments for bedside teaching. Below is a list of some of them but you may have considered others:

- dedicated teaching at the bedside in protected time
- dedicated teaching session in clinical skills lab
- teaching ward round - business plus large focus on teaching
- teaching clinic - business plus large focus on teaching
- teaching operating list - business plus large focus on training
- business ward round attended by students (e.g. post take ward round)
- business clinic attended by students
- business operating list attended by students

Dedicated teaching activities allow better planning and preparation and allow the teacher to design the session around the needs of the learner. They are time consuming and limit the clinician's role in patient care.

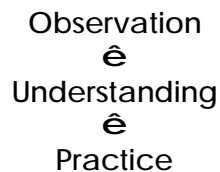
Business activities maximise patient care but can be of limited use for more systematic learner-focused teaching. However they are important opportunities for opportunistic teaching and learning, and for role modelling. With some attention to the learner, the effective teacher can maximise learning whilst minimising disruption even in the busiest of clinical settings.

Student → Patient

Teaching → Care

## Effective Bedside Teaching

Healthcare professionals have traditionally learned their craft in an apprenticeship model where novices observe their experienced colleagues at work. These colleagues teach in context in the clinical setting and provide opportunities for practice with feedback on performance. If this system works well there is a structured progression from observing through understanding, to acting as a health professional, in a graded series of logical steps:



However, if this system is based on poor quality or poorly structured bedside teaching, this model of learning runs the risk of:

- being haphazard;
- not adequately covering the content of the medical curriculum
- novices being asked to perform tasks for which they are unprepared and unsupervised.
- encouraging the learning of bad practices as well as good
- leaving the learner feeling generally overwhelmed by the need to attempt to make sense of what they are learning

At it's very worst, poor bedside teaching can be a brutalising experience for the learner and the patient.

### LEARNING ACTIVITY AND REFLECTION

Below is a caricature of traditional bedside teacher that may resonate with your own experiences as a student. What is wrong and how can it be put right?

The "carry on doctor" guide to bedside teaching

- § Start by gathering students round unsuspecting patient who has good clinical material for teaching
- § Embarrass the patient by exploring the abdomen without consent
- § Pick the most timid student to perform & present findings at the bedside
- § Dissect the student's errors at the bedside
- § Quiz students about management plan & diagnosis at the bedside
- § Suggest other students come back later to " feel the spleen"
- § Move onto the next patient and start again picking on a different student

It is easy to identify what we *shouldn't* do during bedside teaching but what *should* we do? Have a look at the e-learning module *Facilitating learning in the workplace* and at the paper in this series: Teaching and learning through

active observation for some ideas about helping students to learn when asking them to observe you.

Another good place to start is to look at what others have identified as effective behaviours. Canon & Newble (1986) have listed what they feel are the attributes of an effective clinical teacher. This seems like a good starting point for defining what an effective bedside teacher might do.

### Attributes of an Effective Clinical Teacher

1	Encourages active participation rather than passive observation
2	Emphasis on teaching of applied problem solving
3	Integrates clinical medicine with basic science
4	Close observation of students during interview/ examination rather than side room case presentation
5	Provides adequate opportunity for students to practice skills
6	Provides good role model for interpersonal relationships with patients
7	Teaching is patient orientated rather than disease orientated
8	Demonstrates positive attitude towards teaching

#### LEARNING ACTIVITY AND REFLECTION

How many of the 8 attributes outlined above do you exhibit in your practice of patient based teaching?

List some of the difficulties in using these attributes in every day clinical teaching.

Let's look at each of these attributes in turn and see how we might display them in patient-based teaching.

- 1 How can we encourage active participation rather than passive observation?

Our thoughts:

We need to think about how to engage all of the students all of the time rather than focusing on one student only while the others watch or look out of the window. Solutions might be to:

- Allocate roles to each student before they get to the bedside,
- Share the history taking or examination between the students: one student to enquire about the presenting complaint and the history of the presenting complaint, ask another to conduct the other parts of the history, then allocate another student to examine the patient etc.

- Give other students *specific* observer roles such as to observe the patient's body language and reactions to the questions asked.
- Remember to allocate observing roles to the students *before* seeing the patient and telling them they will be asked to report back on this role afterwards. This should motivate them to pay attention to the demonstrating student. If you have more students to keep active,
- Consider asking another student to listen to history and then be able to summarise the key findings in a sentence or to suggest differential diagnosis and/or management plan.

## 2 How can we emphasise teaching of applied problem solving?

### Our thoughts:

- Encourage learners to use the information they are collecting to begin to generate a diagnostic hypothesis.
- Ask them to make a hypothesis, then fit all patient's symptoms into that to help confirm or refute the hypothesis made. This can be done with a copy of the patient's notes on hand – so real investigation results are included into the problem solving.  
*E.g. if you think Mr X has Temporal Arthritis as a cause of his headache – how would you confirm that? (ESR). Student then looks through the patient notes to find the ESR.*

## 3 How can we integrate clinical medicine with basic science?

### Our thoughts:

The main worry for many clinicians is that they may not be familiar with the basic science in their area, or not confident enough to teach it.

Remember the most knowledgeable people in the session may well be the students who will have learnt the basic science more recently than the teacher. Integrated curricula where students learn anatomy, physiology, biochemistry and pathology of systems in parallel are common. The final piece of the learning jigsaw is for this learning to be placed in the clinical context. Do not assume that if your students learned in an integrated curriculum, they won't need help with integrating knowledge. Also the clinical setting can be so overwhelming, that it is sometimes difficult for students to identify useful knowledge that can help them.

- You can help by asking them to recap the information. In the busy clinical setting you have not got much time to spend with the students. The last thing you want to do is spend precious time going over basic sciences, so you could set homework of revising the basic science in advance of the bedside teaching. You could discuss their knowledge of basic sciences and assess and reactivate their knowledge before you reach the bedside.
- With a planned teaching session you could either read up the basic science as well or perhaps invite a basic scientist to help plan or run the



session.

- Make sure that you always include relevant information – and be explicit about how relevant it is. E.g. spinal cord anatomy in a patient with a spinal injury.

- 4 How can we ensure close observation of students during interview/ examination rather than side room case presentations?

Our thoughts:

The teacher needs to think of what the learner needs rather than what the teacher wants to teach!

- Learners really appreciate specific 1:1 feedback about their skills, try and make time to do this
- If you have more than one student you can send students to see patients in pairs or threes with “observers” who can give valuable feedback on technique.

- 5 How can we provide adequate opportunity for students to practice skills?

Our thoughts:

This is time consuming and it means you need to think about.

What do the other students do while one is practising – see attribute no 1

- Remember students often do not go and see patients on their own (Cox 1993). They need to be encouraged and supported to do so.
- Allowing time and opportunities to practice new skills in a range of settings and on a range of patients, preferably with observation and feedback is key to effective skills acquisition.
- Observation does not always need to be by you. Allied healthcare professionals can observe and give feedback, as can other students.

- 6 How can we ensure that we always provide a good role model for interpersonal relationships with patients?

Our thoughts:

Never underestimate the importance learners attach to learning how to interact by watching what you do. As a clinical teacher you are a role model and being closely scrutinised by learners whether you like it or not!

- Make sure all your interactions are worthy of being modelled no matter how tired or rushed you are.
- Medical students and junior doctors will be observing the way we treat not only patients but also our interactions with non-medical colleagues and other staff such as ward clerks or receptionists. They will see how we cope with telephone calls, relatives etc.
- Think about not only demonstrating positive behaviours and attitudes with learners but also taking time to reflect with them on your good points, highlighting positive actions and behaviour, and to identify negative aspects thinking about why they happened and how they can be avoided.

7 How can we make sure that teaching is patient orientated rather than disease orientated?

Our thoughts:

There is a temptation to take students and juniors to see patients because they exhibit interesting or unusual signs or a rare disease. However to learn core competencies and the skills of clinical reasoning they need to see common conditions and need to see the problem as a patient and not a disease.

- Use common conditions and typical signs
- Always introduce the patient, having met them beforehand and briefed them about the teaching.
- Always ask the patient's permission beforehand and check if they have any concerns. Try to focus on how the disease affects the patient rather than just on the disease itself: asking the patient to discuss this is helpful.
- Asking one of the "observer" students to be thinking about how the patient's day to day life might be affected by their symptoms or disease consequences helps to make teaching more patient centred.

## Organising and Delivering Effective Bedside Teaching

As well as displaying the attributes outlined above, effective bedside teachers also need to use their organisational skills to provide adequate learning opportunities in the clinical setting.

Medicine is a practical subject and it is vital that students and juniors learn to be effective hands-on clinicians. However a lot of clinical teaching involves students as passive observers, to the detriment of their learning.

It is worth reflecting on some of the literature on clinical teaching. These studies have shown that clinical teachers often spend little time teaching at the bedside. 50% of clinical teaching time is spent in seminar rooms, 25% at the bedside. Students get to demonstrate their clinical skills for less than 5% of the time. Clinical teachers often have little idea about their students' learning needs, and tend to focus on knowledge objectives which could be met by other means. (Harth et al, 1992, Hartley et al, 2003)

Again, it is easy to know what we should be doing but sometimes difficult to put into practice.

### The environment

While seminar rooms and lecture theatres are designed for teaching, wards, consultation rooms and theatres are not. Getting the physical and psychological environment right is very important for learning. On the wards, moving out of a busy corridor into a side room allows everyone to concentrate on the teaching session and prevents discussions from being overheard. In the out-patient clinic or general practice setting, simply ensuring that the arrangement of the chairs in the room includes the undergraduate as a learner can encourage active rather than passive participation and can provide support for the undergraduate in an unfamiliar setting. Think about placing the students where they can have eye contact with you and the patient. Try not to put your students behind the patient or you may find they quickly adopt a passive role.

### LEARNING ACTIVITY AND REFLECTION

List some of the environmental barriers to overcome in a ward / clinic based teaching session

### Organisational issues

Carrying on with your normal clinical workload and arrangements whilst you try to teach means that one of two things will happen: either you will teach the students or juniors when appropriate and the round / clinic / surgery will be prolonged, or you will keep teaching to a minimum, encouraging passivity and finish on time. The first situation will cause friction and stress with your work colleagues; the second will get you poor ratings in your student evaluations. Therefore for the benefit of both your colleagues and your students it is important to think about the organisation of your clinical work to allow you a little more flexibility and more time to teach. How you organise your teaching will depend on where the teaching is going on, the number of rooms and staff available and the number of students.

### *Being realistic*

It is impossible to deliver high quality teaching in all clinical situations.

Negotiating with learners and staff about *what* you can achieve in *which*

situations is sensible. A learner that is told that you are about to perform a crash induction on an emergency caesarean section and that the situation is fraught but that you will expect them to observe what goes on and then discuss what happened and any learning points over a coffee later in the day will fully understand the need to put patient care first. Similarly approaching the clinic nurse before a busy clinic to explain that you have a novice student with you may allow her to divert some of the clinical material to your colleagues and may also be an opportunity for you to ask for her input in the clinic based teaching.

Teaching in the service setting is stressful and your colleagues know this. They may be willing to share the load or to offer some sort of trade-off if they do not want to be involved directly in the teaching. Remember if you ask for help then colleagues actually have to say 'no' which is more difficult than turning a blind eye to your stress!

#### *Selecting patients for teaching*

Students can learn more from some patients than others. Similarly some patients are very happy and helpful participants in the teaching process and are therefore easier to teach with than others. Patients for teaching should be friendly, available and willing to talk or be examined by students at the appropriate time. Patients that will help the students learn may have a good story to tell the students (this may be about their wider experiences relating to their illness and not just an interesting medical history). There should be no significant communication barriers, unless you intend the learning points to be specifically about how to deal with communication difficulties.

Patients are usually very happy to take part in teaching sessions but it is wise to obtain permission explicitly and record that you have done so. To make the whole process run more smoothly, remind patients about the specific aim of the teaching session (e.g. to practice talking to patients, to examine the chest etc.). Inform them of any special instructions, the student numbers, the level they are at, what the students will do, and for how long. You may like to indicate the sort of questions students will ask. Involve the patient throughout the session where appropriate and remember that patients can also give feedback on students' performance for example asking a patient to compare the examination skills of an experienced clinician with a medical student can be useful and revealing, eg. showing the student how much pressure to use in an abdominal examination.

#### *Structuring teaching*

Reorganising your clinical load will buy you some time, but not enough to deliver a full teaching session. To teach efficiently in the clinical setting you may need to modify your teaching methods. Learning in the clinical setting is based on experience, but also requires time to actively and purposefully reflect on that experience. Kolb's model of learning with its cycle of preparation (or brief) / experience (or do) / debrief (or reflect) (1984) can be used in the service setting but can take a lot of time if you use it with every experience. Several other effective techniques can be used that utilise some aspect of the cycle. The methods you use will depend on the setting, the time

you have available the needs of the student and when in the clinical episode the teaching segment arises.

- All Action: Continue with your activity but fit in a 3 minute 'round up' regularly. During this you and the learner should summarise what you have seen and learned.
- Planning – Action: This equates to just using the 'experience cycle', and is useful if you have some time at the start of the session to explore prior knowledge and set objectives before the list or clinic begins.
- Action – Reflection: This equates to using just the 'reflection cycle'. If you are pressed this will have to take place at the end of the clinical session, but it is helpful to do several times during the session.
- Trigger: This involves negotiating beforehand what you will teach about – thus when an appropriate patient or opportunity arrives you can begin the teaching segment.

In general it helps to brief the students by telling them what to expect, and what they can learn. Explain that you are establishing at the beginning what the student hopes to gain from their time with you so you can focus your teaching accordingly. When time for teaching is running short you can keep their interest and motivation up by involving them in patient care as much as possible by asking them to carry out procedures such as urinalysis, taking a blood pressure or checking drug doses or interactions.

Try and secure a few minutes for reflection on what they have seen or done at the end of the clinic/ward round.

#### A Structure for Better Bedside Teaching

One model of effective bedside teaching (Cox 1993) divides the activities teaching activities into

- Before the bedside
- At the bedside
- After the bedside

This is a very useful model for organising bedside teaching so that it is effective and also the time with the patient is maximised.

It is also worth adding in an extra section: '*before the session*' to ensure you and the patient are fully prepared.

#### *Before the teaching session*

- Brief the patient: check what they are happy to discuss/ expose. Are they happy with the number of students who will be involved in the session. Explain that these are learners and may suggest unlikely diagnoses etc. Explain that the patient can stop the teaching at any time. Consider getting oral or even written consent from the patient.
- Brief yourself: check the clinical findings yourself and check that the students have not been taught on this patient already. Check the objectives for these students and that experience with this patient is appropriate for their needs.

<b>Before the bedside</b>	
- establish the students' knowledge base	
- brief the students	<ul style="list-style-type: none"> <li>- ground rules of what to discuss or not in front of patient ( if junior students how to behave/ dress)</li> <li>- role allocation – especially important for observers</li> <li>- what are they expected to be learning (what are the objectives?)</li> <li>- may even discuss that this patient has the following features to look out for</li> </ul>
<b>At the bedside</b>	
	<ul style="list-style-type: none"> <li>- role model good doctor-patient relationship</li> <li>- try to involve all the students all the time</li> <li>- focus on the clinical experience ( i.e. don't get distracted into discussing pathology or basic science or management plans over the patient's head)</li> </ul>
<b>After the bedside</b>	
- give constructive feedback to the demonstrator students	
- debrief the students	<ul style="list-style-type: none"> <li>- get the observers to report</li> <li>- what did the students find?</li> <li>- Did everyone detect the key features?</li> <li>- Any students uncertain?</li> </ul>
- explain findings	<ul style="list-style-type: none"> <li>- what did the findings mean?</li> <li>- which findings help discriminate between differential diagnoses?</li> <li>- how do findings fit with diagnosis/ pathology?</li> </ul>
- working knowledge	<ul style="list-style-type: none"> <li>- what should students do differently next time?</li> <li>- what should a similar scenario trigger next time?</li> </ul>

### Learner focused bedside teaching

Getting the pitch and pace of a teaching session right is important and there is no substitute for spending time with the learners defining their learning objectives, assessing their prior knowledge, confidence and competence in skills and negotiating what you are going to teach. If you are short of time in the clinical setting it is tempting to leave this out. Given that this is likely to lead to unsuccessful teaching sessions, an alternative solution is to use the short time that you have efficiently. If you will be meeting with the learners regularly, it may be possible spend the first session talking through what they hope to achieve during the time that they are with you. Using the list they generate (and your knowledge of the actual aims and objectives of the firm) you may be able to negotiate a series of teaching sessions, which could take place on ward rounds, in clinic or in theatre.

### Using Logbooks

Students often worry that they don't know what they should be learning on clinical attachments, usually because the course guides are either too vague

or too detailed or because the student has been unable to secure or read it. Using logbooks can help to communicate the curriculum and can encourage the recording of on-going achievements. These show the student what is expected of them and can be used to check what they have actually achieved. To be useful, and to motivate students to use them, logbooks need to be reviewed during a course as well as at the end. To observe a student's performance, to give them feedback and sign them as competent in their logbook takes time and a quiet place to talk. For more about supervision see the e-learning *Supervision* module.

### Teaching clinical reasoning

All medical students find making diagnoses difficult. They are not helped by the fact that they will see you making diagnoses in two distinct ways: pattern recognition in easy cases and hypothesis testing in difficult ones.

Students are also inhibited by the fact that we teach them by providing and encouraging long lists of increasingly obscure questions to ask patients or over intricate examinations with no obvious link between questions or steps and no obvious weighting of the importance of one section of the interview over another. This often means that they gather so much data they cannot see the wood for the trees.

As pattern recognition requires considerable clinical experience, a good place to start to encourage learners to develop this skill is to start off trying hypothesis testing. Making useful hypotheses is only possible if students are in the right 'ball park', and you can get them there quickly by encouraging them to think carefully about the key features of a patient's problem. This means getting them to stop, think, and commit to a 'ball park' (e.g. "this abdominal pain is probably appendicitis") early on in the interview, and to then test out the idea within the interview. Once they have committed themselves to a ballpark, you then need to ask them to:

- Reflect – and consider what ideas come to mind when "hearing" the early representation or key features
- Plan – what further questions or examination would help them establish a diagnosis
- Experiment - proceed with further questions and examination, to test the hypothesis

This process has been summarised for use in the clinical setting by Nejer (1992). Using the system below is said to add only a minute to average teaching time.

#### Enhancing clinical reasoning at the bedside

- Commitment (ask student to state what they think is going on)
- Probe for supporting evidence (why do you think this?)
- Teach general rules
- Reinforce correct assumptions of good ideas with positive feedback
- Correct mistakes

In practical terms this means a departure from the standard activity of listening to a classical presentation, and asking students what they think are the key features of a case and why they are important. This is more likely to encourage the students to process the information they are gathering. We can also encourage detective behaviour by using the following framework when getting students to present their findings:

#### Enhancing clinical reasoning in case presentations

Focus	Ask the student to focus their findings into a brief summary
Wait	Wait for them to finish describing what they feel are the key findings Hold your tongue! Don't ask factual recall questions
What?	Ask the student what they think the diagnosis or management plan is
Why?	Ask them to justify their reasoning. What led them to these conclusions?
Uncertainty	Ask them what they are uncertain about Do any features make them uncertain?
Give feedback	Reinforce what they did well and explain where they could have done better

We can also use other techniques to improve clinical reasoning skills:

- Let them know how you do it. Try thinking out loud; talk through your decisions, how you weigh the evidence and what influences your choices.
- Voice your uncertainty. We rarely allow students to realise that there are clear limits to our own knowledge and skill, because we think (unfairly) that they will think less of us. It would help them voice their uncertainties if we were explicit about our own. Admit if you are making decisions merely on a hunch, because of a past missed diagnosis or because you are unsure what to do next.
- Choose a common condition to teach clinical reasoning. Try to ensure that the students have some useful clinical knowledge relevant to the case so they can concentrate on making decisions, and ensure that the mood of the sessions is safe and non-judgmental
- Improve pattern recognition skills by encouraging your students to see common conditions repeatedly. Teaching by comparison between cases rather than teaching each condition separately improves pattern recognition.

In difficult cases, clinicians rely on both their clinical knowledge and their underlying knowledge of basic sciences to solve cases. With the increasing integration of medical courses, teaching the basic sciences is no longer just the remit of anatomists and pathologists and clinical teachers can help learners by integrating basic science knowledge into their teaching.



## Teaching and learning in different clinical settings

There are many different settings for clinical teaching. The following short sections provide some ideas and describe the theoretical basis for developing your teaching skills and enhancing learning in specific settings, namely Outpatients, General Practice, A&E and on call and the operating theatre. These sections are designed as a stimulus and introduction to further papers which explore making the most of teaching and learning opportunities in more depth, the papers which develop each section are indicated by hyperlinks to the relevant paper.

### Teaching in protected time

Teaching in protected time often seems like a luxury compared to trying to teach in a busy service setting. Protected time allows you to deliver a planned session and an opportunity to closely observe students and offer feedback. It is a golden opportunity and every minute should be used to its full potential.

Some teaching in protected time takes place at the bedside: either on the wards or in general practice. Other teaching uses the specialised settings of the clinical skills lab and the consultation skills suite.

It is important that your time is truly protected as interruptions by telephone calls or beeps will interfere with the smooth running of the teaching session, affect the quality of the students' learning and increase your stress levels.

### Teaching on the wards

Teaching on the wards is usually highly rated by students. The special features of teaching at a real bedside are

- the presence a host of clinical materials: the patient, the notes with all investigations, X-rays, drug and nursing charts
- The natural 'firm' grouping that allows teaching in a small group.

Effective organisational formats for bedside teaching include:

- Business rounds: students observe the 'real work' of the clinical team. Remember that the experience needs to be supplemented with some time for purposeful reflection soon after the experience to be useful.
- Teaching rounds: these are set up specifically for teaching using patients selected by the teacher. These move more slowly than business rounds allowing more time for learner participation, and while teaching ward rounds are theoretically held in protected time, in practice they are often interrupted by clinical work
- Patient allocation model: students are allocated certain patients. Students should be encouraged to fully clerk their patients when they are admitted, observe their investigations, follow them daily and take the responsibility of presenting them to the team on ward rounds. Learners may find this stressful so making sure that an educational climate is fostered in which it is accepted that mistakes may be made and uncertainty expressed is important. Learners should be

encouraged to read around cases which will help them integrate clinical and basic science learning.

- Small group bedside teaching: these usually involve only one patient, and a small group of students, and are useful in teaching specific clinical skills
- Shadowing: students follow a junior member of staff and share in their work as much as possible

Techniques you can use to facilitate good bedside teaching:

- Expecting students to present patients. This may have an impact on how much business can go on in the ward round at the time.
- Asking students to present their clerking on business rounds. Again this slows the round down, so you might make it their responsibility to present only part of the history – for example the last day's progress, or latest blood results.
- If you expect students to join a business round but there is little time for them to contribute, it may be helpful to give them a task to focus on during the round, i.e. communication with patients and staff or decision-making.
- Suggest that your students stay only for the first half, and then work towards some agreed learning objective for the second half.
- Make some time and space after the ward round to talk through what they have been doing (reflection).
- On all ward rounds position the patient, student and yourself so you can see everyone and gauge the extent of their engagement in the session.
- During any ward-based teaching you will have the chance of observing and giving feedback to your students on their clinical skills. This is a vital time for learning, and should not be neglected.
- Make sure that any feedback given is constructive and try and find a place to do this away from the main ward round.
- Consider asking the patient to give feedback to the students as well as other students.

### Teaching in Outpatients

Outpatient teaching is beneficial for students as it is where they can see large amounts of "clinical material" in a short space of time. However it can be stressful for doctors trying to run a clinic and boring for students if they are watching passively. Some organisational changes will be easy to make – for example altering the position of chairs, while others – finding extra rooms, changing the scheduling of your clinic or persuading colleagues to help you teach – will be more difficult.

Structuring your teaching in outpatients depends on the number of students you have to accommodate and the number of teachers available. If you have one or two students then the options are 'sitting in', using the 'apprenticeship model', or using a separate room for the students to see patients and then report back to you. The apprenticeship model involves the student conducting the medical interview with the doctor watching. While this is an excellent learning experience for the student it takes time. Allowing the students to see patients in another room relies on careful clinic

scheduling, but will not take up extra time. If time and space are at a premium then 'sitting in' is your only option. Remember observation is only useful if it is purposeful so to maximise learning, try to find some time before the session to discuss learning objectives and consider setting the students tasks such as.

*"The next patient is a new patient. I want you to make a differential diagnosis and tell me which parts of the interview helped you to decide this. Before I examine the patient I would like you to tell me this differential list and from that tell me which parts of the examination will be most important"*

Allow the students to take part in small ways in the management of the patient. Ensure that you countersign all their notes and correct the record if necessary.

More than one or two students present some problems. Big groups in the clinic room are intimidating, and it may be useful to use a 'boomerang' model where students go and do things and then report back. Again, because they are seeing the patient alone, you will not know whether they have performed the task correctly. An alternative is the 'breakout' model, where the students first observe you at work and then repeat or expand on what you have been doing with patients on their own.

With really large groups of students, you can divide the students among the available tutors. Remember to ask all available health professionals such as dieticians and nurses to help. An alternative is the tutor model where all students are allocated to one tutor whose clinical workload is then reduced so they can see specially selected patients. A final option is the 'shuttle' model, where the students wait in a central pool and are called in to see particularly interesting patients. To use these models successfully you will need to tell students and staff exactly what you plan to do (Dent & Harden 2000).

Out-patient clinics can also be used to discuss and explore the difficulties of working to time, dealing with waiting lists, and managerial problems.

#### LEARNING ACTIVITY AND REFLECTION

Write a list of the additional learning opportunities that may be present in an out-patient clinic.

To learn more about teaching and learning specifically in Out Patients, read the paper in this series: Learning and teaching in Outpatient settings

## Teaching in General Practice

General practice teaching takes place in at two general forms –teaching about general practice, often called “core general practice teaching” which takes place in the service setting, and clinical skills teaching usually in protected time. General practice is the ideal setting to learn about consultation skills, focused history taking and selective examination, and management of ongoing illnesses. General practice patient populations together with general practitioners in protected time can also be the ideal setting for learning and practicing clinical skills and the majority of medical school recognize this by devolving some of the clinical teaching out into the community. There are plenty of things for students to do in the general practice setting but it is worthwhile spending time with your students initially to tailor the available learning experiences to their needs.

Students in general practice commonly start by ‘sitting in’ with their GP teacher. This is a useful way to see the range and the pace of the work that GPs do but it can be a very passive experience for the student. Try to ensure that students do this for as little time as possible and consider a mix of surgeries and other activities during a day in your practice. You can involve the student in the surgery by:

- getting them to act as observers with a specific task to do (e.g. *“I would like you to rate how patient centred I am in the next 4 consultations and identify the factors that have encouraged me to behave in that way”*)
- giving them simple clinical tasks (e.g. *“would you mind looking in Mr. Smith’s ears and telling me what you can see please”*)
- Asking them to interview some of the patient in your presence
- Asking them to see patients initially in another room and present them to you
- Getting them in the ‘hot seat’ – thus not just seeing the patient but using the computer, recording data etc.

Always spend time with your students at the beginning and end of each surgery to brief and debrief. You may find it helpful to reorganize your workload by putting in regular breaks during the surgery or starting or finishing at more student friendly times. Your partners are also a valuable resource: ‘sitting in’ briefly with them and contrasting their consultation styles with your own may be a useful exercise for the student.

The paper in this series, *Using the consultation as a learning opportunity* offers lots of ideas about teaching in general practice surgery and other situations in which consultations are carried out.

### LEARNING ACTIVITY AND REFLECTION

Write a list of the additional learning opportunities that may be present in GP’s surgery

## Teaching On call and in A&E

Students find the atmosphere of A+E motivating and exciting (they almost all watch 'E.R.') but it can also be an intimidating or even frightening experience. They can see that clinical teachers are often very busy and that patients are often *in extremis*, and do not expect the same kind of 'teaching' that they might get in other clinical settings.

The heightened arousal that time spent in A+E generates, the range and sheer numbers of patients that are seen, and the early often dramatic signs that can only be seen at initial presentation means that it is a vital learning environment for students, not only for clinical skills but also for generic skills.

As with all clinical teaching it is worthwhile to spend some time at the beginning of the shift or day to establish the student's knowledge base and experience and to plan the potential learning objectives for the next few hours. The most straightforward way to organise the teaching is to give students the opportunity to shadow a clinician. They will experience all sorts of learning opportunities that would be missed in more organised sessions and even in the most busy of situations, simply describing what you are doing out loud including explaining the decisions you are making is an effective way of teaching the students.

With more senior students and trainees it should be possible to give them some supervised involvement and responsibility (although not so much that they are overwhelmed). It is critical to be sure that learners are competent before asking them to perform a task and ensure that they understand that they can refuse to do something if they are not confident enough.

Without taking up much extra time at all you can sometimes let the student take a history and examine a patient before you do, ask him to present patients to you and allow him/her have first go at interpreting test results. At the end of the shift take a moment to go through the patients you have seen and discuss the useful learning points. Remember also that other medical and non-medical staff have much to contribute to medical student learning in this setting.

For more ideas about structuring teaching opportunities in busy clinical situations look at the paper in this series: Integrating teaching and learning in clinical practice

## Teaching in Operating Theatre

Theatre is a place for students to learn about both surgery and anaesthetics. This is therefore the ideal situation for the surgeon and anaesthetist to co-ordinate their efforts, and thus the learning be maximised whilst the impact on your work can be reduced.

The actual surgery is only one of the learning resources that is taking place and it is worth thinking about the other learning activities that are possible in the operating theatre and the other professionals present during the list to engage the students in learning tasks.

Remember to maximise the time before the list to talk and between the patients to reactivate prior knowledge and to keep the learning patient focused. If you can encourage students to see the patients on the list, you can use this time for students present them.

Many anaesthetic techniques and simple surgical techniques such as suturing and catheterisation are best taught in skills laboratories, but it is also important for the students to observe them being carried out in context. Theatres may be the only place that students can get practice on real patients in some skills but do ensure that patients have given consent for all procedures you may ask the students to perform.

For more ideas about teaching in theatre, have a look at the paper in this series: Teaching and learning in operating theatres

### Summary

Effective bedside teaching is patient-based and patient-orientated teaching and learning. It can take place in natural health related environments or simulated settings.

Effective bedside teaching can sometimes be a difficult juggling act to perform. The clinical teacher needs to be aware of not just the learner but also of the welfare of the patient.

The reasons for using the bedside as a teaching environment is:

- it places all the learning in context
- it prepares students for the sort of work they will face as clinicians.
- it shows them how a clinician uses their clinical and generic skills
- It is an effective venue for 'role-modelling'.

### References and acknowledgements

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