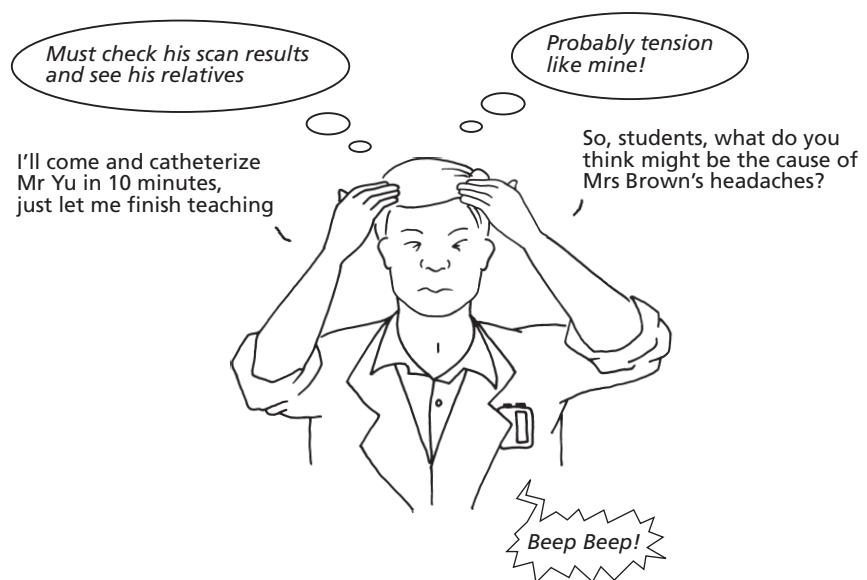


## CHAPTER 8

# Teaching in the clinical setting

### Introduction

Armed with your lesson plan and toolkit of teaching skills, delivering your teaching session should not seem too daunting. There are a multitude of potential settings in which you can deliver your teaching, from a lecture hall to a domiciliary visit. All these teaching settings can be divided into two key types: those in the ‘**service setting**’ where you carry on with your clinical work simultaneously and those where you have ‘**protected time**’ with your students. Teaching in protected time means that your clinical responsibilities are covered by another clinician, allowing you to teach without interruption. In practice, the majority of our medical teaching is done in the service setting. Bearing in mind our service commitments as well as the needs of the students, the patient, the medical school, the trust, and ourselves, is a difficult balancing act.



Teaching in protected time is usual in lectures and seminars and is often used to teach clinical and communication skills. It may also be used in bedside teaching, using patients who have been specifically selected for teaching. Teaching in the service setting covers any type of teaching that accompanies clinical work. This chapter looks at teaching in a variety of different clinical settings and suggests how the clinician can make optimum use of these settings to teach students effectively.



Doctors traditionally learned their craft in an apprenticeship model where new doctors observed their experienced colleagues at work. If they were lucky there was a structured progression from observing, through understanding, to acting as a doctor, in a graded series of logical steps. If they were unlucky then they might have been asked to do tasks for which they were unprepared and to perform these tasks unsupported. They also ran the risk of not covering the content of the medical curriculum. Because of these problems, there is a trend for medical schools to move towards a more structured way of providing clinical experience. Postgraduate training schemes, run by the Royal Colleges are now well organized along lines that produce confident safe doctors. However there is not yet a similar universal scheme for clinical undergraduates although there are many instances of good practice in different medical schools.

Until recently the vast majority of student learning took place on the wards. Changes in service provision have meant that patients are only admitted if they are acutely ill and discharged rapidly to follow-up care in the community. As a result there are fewer patients in hospital and many are too ill for students to clerk. To increase students exposure to clinical material, many schools have started to develop teaching in outpatients and primary care (referred to in the United States as ‘ambulatory care’). This gives valuable exposure to clinical cases (Malley *et al.*, 1999), but has some limitations. It may offer a narrow range of clinical material, can be unpredictable, may lack continuity, and be of variable quality. Students are said to examine patients rarely and have little time to discuss a case or receive feedback from teachers (Irby, 1995).

### The added value of clinical teaching

Given that teaching in the clinical setting is difficult, why do we do it? Perhaps the most important reason is that it automatically places all the learning done by students in context. This will make the information easier to recall when a similar situation is encountered. Secondly, it prepares students for the sort of work they will have to face as clinicians. Finally, it shows them how a clinician uses their clinical and generic skills in their clinical work. The performance of the clinician is used to show the student how things should be done, and this is called ‘role modelling’. When we teach in protected time we can show students how we approach patients, clinical, or ethical problems, using interaction with real or simulated patients, case discussions, and problem solving exercises. However our actual performance in outpatients, surgery, or on the wards is likely to be a more powerful influence. This ability to provide a clinical role model distinguishes the clinical from the non-clinical teacher.

Medical students will automatically observe the way we treat patients as well as our interactions with non-medical colleagues and other staff such as ward clerks or receptionists. They will see how we cope with telephone calls during a clinic, with a tearful patient, or angry relative. They may watch us examining patients, carrying out clinical procedures, or breaking bad news. Demonstrating our own professional behaviour and attitudes and at the same time analysing and discussing them is a powerful way to set students along the path to becoming a professional. Role modelling takes place whether we refer to it overtly or not, and when we teach in the clinical setting we have the responsibility of acting as a positive role model.

### Being an effective clinical teacher

Medicine is a practical subject and it is vital that students learn to be effective hands-on clinicians. To do this they need to work with their basic science knowledge

and skills in the clinical setting. Currently much clinical teaching involves students as passive observers, to the detriment of their learning. Effective clinical teachers provide stimulating interactive experience for their students using the toolkit described in Chapter 4. If you are teaching in the service setting you need to call on some extra organizational skills to help you teach while you work.

### **Teaching with patients**

Teaching in the clinical setting has the advantage of using real patients. This raises the challenge for students, but requires close supervision by teachers to ensure that the patients are comfortable. Students can learn more from some patients than others. Patients for teaching should be friendly, available, and willing to talk or be examined by students at the appropriate time. They often feel that teaching students is a way of making sense of their illness or learning more about it.

Patients that will help the students learn may have a good story to tell the students (this may be about their experiences of illness/health care and need not be limited to just an interesting medical history), or have good, ideally stable, clinical signs. There should be no significant communication barriers, unless you are teaching specifically about how to deal with communication difficulties. Sometimes teaching with a patient may help his/her medical care; for example, if you want to have a full detailed history taken and recorded in the notes, or consider an aspect of care that you have not previously explored.

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. Think about providing written as well as oral information when asking a patient's consent. You could create a specific information sheet about the teaching to give to patients when you are recruiting/consenting them to participate, or use the one below, which is designed for bedside teaching.

## Teaching medical students

### A guide for patients

Thank you for your interest in teaching our medical students. This sheet tells you what to expect from the session.

- ◆ The aim of the session will be to \_\_\_\_\_
- ◆ There will be \_\_\_\_\_ students from year \_\_\_\_\_ of the medical course.
- ◆ The students will want to talk to you and/or examine you.
- ◆ If you don't want to answer a question, just say "I would rather not answer that".
- ◆ If you feel unwell or uncomfortable with the teaching tell the teacher who will stop the session. This will in no way affect your medical care.
- ◆ Students may suggest some unlikely causes for your symptoms. If you have any concerns about what you hear, please talk with the teacher after the session.
- ◆ Medical students are bound by the same rules of confidentiality as doctors and will not disclose anything they have heard with anyone apart from your medical team.
- ◆ Tell your teacher after the session if you have any concerns about any of the students.

### Consent to teaching

I \_\_\_\_\_ am happy to help teaching medical students, and understand that they wish to talk to me and/or examine me.

Date

Before any teaching session that involves patients it is important to prepare the patient, yourself, and the students. Think about covering the following:



## Preparing for teaching with patients

### Brief the patient

- The aim of the teaching session (e.g. to practise talking to patients).
- Any special instructions (“Don’t tell them your diagnosis”).
- Students numbers, and the level they are at.
- What the students will do, and for how long.
- The sort of questions students will ask (they do not have to answer them all).
- How to stop the teaching at any time.
- That students are bound by the same rules of medical confidentiality as doctors.
- Remind them that inexperienced students can suggest some unlikely diagnoses.

### Brief yourself

- Check the clinical findings.
- Check the students have not seen the patient before.
- Check the students learning objectives—will this experience help their learning?

### Brief the students

- Give ground rules for session (e.g. what to discuss or not in front of the patient).
- Discuss learning objectives.
- Discuss structure and allocate roles.

Teachers and fellow students are not the only ones who can give useful feedback on students’ performance. Your patients can also be very helpful and insightful. Asking a patient to compare the examination skills of an experienced clinician with a medical student can be revealing and useful, showing the student how much pressure to use in an abdominal examination for example. Do not forget the patient’s presence—it can be easy to get carried away with questioning and discussion while the patient may be worrying about the implications for him/her of your discussion.

## Using your basic organizational and teaching skills

All of the skills covered in Chapter 4 are vital in the clinical setting. Just as in a non-clinical setting you will need to be organized, prepare the content, structure the session, and apply your basic teaching skills.

### Prepare the clinical teaching session

Plan what you are going to teach, prepare the patient, and collect together useful clinical resources before the students arrive.

### Structure the clinical teaching session

Maintain a clear introduction, body, and close to your session to help students learn. Pay particular attention to the introduction: establishing relevance and prior knowledge is vital, as is negotiating the objectives of the session with the students. Plan as much hands-on experience as possible and allow time for reflection at the close of the session.

### Use your generic teaching skills

Particularly important in the clinical setting are getting the learning environment right, giving concise and logical explanations, using questions that explore higher levels of knowledge, and giving specific and constructive feedback. Break clinical skills teaching into small manageable chunks. Give clear demonstrations and ensure students understand **why** as well as **how** the skill is performed. Offer all students hands-on practice and encourage repeated practice on other patients.

Teaching in the clinical setting is often a little more complicated than this however. To make the most of the time you have with the students it helps to pay particular attention to the structure of the body of your session, promoting learning through active experience followed by reflection, integration of basic sciences, and the learning environment.



Much of the literature on clinical teaching comes from America. Research has 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, and 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. The lack, in many schools, of a method of communicating students progress to teachers, often leads to teaching that is inappropriately pitched. Clinical teachers often lack a clear idea of the overall curriculum, which in any case is often insufficiently detailed to guide them (Cox, 1993).

Encouraging teachers to make the most of each teaching session means increasing the amount of relevant 'hands-on' experience, and using a model that maximizes learning from each patient encounter. Harth *et al.* (1992) studied clinical learning environments in Australia, and found many suboptimal learning environments, considerable criticism of tutors with less than half being considered effective teachers, and disturbing reports from a third of students of mistreatment by their tutors.

### Using clinical teaching skills

We often call teaching with patients 'bedside teaching' although many patients are mobile. Even in protected time, teaching with a patient is more complicated than other teaching as your attention must be split between the students and the patient.

Students will learn most effectively when they are involved with their learning, and the key to learning in the clinical setting is encouraging contact with the patient and involvement in their care.

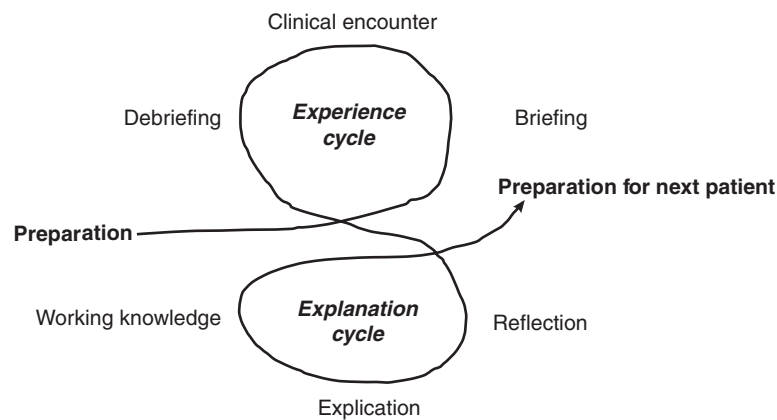
### Structuring the session

Learning in the clinical setting is based on experience, and we know that experiential learning requires not only an experience, but also time to reflect on that

experience (see Chapter 2). The experiential learning model has been redrawn for clinical teachers by Cox, and is a useful way to structure the body of your clinical session.

The clinical teaching model shows two main cycles: an experience and an explanation cycle. Within the experience cycle you first **'brief'** your students about the patient they are going to see. This briefing acts as an advance organizer, creating the framework into which the new information can be fitted. The clinical experience needs to be as 'hands-on' as possible: it will not be possible for all your students to take a full history, but you should be able to ensure that they all take some part in the activity. After the clinical experience, your students need to be **'debriefed'** to ensure that they saw and understood everything that they experienced.

Many teachers stop at this point, missing a golden opportunity for reinforcing student learning by moving on into the **'explanation cycle'**. Within this, you get students to reflect on their experiences by asking 'What did that mean'. This allows them to connect the experience to previous experiences and to develop deeper meanings. From this they can develop explanations of 'What went on' drawing together information from their knowledge of clinical medicine and the basic sciences. To develop their working knowledge, think about asking your students *'What would you do next time?'* and get them to think about what further learning they may need to do to help them.



**Figure 8.1** A model for clinical teaching (Cox 1993)

The cycle shows clearly how students experience can be converted into useful working knowledge. Teaching a skill requires specialized approaches that form part of the experience cycle and are addressed in Chapter 5. In the clinical setting, the two skills which cause the most difficulties for students are the commonest two of the clinical activities: performing a medical interview and clinical reasoning.

### 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 (see Chapter 5). As pattern recognition requires considerable clinical experience, students start off using hypothesis testing.

Making useful hypotheses is only possible if students are in the right 'ball park', and you can get them there more 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 problem is chest pain") early on in the interview, and to then test out the idea within the interview. Once they have committed themselves to a ball park, you then need to ask them to:

- (a) **Reflect**—and consider what ideas come to mind when 'hearing' the early representation or key features.
- (b) **Plan**—what further questions or examination would help them establish a diagnoses?
- (c) **Experiment**—proceed with further questions and examination.

The process of teaching clinical reasoning has been summarized for use in the clinical setting by Neher *et al.* (1992) using the system below known as 'The One Minute Preceptor', which is said to add only a minute to average teaching time.



### Enhancing clinical reasoning at the bedside

- 1 Commitment (ask the student to state what he thinks is going on).
- 2 Probe for supporting evidence (why do you think this?).
- 3 Teach general rules.
- 4 Reinforce correct assumptions of good ideas with positive feedback.
- 5 Correct mistakes.

We don't make things easier for students by encouraging them to present detailed histories in a pre-set fashion. This 'reporter' approach interferes with the 'detective' approach that will help them get to the right ball park, produce hypotheses, and test them out. Instead of listening to a classical presentation, try asking students what they think are the key features 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

<b>Focus</b>	Ask the student to focus their findings into a brief summary.
<b>Wait</b>	Wait for them to finish describing what they feel are the key findings. Hold your tongue! Don't ask factual recall questions.
<b>What?</b>	Ask the student what they think the diagnosis or management plan is.
<b>Why?</b>	Ask them to justify their reasoning. What led them to these conclusions?
<b>Uncertainty</b>	Ask them what they are uncertain about. Do any features make them uncertain?
<b>Give feedback</b>	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 realize 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 students 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 session is safe and non-judgemental.
- 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 the basic sciences to solve cases. With the increasing integration of medical courses, teaching the basic sciences is no longer the remit of anatomists and pathologists and clinical teachers can help students by integrating their basic medical science understanding into their teaching.

### **Integrating the basic sciences**

We want students to understand the basic science underlying clinical medicine so that they can solve the clinical problems they will face in the future. Early medical educators (Flexner, 1910) thought that by exposing students to courses in the basic sciences, they would be automatically able to call upon this knowledge when needed. You may remember from your own medical school experience that this approach was not always effective. Most medical schools now have an integrated curriculum where students learn anatomy, physiology, biochemistry, and pathology of systems in parallel. The final piece of the learning jigsaw is for this learning to be placed in the clinical context. It is tempting to assume that if your students learned in an integrated curriculum, they won't need help with integrating knowledge. However the clinical setting can be so overwhelming, that it is sometimes difficult for students to identify useful knowledge that can help them.

The way in which you address integrating the basic sciences and problem solving depends on the setting. In protected time, you might start by revising the underlying anatomy and physiology of the topic. The aim of this is twofold—first to integrate the relevant sciences, but also to allow students to identify the foundation onto which they will add the new information. You may then be able to go through the problem solving process with the students in detail. In the service setting, you are likely to have less time to teach the students, and making the most of the limited time you have at your disposal is vital. In this case role modelling becomes more important. It may be possible to talk through what you are doing, or use Cox's technique of 'brief–debrief–reflect' at the beginning and end of the experience to succinctly explore relevant information.

*'One of the pleasures of teaching clinical students in their early encounters with patients is to see the sudden moments of delight as they realize that the hard learned anatomy of the cranial nerves makes sense when they see a patient with a cranial nerve palsy.'*

### Getting the pitch and pace right

Getting the pitch and pace of a teaching session right is important, and there is no substitute for spending time with the students 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 are a regular clinical teacher (for example a firm leader), it may be possible to meet with the students at the start of the attachment and spend a 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 attachment) you may be able to negotiate a series of teaching sessions, which could take place on ward rounds, in clinic, or in theatre. Because you have already defined their prior knowledge and agreed the objectives of the session, once you find yourself with an appropriate patient and a little time you can start immediately.

As an occasional teacher you will have more problems. If the students have already spent time with their main teacher defining what they want to learn, they may be able to tell you quite precisely what they plan to cover. If this is not the case, then it is wise to spend as much time as you can on setting the session up, and then continually check with the students that you are getting the level right. Students may not want to upset you and say that the session meets their needs, but by monitoring their body language, you may get a clear idea of their actual opinions.



Finding out what your students know before you start every session may seem rather repetitive. If you teach in a specialist field, it is likely that when you ask your students *'What do you know about dermatitis herpetiformis'* their knowledge will be limited. However don't try to guess what they do and don't know, unless you know both the students and the session well. Even an experienced teacher is likely to get it wrong. Tutors in specialist fields may quickly find out what students know about the area, while tutors in more generic areas of medicine and surgery will need to spend more time establishing the limits of their students' knowledge, confidence,

and competence. Transmitting what you know about a student's or group of students' knowledge to other teachers is very useful, but can be difficult in practice unless you document what you have discovered.

### Using logbooks

Not only may tutors have difficulty finding out what students know, but students often worry about what they should be learning on clinical attachments, because course guides are either too vague or too detailed. Medical schools have tried out several ways of communicating the curriculum and recording students ongoing achievements in a portable form, and many are currently using paper-based logbooks. These show the student what is expected of them and can be used to check what they have actually achieved.

#### Sample page from a logbook

These procedures can be performed and observed in the clinical skills laboratory and theatre.

Perform	Practice 1	Practice 2	Practice 3	Competent
Surgical scrub procedure				
Inserting IV cannula				
Bag-mask ventilation				
Oral/nasal airway insertion				
Airway management				
Demonstrate CPR—manikin				
Insert a urinary catheter				
Use 3-lead ECG monitor				
Suture skin				

Observe	Seen date 1	Seen date 2	Seen date 3
Arterial blood gas sampling			
Radial arterial cannulation			
Blood transfusion			
Insertion of a CVP line			
Tracheal intubation			
Arterial and CVP monitoring			
Artificial ventilation			
Giving IV fluids			

However while logbooks are a useful aid memoire they do have disadvantages. Ideally a logbook will identify pre-set and negotiated learning objectives, will document the existing strengths and weaknesses of the student in the area, will contain checklists for essential competencies, and include an area for additional or more generic activities and achievements to be documented. However logbooks are often little more than a set of fixed objectives and a skills checklist.

Another problem is that logs cannot reflect the reiterative process involved in learning clinical skills and applying them to subsequent clinical situations. For example you might 'sign off' a student as competent in examining the heart. This will reflect

examination of the heart once in one particular setting. The tick does not indicate the level of skill the student has achieved, i.e. if he/she is sufficiently competent to examine the heart in an obese patient, or one with different pathology. There is no indication whether the student understands the underlying principles of using a stethoscope or of production of heart murmurs.

Another disadvantage is that logbooks are a good example of assessment driving learning: if logs are regularly assessed by teachers, students may be keen only to 'get signed up' rather than make the most of teaching episodes. If teachers neglect the logs, then so will the students.

To be useful, and to motivate students to use them, logbooks need to be reviewed during a course as well as at the end. This checks that progress is occurring and helps the teacher and student to plan activities in the remaining time. It can also be useful for determining how unmet needs might be addressed.

To observe a student's performance, give feedback, and sign him/her as competent takes time and a quiet place to talk. Unfortunately teachers are often approached by students at inconvenient moments on ward rounds or in drafty corridors.

### Getting the environment right

While seminar rooms and lecture theatres have been designed for teaching, wards, consulting rooms, and theatres are not. Getting the physical and psychological environment right is very important for learning. In the clinical setting, this can vary from simple measures such as making sure that there are enough chairs, to preparing students to see particular patients or clinical problems. On the wards, moving out of a busy corridor into a side room for a swift opportunistic teaching encounter allows everyone to concentrate on the teaching session. In the clinic or general practice setting, careful arrangement of the room can include 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. The desk can also act as a barrier.

### Summary

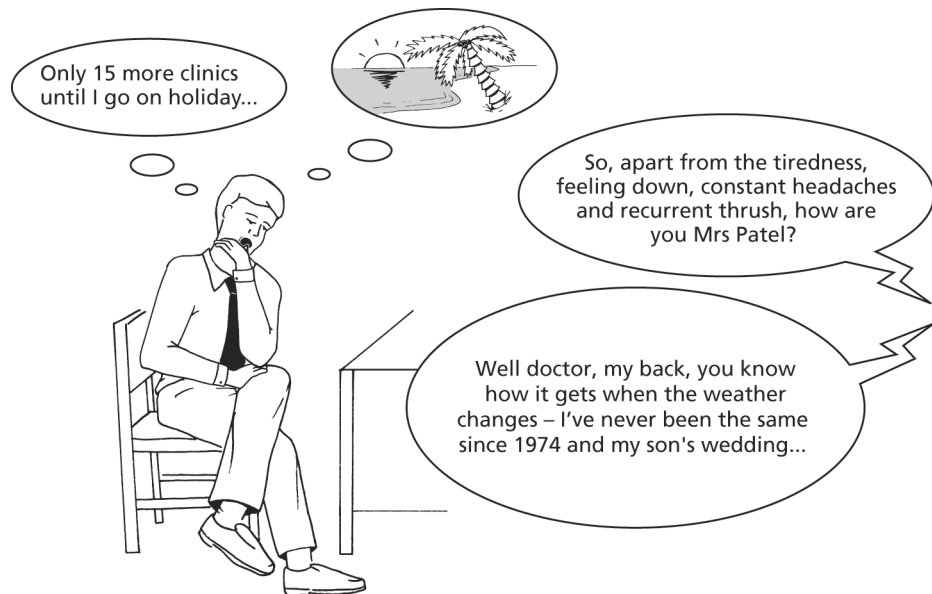
The essence of being an effective clinical teacher has been summarized by Newble and Cannon (1994) in eight key points which are worth bearing in mind before you start any clinical teaching session.

#### **Eight attributes of an effective clinical teacher**

- 1 Encourages active rather than passive observation.
- 2 Concentrates on teaching of applied problem solving.
- 3 Integrates clinical medicine with basic science.
- 4 Observes students closely during interview/examination rather than during side room case presentation.
- 5 Provides adequate opportunity for students to practise skills.
- 6 Provides a good role model for interpersonal relationships with patients.
- 7 Teaches in a patient orientated rather than disease orientated fashion.
- 8 Demonstrates a positive attitude towards teaching.

## Teaching in the service setting

Teaching while trying to care for your patients can be particularly stressful. Bleeps, phone calls, colleagues, and patients may interrupt the session and put you and your students under considerable strain. A common way to cope with this is to force the student into a passive role 'sitting in with Nelly' and hope that he/she will just pick something up as you go along. This is not an effective way for a student to learn. He/she needs to be involved in the clinical session and learning in an active manner.



When teaching in clinic, on the wards, or in practice, it is worthwhile trying to minimize disruption whilst maximizing the opportunities for learning. This means thinking about organizational issues as well as choosing a structure for your teaching.

### Organizational issues

Addressing the organization of your clinical work will permit you more flexibility and more time to teach. How you organize your teaching will depend on where the teaching is going on, the number of rooms and staff available, and the number of students. We will deal with specific techniques under the different settings.

### Structuring teaching

Reorganizing your clinical load will buy you some time, but not enough to deliver a lengthy teaching session. To teach efficiently you will need to modify your teaching methods. Cox's model of clinical teaching with its dual cycles of preparation/brief/experience/debrief/reflect 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 utilize some aspect of the cycle. The methods you use will depend on the setting, the time you have available, and when in the clinical episode the teaching segment arises.

- *All action.* Continue with your activity but fit in a three minute ‘round up’ regularly. During this you and the learner should summarize 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 students by telling them what to expect. Explain that you are establishing at the beginning what the student hopes to gain from time with you so you can focus your teaching accordingly. Keep interest and motivation up by involving students in patient care as much as possible. This can range from performing small clinical tasks—taking blood pressure—to fully clerking the patient and presenting them to you. In a busy clinical setting, this may require some lateral thinking: students could be asked to look things up—“*Could you check whether digoxin interacts with fluoxetine*”, observe patients non-verbal communication, assist nurses to set up trolleys with equipment, or write case notes. The latter would need careful checking before you signed them.



Teachers find it problematic to juggle clinical and teaching loads (Skeff *et al.*, 1997). Experienced teachers, however seem to be able to combine learner centred approaches with sound educational practices, broad learning experiences, attention to student learning, and concern for development of professional expertise and judgement (Mann *et al.*, 2001). They do this by a combination of skilled teaching and organizational changes to their clinical commitments which permit them to maximize their time with the students (Usatine *et al.*, 2000).

Remember that ‘less is more’. If you attempt in-depth teaching on every patient you will be stressed and run late. Finally, even in a busy clinic, try not to start without an introduction or miss closing the session—build on what students have learned before you let them go.

## Teaching in specific service settings

### Teaching on the wards

Teaching on the wards is usually highly rated by students. The special features of teaching at the bedside are the presence of the patient, availability of notes with all investigations, X-rays, drug and nursing charts, and teaching in a small group. Bedside teaching can be organized in several different ways, of which the most common are:

- Business rounds: students observe the ‘real work’ of the clinical team.
- Teaching rounds: these are set up specifically for teaching using patients selected by the teacher and often already seen by the students. While teaching ward rounds are theoretically held in protected time, in practice they are often interrupted by clinical work.

- Small group bedside teaching: these usually involve only one patient, and a small group of students, and are often used in clinical skills teaching.
- Patient centred model: students are allocated certain patients to follow during their admission.
- Shadowing: students follow a junior member of staff and share in their work as much as possible.

Centring student's teaching around patients is logical and, unless the firm is very large, it is also practical. Students should be encouraged to clerk patients when they are admitted (ideally in the Accident and Emergency department), follow them daily, and take the responsibility of presenting them to the team on ward rounds. Encouraging students to read around their cases will help to integrate the basic sciences. Remember that students may find presenting stressful so ensure you foster a climate where it is OK to make mistakes and express uncertainty. Asking students to present their clerking on business rounds 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 attend business rounds, it may be helpful to give them a task to focus on during the round, e.g. communication with patients and staff or decision making. Alternatively you could suggest that your students only stay for the first half of the round, 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.

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.

Involving students as much as possible in talking about patient care is important. During 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. Make sure that any feedback given is immediate and constructive and if necessary find a place to do this away from the main ward round. Consider asking the patient and other students to give feedback to the student.

### **Teaching in outpatients**

Outpatient teaching is beneficial for students as they can see large amounts of 'clinical material' in a short space of time. However it can be difficult for doctors trying to run a clinic and boring for students if they are watching passively. Some organizational 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 an 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. To maximize learning, try to find some time before the session to discuss learning objectives and consider setting the students 'observer tasks', e.g.

*'The next three patients are all new patients. I want you to make a differential diagnosis/list of appropriate tests/rate how patient centred I am being in the consultation, and then we will discuss your findings.'*

Students with more experience may be able to write the clinic notes, draft clinic letters, or take part in small ways in the examination and management of the patient. While seeing a patient alone is very popular with students, it has the disadvantage that no one can observe and give useful feedback on their performance.

Larger groups of students present problems. Big groups in the clinic room are intimidating for patients, so it may be useful to use a 'boomerang' model where students go and do things and then report back. But, because students 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 include other health professionals such as dieticians and nurses. An alternative is to allocate all the students 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.



Many models for teaching in ambulatory care have been developed. Eleven of these are reviewed by Heidenreich *et al.* (2000). It seems likely that following an initial orientation to the clinical setting (DaRosa *et al.*, 1997), students will benefit from an approach that structures the teaching experience, using learning objectives agreed by the tutor and the student. Agreeing learning objectives is easier if there is sufficient time, and the teacher and students have worked together before (Laidley *et al.*, 2000). Techniques that maximize the time available for teaching include scheduling appointments so that there are patients available for the student to examine, getting students to do their case presentations in the examination room (Ferenchick *et al.*, 1997), and asking the students to write the notes (Usatine *et al.*, 2000). This maximizes students involvement in patient care leading to improved learning.

### Teaching in general practice

General practice teaching takes place in two main ways—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, and you may wish to teach about consultation skills as well as the clinical content of your work. Students are usually sent to practices alone or in small groups. This, along with the resources of the primary care team, can make organizing teaching easier than in a busy clinic. There are plenty of things for students to do, but it is worthwhile spending time with your students initially to tailor the available learning experiences to their needs.

Students in general practice commonly 'sit in' with their GP teacher. This is a useful way to experience the work that GPs do and see consultation skills in action. However, particularly in busy surgeries, it can be a very passive experience for the

student. Try to ensure that students have a mix of surgeries and other activities during a day in your practice. You can involve the student in the surgery by:

- Giving them simple clinical tasks e.g. ‘*Would you mind taking Mrs Brown’s blood pressure for me?*’
- Asking them to look thing up for you (drug interactions, blood results).
- Getting them to act as observers with a specific task to do (e.g. ‘*Observe how I summarize my findings during the consultation in the next three consultations?*’).
- Asking them to see patients initially in another room and present them to you.
- Asking them to occasionally interview the patient in your presence.

Try and 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 (e.g. blocking off every fifth patient to give you a breathing space). Your partners are also a valuable resource: ‘sitting in’ with them and contrasting their consultation styles with your own may be a useful exercise for the student.

One potential disadvantage of ‘core general practice teaching’ is that it can be tiring to be responsible for one student continuously for two or three weeks. Planning breaks for yourself while students do projects, home visits, or work with partners or other members of the team can relieve the pressure.

### **Teaching on call in the Accident and Emergency Department**

Students find the atmosphere of A+E motivating but can also be intimidated. They appreciate that clinical teachers are often very busy, and do not expect the same intensity of teaching that they might get in other clinical settings. However, A+E is an excellent learning environment for students, not only for clinical skills but also for generic skills.

The way in which you organize and structure teaching in A+E depends on the number of students and your clinical load. Possibly the best way is to have one or two students shadowing each clinician. If you are rushed off your feet or in an emergency situation, simply describing what you are doing out loud including explaining the decisions you are making is an effective way of teaching and including students.

If there is a large group of students a 24 hour period can be divided up between them, not forgetting that in many hospitals there are facilities for students to stay overnight. Use a quiet moment at the beginning of the attachment or day to establish the students’ knowledge base and experience. Planning how to spend the hours together will be well worth the effort. With a small number of students 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 a student is competent before asking them to perform a task. Make sure that they understand that they can refuse to do something if they are not confident enough. Let the student take a history and examine a patient before you do, ask him to present patients to you, and allow him to have first go at interpreting test results. At the end of the on call time 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.

### **Teaching in theatre**

This can be very interesting and exciting for students if they can see what is going on, if they have had a chance to brush up on their anatomy, physiology, and pathology, or if they know or have clerked the patient. Students like to feel useful and

are very happy to assist in an operation even in the most minor capacity where they can feel a valued part of the team. Try to ensure all students present have an unobstructed view of the procedure. If this is not possible consider using different learning activities for different students and perhaps call on the other professionals present during the list to engage the students in other tasks.

Theatre is a place for students to learn about surgery and anaesthetics. Learning is maximized because it is in context. For the surgeon, there may be time before the list to talk to the students, while the anaesthetist may have opportunities while the patient is on the table. If at all possible students should have seen the patients on the list. It is useful to brief the students about what they will see, and think about how you can promote active learning rather than passive observation. With the development of minimally invasive surgery, there are fewer roles for students in theatres. With the use of monitors however, students may have a very good view of the operative field and can be prompted to review their anatomical knowledge as well as learning about surgery. Many anaesthetic techniques are taught best 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 practise on real patients in putting in IV lines and so time in the anaesthetic room is well spent. Of course you will make sure that patients have given consent for all procedures you may ask the students to perform.

In between patients and during gaps in lists, surgeons and anaesthetists could make good use of time by running *ad hoc* tutorials on one of the knowledge areas from the students list of objectives. To maximize this time negotiate with students beforehand which subject areas you are likely to discuss. Try to encourage dialogue rather than monologue and thus more active learning.

## Teaching in protected time

Teaching in protected time often seems like a luxury after trying to teach in the service setting. Protected time allows you time to deliver a planned session, and an opportunity to observe students closely and offer feedback.

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

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

## Clinical skills centre

The clinical skills centre is the ideal place for medical students to practise their clinical skills. It offers a safe, controlled, and supervised environment. Equipment may range from very straightforward models of a breast for examination of lumps to highly sophisticated electronic equipment for performing endoscopy or injecting joints. Each activity needs clear explanations of the task to be performed. Most skills centres have experienced skills tutors from a health professions background who can help you plan the session. If they are not available, junior hospital staff and general practitioners are often able to supervise groups, as long as they are familiar with the equipment and the activities. See Chapter 5 for more information on teaching practical skills.

Students enjoy working in the non-threatening atmosphere of the skills centre where they can ‘have a go’, make mistakes then correct them. But, as with all teaching, a planned approach is necessary for students to make the most of the experience. Preparation will include checking that the model is functioning and all supplies are to hand. You will need to check students’ knowledge and experience and plan the best use of a group’s time in the centre, allocating appropriate time to each activity. Arrange a demonstration of each skill before asking students to perform it then give students constructive and immediate feedback. If the skill is complex break it down into smaller manageable parts. Ask students to practise the skill until they are comfortable and can do it fluently. This may need several sessions so you should encourage students to return to the clinical skills centre throughout their career to refresh their performance.

### Communication skills suite

Whether you are teaching opportunistically, in protected time or while fulfilling service requirements you will be communicating with patients. Students will observe your communication skills and model themselves on your performance. Discussing the techniques you use to communicate with patients while actually doing so or immediately after is a powerful learning experience for students. Learning may be immediately reinforced by providing students with opportunities to practise communication skills with real patients.

Learning communication skills is a fundamental part of becoming a doctor and is as important as acquiring factual knowledge. Younger clinicians and all general practitioner registrars have learnt formally about communication and consultation skills. However many other clinicians, while adept at using consultation skills, are unfamiliar with analysing and teaching these skills.

Until recently, consultation and communication skills were not differentiated. Consultation skills are techniques we use in the medical interview (take a history, discuss management etc.), while communication skills describe how we interact with people generally. Good communication skills are essential to all aspects of medical practice and for all concerned (patients, relatives, and colleagues). The principles of teaching communication skills are covered in Chapter 5.

The use of the communications skills suites has revolutionized consultation and communication skills teaching. A typical suite contains a room where a medical interview is carried out, an observation room where a group can observe what is going on (via one-way glass or TV monitor), and video recording equipment.

Communication skills are usually taught using role play or simulated patients. The advantage of role play and simulated patients is that students can make mistakes in safety and are able to ‘replay’ situations until they are comfortable. To maximize learning in the communication skills suite it helps to use a standard structure:

- Set ground rules (confidentiality etc.).
- Explain the aims of the session, check prior knowledge, and explain how the session will be organized (e.g. ‘*First you will interview the patient for 10 minutes, then reflect on what went well and less well, and then have feedback*’).
- Ask students to volunteer (“*Who would like to go first?*”).
- Explain the practical task.

*(‘Today you are a GP, and you are going to talk to Mr Harrison who is a 59 year old. He is a new patient, and you have 10 minutes to find out what is wrong with him and discuss how you might manage his problem.’)*

- Consider briefing students about the *content* of the consultation. This may stop concerns about content (‘I didn’t know what to ask’) interfering with the communication skills you want them to develop.
- Explain how the video (if available), will be used and what to do if they get stuck (‘You can ask for timeout by raising your hand’).
- Give observational tasks to the other students (e.g. ‘I would like you to focus on non-verbal communication’).
- Observe the consultation along with the other students and make notes to use later.
- Feedback to the student (by the other students, simulated patient, and tutor) using segments of the video. Offer the student the chance to ‘replay’ difficult areas.
- Summarize and close the session.

Many medical schools have communication skills checklists that you can use as an aide memoire. Sharing your checklist with the students will help them focus their feedback. Keep feedback constructive, short, and specific. With novice students it may be helpful to follow a theme for each session; for example you might choose to look at the beginning or ending of the medical interview. With more advanced students it may be more appropriate to follow their agenda and help them with things they found difficult. Remember to use the video—actually seeing yourself in a short video clip is a powerful tool for change.

Timing is a balance between depth of feedback and maintaining the momentum of the session. If the patient interview is 10 minutes long and you plan to get feedback from the group as well, you will need to allow 20–30 minutes for each student. This may mean that you will not get through all the group in one session, so it is important to note which students have not participated to ensure that they have a go next time.

## Clinical teaching without patients

You may plan a clinical session with a patient but find they are not available. If you have some notice, there are alternatives to real patients which are very useful. Their advantages and disadvantages are shown opposite.

If a patient lets you down at the last minute, arranging an alternative is much more difficult. You might consider teaching using the students and equipment you have to hand. This might include:

- Practise clinical skills (e.g. cranial nerve examination) on each other.
- Use role play to practise history taking and communication skills.
- Use available clinical resources (see opposite) to trigger a clinically orientated session.

We recommend that all clinical teachers keep a ‘resource box’ which contains materials to occupy students during such a session. Remove identifiers from confidential information and remember to keep adding to your box. If you keep your box up-to-date, you may be able to cover a variety of topics from cardiology to psychiatry.



## A resource box for teachers

Blood test or other laboratory results.  
 X-rays (both normal and abnormal).  
 Patients case numbers (for their notes).  
 Copies of patient's drug chart/repeat medication form.  
 Pictures/quizzes from medical magazines.  
 Referral letters to or from hospital.  
 Anatomical models.  
 Posters and charts.

### Alternative options to 'real' patients for clinical cases in your teaching

Option	Who / what are they?	Advantages	Disadvantages
<b>Patient partners</b>	Specially chosen and trained patients with a medical condition who 'volunteer' their time on a regular basis to teach students. Widely used with certain chronic diseases. They are usually paid expenses and a small honorarium (e.g. gift token) for their time.	Very useful for relatively stable chronic conditions, such as rheumatoid arthritis, psoriasis, or diabetes. Can give extra insights to students as experienced in their needs and often an 'expert' on their condition.	Use is mainly limited to chronic fairly stable conditions. Time-consuming to train them. Occasionally can use the session to teach students their own agenda. Some concerns about welfare of patients in repeated involvement.
<b>Simulated patients (SP's)</b>	These are actors or ordinary people who are trained and are employed to play the role of a patient in a scenario that you design. They therefore usually (but not always) do not have the condition they are role playing. They are used widely in OSCE exams because of the need to repeat a scenario reliably a large number of times.	Useful to ensure students are reliably getting the same experience or to fill gaps using specially designing scenarios. Very useful in exam situations to increase reliability of assessment and prevent the problem of patient fatigue. Can be interrupted and problems discussed in front of SP, who can also be trained to give feedback on student's performance.	The cost: typical fees are around £25.00 an hour, or £100 for a half-day session. Time-consuming to write good roles and train them. Students sometimes complain that they are less realistic. They are unlikely to have any relevant clinical signs.
<b>Models</b>	Devices include those for cardiac resuscitation, breast and pelvic examination, prostate palpation, laryngeal, eye, and ear examination, venepuncture, intravenous cannulae insertion, intra-muscular injections, catheterization, suturing, and E-T tube insertion.	Very useful for complete novice to practise skills without fear of harm. Now widely available in clinical skills centres which can be booked for teaching sessions.	Uses restricted to certain skills or practising examination techniques. Expensive to buy.
<b>Video clips</b>	A simple low stress way of showing students 'real' patients or scenarios they might otherwise not get direct experience of, e.g. breaking bad news. The hospital audio-visual department is often helpful in making/editing videos, or local drug rep may be able to supply one ready-made.	Useful to fill in gaps where real patient not available to students. Can demonstrate rarer signs or cases that would not otherwise be seen. Can be reassured that students all getting identical experience. Realistic as can use real patients. Can be imaginative and use excerpts from cinema films—work very well at engaging students interest.	Students can easily 'switch off' while watching unless given specific briefing (see Chapter 5). Availability of ready-made videos—can be expensive to buy. Issues of consent for using videos of real patients in teaching.
<b>Paper case vignettes</b>	A low tech option useful to have prepared as a back-up in case of disaster. Can be done direct from case notes, or pre-prepared by you to highlight key features. Important to be based on 'real' case rather than idealized 'classical' case.	Cheap, fairly easy to prepare. Can be realistic if based on real patients. Easy to integrate into seminar or large group lecture setting.	Can lack realism, especially if it is a 'classical case'. Can be difficult to write a good case. Can not use to practise skills, e.g. examination techniques.

## Conclusion

Learning in the clinical setting is very important and interesting for students but can be difficult for teachers who have to balance teaching, clinical care, and administrative commitments. Sometimes it is possible to teach in protected time but much teaching has to go on amid clinical work. Keep a resource box to use if your patient fails to turn up. To make the most of clinical learning agree clear objectives at the beginning of the session, focus learning on agreed tasks, encourage all the students to participate, and observe student performance with feedback. At the end of each session however short or opportunistic, encourage students to summarize and reflect on their experience before planning how to reinforce learning by further practice.

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