Time-efficient strategies for learning and performance

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THE DUAL ROLE

Clinical teachers serve a dual role:

- They provide *patient care*, and
- They *teach*.

This is true regardless of whether teaching occurs in a hospital ward, an outpatient clinic, or another setting. The challenge of clinical teaching is how to balance patient care responsibilities with teaching opportunities. Through:

- Direct instruction, and
- Role modelling,

excellent clinical teachers contribute substantially to learning, significantly improving student performance[1,2].

THE CHALLENGE OF THE ENVIRONMENT

Clinical teaching occurs in a fast-paced and chaotic clinical setting where simultaneous – and often competing – demands are placed on all members of the health care team. Relatively little time is available for:

- Teaching,
- Observing learner performance, and
- Providing feedback.

When teaching does take place, it most often occurs in increments of at most three–five minutes[3,4]. Added to this time pressure is the challenge of providing instruction to learners at different developmental levels: we have to maintain the attention of advanced learners while also addressing the needs of novices. Although some of the teaching in this environment can be planned, most is extemporaneous and offered in response to the clinical issues at hand. In addition to providing supervision, excellent clinical teachers model respectful, empathic and professional interactions with their patients and need to be able to teach in *time-efficient* ways that:

- Accomplish *patient care*, while
- Creating an *opportunity space for learning*.

THE PLANNING–TEACHING–EVALUATING–REFLECTING CYCLE

In a study of distinguished clinical teachers, Irby discovered that

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they engaged in similar reasoning patterns as classroom teachers[5–7]. They:

- Prepare for clinical teaching by planning *when and how they will teach*.
- Use a variety of teaching methods to *actively involve their learners*.
- *Evaluate and reflect* on their teaching afterwards.

We shall describe effective strategies for each phase of this planning–teaching–evaluating/reflecting cycle (Table 1).

Planning

Advanced planning can:

- Sharpen expectations,
- Clarify roles and responsibilities,
- Allocate time for instruction and feedback,
- Focus learners on important priorities and tasks.

A small investment of time in planning and directing/orienting learners can expedite patient flow, instruction and feedback.

Direct/orient learners

At the beginning of each rotation or clinic, *expectations* should be clearly communicated. This reduces misunderstandings and provides direction for tasks to be completed, responsibilities to be fulfilled and roles to be performed. While this is usually accomplished verbally, a short handout can be a useful adjunct. It is helpful to:

- Familiarise learners with the *goals of the clinical experience* and what they should be able to do by the end of the rotation.
- Introduce learners to the *people they will be working with*.
- Describe the *flow of activities* for the day and/or week.
- Explain procedures for *charting and ordering diagnostic studies*.
- Describe how *teaching conferences* will be run and how *case presentations* should be made.
- Explain how *patients will be assigned* and when *feedback* will be provided.

In order to customize the experience to each learner, teachers should also solicit *learner goals*[8–10]. Mutual understanding of learner goals facilitates feedback regarding progress toward and attainment of them.

Create a positive learning environment

Learners are more likely to ask questions, pursue learning issues and contribute to the group's learning if a *safe and respectful learning environment* is created. Clinical teacher can establish this climate through their enthusiasm and positive interactions with learners. Some specific strategies include:

- Getting to know learners by name,
- Soliciting learners' goals,
- Encouraging interactions and discussion,
- Promoting enthusiasm and humour, and
- Being respectful of others[11].

Pre-select patients

Learners are commonly assigned to evaluate patients as they arrive in the clinic or hospital. In this situation, learners do not have the opportunity to prepare in advance for the patient encounter. One strategy to promote preparation in the outpatient setting is to provide residents with access to their clinic's schedules in advance of the session, and create an expectation that they will read them to formulate/answer their own questions about the scheduled patients. Clinical teachers can identify appropriate patients in advance, inform students of the patient problems they will encounter the following day, and request that they read up in preparation for seeing patients. Learners then come prepared to provide the best, evidence-based approach to patient care and are informed by the latest developments in treatment for the disease. This offers the clinical

Table 1. Teaching strategies for clinical teachers

Planning
- Direct/orient learners
- Create a positive learning environment
- Pre-select patients
- Prime/brief learners

Teaching
- Teach from clinical cases
- Use questions to diagnose learners
- Ask advanced learners to participate in teaching
- Use 'illness scripts' and 'teaching scripts'
- Go to the bedside or exam room, role model and observe

Evaluating and Reflecting
- Evaluate learners
- Provide feedback
- Promote self-assessment and self-directed learning

teacher an opportunity to *learn from the learner* as well. In the hospital setting, some services schedule admissions and learners can read up in advance to prepare themselves – scheduled surgical cases or chemotherapy for cancer treatment, for example. When the senior resident on the clinical team becomes aware of a patient being admitted she can recommend advanced preparation for the students and interns.

Prime/brief learners

When novice learners are left to their own devices, they often spend too much time with the patient and don't elicit the important information required for patient care. McGee recommends priming/briefing students immediately before seeing a patient[12]. In the outpatient setting, priming attunes learners to time expectations and to the information needed in the visit. Ask the learner:

- 'What are the most important issues to be covered in this visit?'
- 'What should you consider in evaluating this patient's chief complaint?'

If the patient is coming into the clinic for a follow-up visit, priming/briefing questions might include:

- 'What health promotion measures might be undertaken?'
- 'What complications might have arisen since the last visit?'

In the hospital setting, senior residents can prepare more novice learners before they evaluate new patients by asking:

- 'What are the most important causes of the patient's complaint?'
- 'What key aspects of the history and physical examination will help you differentiate competing hypotheses?'

For more advanced learners, inviting them to discuss cases with teachers or senior residents prior to evaluating patients can also serve this role. More advanced learners may be more aware of their own questions, novices may not know even where to begin.

Teaching strategies

Distinguished clinical teachers draw upon a repertoire of *teaching strategies* to meet the needs of their learners and selectively use any or all of the following five common teaching methods.

Teach from clinical cases

Since clinical teaching is based upon *cases*, novice learners should initially be assigned to evaluate patients with straightforward, typical problems. Advanced learners should be challenged with more complex, ambiguous cases. Learning about the typical features of common problems has several advantages:

- Learners will begin to organise their knowledge around common clinical problems,
- They will have the opportunity to see additional cases of this problem type, and
- They will be able to apply their learning to this next case, and will then be able to compare future similar problems to these 'anchor prototypes' in their memory[13].

Teachers can facilitate learning from cases by recommending that learners read about the leading diagnostic consideration and one other possible diagnosis simultaneously, comparing and contrasting similarities and differences between these two diagnoses. Follow-up work with learners after they complete reading assignments is important in clarifying their understanding and reinforcing their learning[14,15].

Use questions to diagnose learners

One of the most powerful and versatile tools for clinical instruction is the use of *questions*. The purpose of asking questions is to discover what the learners know, and what they understand, about the patients they are caring for. Listening carefully to the clinical case presentations, without interruption, allows the teacher to appreciate how learners have organised the case in their minds. When the learner pauses at the end of the presentation, the teacher may be tempted to ask for relevant clinical information to create a complete picture of the case in her own mind. We recommend a different approach. Ask learners *open-ended questions* about the case that reveal their thinking:

- 'What do you think is causing this patient's symptoms?' followed by

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If the response to these questions is 'I don't know', the teacher should think aloud about how to approach this patient's problem

Inside a Paris clinic with students surrounding professor at bedside.

- 'Why do you think that?' or
- 'What else did you consider and rule out?'

Learners will often reveal the additional clinical information needed in a way that allows the teacher to better diagnose the patient, as well as diagnose the *learner's understanding of the case*. Using this approach, clinical teachers will also be able to identify gaps in knowledge or errors in reasoning that can then become the focus of teaching, limiting instruction to two or three key points that address the learner's needs. If the response to these questions is 'I don't know', the teacher should think aloud about how to approach this patient's problem, providing the learner with an organisational framework that can be applied to the next similar case. This model is referred to as the *One-Minute Preceptor*, and includes additional steps of providing feedback on what was done right and tips for improvement[16–19].

Ask advanced learners to participate as teachers

When teachers face learners at different developmental levels, such as during hospital-based teaching rounds, teaching and diagnosing learners' understanding can occur simultaneously. By asking advanced learners to explain concepts to beginners, the teacher can assess the level of preparation, understanding and teaching effectiveness of the more senior members of the team. By asking the more novice members of the group basic- knowledge questions, or questions about pathophysiology that they are more likely to recall, the beginner becomes a valued member of the team and gains confidence in responding to more challenging questions in future discussions. Asking all learners present to identify a question they may still have about the case and the strategies for answering those questions promotes *self-directed learning*[7].

Use illness scripts and teaching scripts

Teaching from cases is usually extemporaneous. Until learners reveal their gaps and errors, teachers rarely know exactly what must be taught. On the other hand, experienced clinicians have stored in their memory the patterns of illnesses or 'scripts' for many clinical problems. Such scripts include knowledge of:

- The typical symptoms and physical findings,
- The predisposing factors that place the patient at risk of the illness under consideration, and
- The pathophysiological problem that results in the symptoms the patient describes and the examination reveals.

The more experience with the clinical problem, the more subtle variations in presentation will be stored in their memory[13]. When teaching, clinical teachers call upon this rich 'clinical memory' in the form of *teaching scripts*, which can direct action much as a script of a play does. Teaching scripts commonly include:

- Three–five key points with illustrations,
- An appreciation of common errors learners encounter, and
- Effective ways of creating frameworks for beginners to build their own 'illness scripts' in memory[5–7].

Clinical conferences should be used to supplement case-based teaching:

- Exploring these frameworks in more depth,
- Exploring the clinical evidence behind diagnosis and treatment decisions, and
- Appreciating the ambiguities often present and the judgement required in making clinical decisions.

Many excellent teachers develop handouts from their teaching scripts for the 'top twenty' illnesses that they routinely see, for distribution to their learners as instances arise[7].

In the bedside or examination room, act as a role model and make observations

Bedside or examination room teaching is critical. Learners must be directly observed to appreciate how they are developing as clinicians – good performances can be reinforced and mistakes corrected. Learners can also benefit from observing clinical teachers demonstrate interview techniques, physical examination

techniques and models of humanistic, patient-centred care[20]. When done with respect and regard, patients prefer bedside and examination room teaching[8]. Setting expectations for, and debriefing, bedside teaching provides an opportunity for *conscious reflection*. Clinical teachers, in consultation with learners, should set an agenda for bedside teaching by answering the question: 'What are we hoping to accomplish at the bedside?' If modelling an interaction or examination technique, the teacher should direct learners about specifically what to observe. Clinical teachers should create a *productive environment* where learners feel respected and patients are treated as human beings and encouraged to contribute, and everyone participates. Following the bedside encounter, and often back in the conference room, the teacher should:

- Ask learners to report on their observations,
- Ask additional questions,
- Then reinforce the desired teaching points of the interaction, and ask for and provide feedback.

It is useful to ask learners to reflect on how the teacher's approach was *similar to* or *different from* their own approaches[21,22].

Evaluating and reflecting

The final phase of the instructional cycle is evaluating learner performance, giving feedback and encouraging self-reflection.

Evaluate learners

Two of the most challenging tasks for clinical teachers are to evaluate learners and provide feedback. The difficulty with this task is the lack of adequate observation of learner performance or uncertainty as to how to respond to problematic behaviours[23]. However, clinical teachers are required to assess learner performance and judge whether it is satisfactory. This task is made easier if we have clearly defined objectives and/or behaviourally defined competencies. *Web-based evaluation systems* can increase the number of evaluations submitted by reminding clinical teachers to complete the forms. *Summative evaluation* averaged over a rotation or period of time is a role usually delegated to programme leaders who gather together evaluation data and make judgements about a learner's readiness to be promoted to the next level. The most helpful evaluations provide specific comments on learner strengths and recommendations for improvement, referenced to required competencies.

Provide feedback

Feedback takes many forms but can significantly improve learner performance. Feedback is most helpful when:

- It is based upon specific learner behaviours,
- It identifies learner strengths, and
- It makes recommendations for improvement[7–9,16,19,24–27].

To ensure that learners recognise the feedback they receive, it should be clearly identified: feedback is best shared in proximity to an event and can be imbedded in teaching. Teachers can point out:

- What is diagnostically meaningful information in a case,
- What is redundant or irrelevant information, and
- What are the discriminating features, including their relative 'weight' or importance in drawing conclusions.

Clinical teachers can sometimes receive second-hand information and limited information on a learner's performance or a troubling incident. Gordon recommends four key steps when giving such feedback:

- Describe the information received tentatively and without drawing conclusions.
- Invite joint interpretation of the information.
- Identify areas for positive feedback.
- Develop a plan to collect ongoing information on areas of disagreement to determine if there is really a problem[27].

Promote self-assessment and self-directed learning

Helping learners to *recognise their own errors* may lead to better habits of:

- Self-assessment,
- Self-reflection, and
- Self-directed learning[24,27–31].

When observing a learner reasoning erroneously about a case, one can ask him or her to describe the typical presentation and findings for the diagnosis under consideration, and then ask for a comparison of this typical case with the case under consideration. When the comparison fails to show significant overlap, learners usually abandon their chosen diagnosis in favour of a more plausible explanation for the patient's symptoms and signs. Such comparison reinforces the learners' ability to recognize the key features for the diagnosis under consideration, and this is also an opportunity to assign specific reading for discussion at a later point. Some clinical teachers write out an *educational prescription* – a topic to read and sometimes a reference to find, generally keeping a copy themselves as a reminder to ensure follow-up. Arseneau recommends holding 'exit rounds' at the end of the week to review all of the patients that were discharged from the in-patient service, and asking trainees what they learned from caring for each patient[28].

Clinical teachers should create a *productive environment* where learners feel respected and patients are treated as human beings

This is an effective mechanism to encourage articulation of general principles learned from experience, so that they can be reinforced (if appropriate) or challenged (if erroneous).

CONCLUSION

Clinical teachers perform many important educational roles:

- Planning for instruction,
- Using multiple methods of teaching,
- Evaluating, and
- Promoting self-reflection.

Coupling these strategies with an enthusiastic passion for teaching will both inspire learning and promote excellence.

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