

## TEACHING ROUNDS

# Teaching when time is limited

David M Irby,<sup>1,2</sup> LuAnn Wilkerson<sup>3</sup>

<sup>1</sup>University of California, San Francisco, CA 94143-0410, USA

<sup>2</sup>Carnegie Foundation for the Advancement of Teaching, Stanford, CA 94305, USA

<sup>3</sup>David Geffen School of Medicine at the University of California, Los Angeles

Correspondence to: D M Irby [irbyd@ucsf.edu](mailto:irbyd@ucsf.edu)

BMJ 2008;336:384-7

doi:10.1136/bmj.39456.727199.AD

Teaching in small increments of time during patient care can provide powerful learning experiences for trainees. This article explores the ways that clinical teachers might do this in a time efficient way

Clinical teachers face a daunting challenge of simultaneously caring for patients and teaching learners in a time constrained environment. A cohort study of 179 Dutch medical students (79% of the cohort) during an internal medicine clerkship located at 14 different clinical sites found that the quality of supervision has a greater impact on clinical competence and knowledge than does the number of patients seen.<sup>1</sup> Even small moments of teaching time can offer important learning opportunities to trainees by providing them with new insights and skills that they would not acquire from simply seeing patients on their own.<sup>1</sup>

To achieve this combined caring and teaching goal in a time efficient manner, clinical teachers use various strategies to (a) identify the needs of each individual learner, (b) teach according to these specific needs, and (c) provide feedback on performance.<sup>2</sup> This three step teaching process can be adapted to the environment in which the teaching is taking place. Here we describe several time efficient strategies in relation to each step in this process.

### Step 1: Identify the learner's needs

The time saving rule of thumb is: target, then teach. If the teacher can quickly determine what an individual learner needs to know, then he or she can focus any teaching on those needs, thus saving time by not teaching what the learner already knows or is not ready for.<sup>2</sup> To assess the learner's level of knowledge quickly, the teacher needs only two tools: good questions and the ability to listen and observe.

#### Ask questions

Questions are the teacher's primary diagnostic tool, can precede or follow the learner's encounter with the patient, and can guide the choice of teaching methods. Questions asked before a patient encounter can help the teacher to ascertain the learner's experience with

the problem at hand—for example, “have you had a chance before to do investigations in an elderly patient with sudden onset of mental status changes?” or “do you already have a differential diagnosis in mind?” Questions that follow the learner's presentation of patient findings can guide the teacher's decisions about what and how to teach—for example, “what do you think we should do next?”

#### Conduct a two-minute observation

This time efficient strategy allows the teacher to observe the learner's performance instead of making inferences about the ability of the learner from the case presentation alone. The two-minute observation model, which is like an epidemiologist's sampling technique, involves the teacher slipping in and out of the patient encounter without intervening, in order to gather more direct information about the learner's needs for guidance, direction, feedback, or enrichment.<sup>3</sup> Both teacher and learner should agree on the patient encounter that will be used and the aspect of the interaction that will be targeted for the quick observation—such as establishing patient rapport, history taking, physical examination, or patient education. Four elements are needed for this to work effectively:

- The teacher must be sure that the learner knows that the observation is for teaching purposes and understands how the observation will work;
- The learner will need to explain the process to the patient so that the teacher can enter and leave the room without disrupting the encounter;
- Whenever in the room, the teacher needs to be outside the patient's visual field and refrain from participating in any manner;
- Time will be needed for discussion afterwards, to focus on what was done well, what can be improved, and what type of independent study might be useful.<sup>4</sup>

#### Step 2: Teach rapidly

With the diagnostic tools described above and those embedded in several of the following teaching models, the teacher can teach rapidly during patient care. We have selected several teaching models that are described in the literature and are advocated by leading medical educators and which can be used separately.<sup>5</sup>

This series provides an update on practical teaching methods for busy clinicians who teach. The series advisers are Peter Cantillon, senior lecturer in the department of general practice at the National University of Ireland, Galway, Ireland; and Yvonne Steinert, professor of family medicine, associate dean for faculty development, and director of the Centre for Medical Education at McGill University, Montreal.

Having several models provides flexibility for adapting instruction to the needs of each learner and the constraints of the environment. However, if a clinical teacher decides to adopt any of these models, he or she needs to communicate expectations about what will happen and why.

#### The “one-minute preceptor” model

The most widely known and researched teaching method is the “one-minute preceptor model,” (the one-minute teaching model).<sup>6-13</sup> This method involves identifying the needs of each individual learner, teaching, and providing feedback by using a five step approach:

- Get a commitment about what the learner thinks is going on with the patient;
- Probe for underlying reasoning or alternative explanations;
- Teach a general principle;
- Provide positive feedback about what the learner did right;
- Correct any errors by making suggestions for improvement.

Box 1 gives an example of the model in use.

Research on the one-minute preceptor model has found strong satisfaction with the model by learners

and teachers and generally improved learners’ ratings of their faculty and resident teaching after they were observed and given feedback on the basis of the model.<sup>6-8 12-14</sup>

#### The Aunt Minnie model

The Aunt Minnie model is designed to promote rapid pattern recognition among learners in ambulatory settings.<sup>15</sup> The name of the model comes from the adage that if the woman across the street walks and dresses like your Aunt Minnie then she probably is your Aunt Minnie, even if you can’t see her face. Thus, after seeing the patient, the learner presents only the main complaint and the presumptive diagnosis to the teacher; discussion of the case occurs only after the clinical teacher has independently seen the patient. Box 2 gives an example of this model in use.

#### The SNAPPS model

The SNAPPS (Summarise, Narrow down, Analyse, Probe, Plan) model is a learner centred, outpatient model that includes six steps that the learner controls.<sup>17</sup> These steps take place after the learner has seen the patient.<sup>10 17-19</sup> The learner has to:

- Summarise briefly the history and findings;
- Narrow down the differential to two or three relevant possibilities;
- Analyse the differential by comparing and contrasting the possibilities;
- Probe the clinical teacher by asking questions about uncertainties, difficulties, or alternative approaches;
- Plan management for the patient’s medical problems;
- Select a case related problem for self directed learning;

This model is appropriate for experienced learners, and encourages them to do most of the work in justifying their thinking and exploring what they don’t understand.

#### “Activated” demonstrations

When a patient’s problem is unfamiliar to the learner, this is the time for the learner to observe the clinical teacher at work. However, the learner needs a specific assignment to complete while observing (such as “watch how I ask critical questions about alcoholism or abuse”) and an understanding of what is expected in terms of participation.<sup>3</sup> After the demonstration, the teacher needs to “activate” the learner by asking him or her to describe what was observed. A brief discussion typically ensues in which the rationale for the actions is examined and independent study is assigned.

#### Case presentations at the bedside

The hospital bedside or clinic examination room is a good location for teaching when the learner is well prepared to deal with the patient and the discussion is unlikely to frighten or alarm the patient. The learner is directed to finish investigating the patient before

#### Box 1 Example of the one-minute preceptor model

The following dialogue took place after a learner’s case presentation of a 3 year old boy who complained of earache.

##### Get a commitment

*Teacher:* “What do you think is going on?”

*Learner:* “I think he has an upper respiratory tract infection, probably an acute bacterial otitis media.”

##### Probe for supporting evidence

*Teacher:* “What led you to that conclusion?”

*Learner:* “He has a history of repeated acute otitis media and currently has a fever and a painful right ear. In addition, I believe his right ear is red and less mobile.”

*Teacher:* “What would you like to do for him?”

*Learner:* “First, I would like you to confirm my findings. If you agree, then we should give him some antibiotics. As he doesn’t have any allergies to medications and was successfully treated with amoxicillin in the past, I think amoxicillin is a reasonable choice.”

##### Teach a general principle

*Teacher:* “It does sound like otitis media. The key features of otitis media in the history are upper respiratory tract symptoms followed by ear pain and increasing fever and irritability. He is also at risk as he has had prior episodes of acute otitis media. In the physical examination, I look for the appearance of the ear drum—including any erythema, opacification, and distortion of landmarks with bulging or retraction. Sometimes there will be purulent discharge in the external canal if the tympanic membrane has perforated. This child would seem to fit these criteria.” The teacher concludes: “With the lack of allergies, amoxicillin is a logical choice for an antibiotic. I’ll be glad to confirm your ear examination findings. Let’s go and see the patient.”

##### Reinforce what was done well

*Teacher:* “You did a good job of putting the history and physical examination findings together into a coherent whole.”

##### Correct errors and/or make recommendations for improvement

*Teacher:* “You might check the Cochrane Collaboration for an evidence based review on otitis media.”

**Box 2 Example of the Aunt Minnie model of ambulatory teaching**

This approach focuses on developing rapid pattern recognition<sup>16</sup>:

- The learner sees the patient, takes the history, and does the physical examination on the basis of the main complaint;
- The learner presents the case to the clinical teacher but only the main complaint (such as “Johnny is 2 months old with a temperature of 40°C and is lying listlessly in his mother’s arms”) and his or her presumptive diagnosis (“this may be a virus, but we should rule out bacteraemia and meningitis”) (30 seconds);
- While the learner begins to write up the notes, the clinical teacher sees the patient, diagnoses the problem, and creates a management plan (5 minutes);
- The teacher then discusses the case with the learner (1-5 minutes) and reviews and signs the medical record (1-2 minutes).

For this model to work effectively, the learner and the patient need to understand the process, and the teacher must see the patient, know the correct diagnosis, and if uncertain be willing to admit it.<sup>15</sup>

presenting the case to the teacher in front of the patient. The bedside presentation allows the teacher to engage the learner and the patient in a discussion about any missing information or decisions that need to be made; encourage the patient to act as a teacher; and use the opportunity to concurrently teach the learner and inform the patient, thus saving time.<sup>20,21</sup>

**Step 3: Provide feedback**

Feedback is one of the most underused yet powerful instructional strategies available and can take less than a minute, and several of the above models build feedback into the sequence. Feedback provides the learner with a description of their strengths and recommendations for improvement. The key to feedback is going beyond praise to specific descriptive comments about a learner’s performance. It can also serve as an opportunity to promote self reflection and independent study.<sup>22</sup>

**Challenges**

A heavy clinical load can overwhelm any attempt to use one or more of these teaching methods and can rule out teaching in the middle of patient care. Another challenge is knowing how much to rely on the learner’s

ability to assess their own performance, which is notoriously inaccurate.<sup>23</sup> However, the greatest barrier is an attitude on the part of the teacher that “real teaching” requires a formal presentation of knowledge in a conference room, using a whiteboard, and taking lots of time. With this mental model in mind, teachers are understandably reluctant to teach because it slows them down. Yet, the models described here are time efficient and powerful—thus allowing instruction to occur even when only seconds or minutes exist.

**What’s next?**

Each of these teaching methods helps to diagnose learning needs and provide targeted instruction and feedback. However, they still take time. Although we don’t know exactly how much time is required to create a powerful learning environment, teaching is clearly being increasingly squeezed out of most patient care settings. Creating a structure to build in and pay for teaching time will become increasingly important. Initial work in this area has centred on documenting and rewarding faculty teaching efforts<sup>24-26</sup> and creating academies of medical educators to reward and support distinguished teachers.<sup>27,28</sup>

**Contributors:** Both authors shared in the conceptualisation of the article, did the literature search, and drafted the article. DMI revised the article after peer review and provided the final version, which had been approved by LW.

**Competing interests:** None declared.

**Provenance and peer review:** Commissioned; externally peer reviewed.

- 1 Wimmers P, Schmidt H, Splinter T. Influence of clerkship experiences on clinical competence. *Med Educ* 2006;40:450-8.
- 2 Irby D. How attending physicians make instructional decisions when conducting teaching rounds. *Acad Med* 1992;67:630-8.
- 3 Wilkerson L, Sarkin RT. Arrows in the quiver: evaluation of a workshop on ambulatory teaching. *Acad Med* 1998;73(suppl 10):S67-9.
- 4 Kuo A, Irby D, Loeser H. Does direct observation improve medical students’ clerkship experiences? *Med Educ* 2005;39:518.
- 5 Irby D. Teaching and learning in the ambulatory care setting: a thematic review of the literature. *Acad Med* 1995;70:898-931.
- 6 Aagaard E, Teherani A, Irby D. Effectiveness of the one-minute preceptor model for diagnosing the patient and the learner: proof of concept. *Acad Med* 2004;79:42-9.
- 7 Eckstrom E, Homer L, Bowen J. Measuring outcomes of a one-minute preceptor faculty development workshop. *J Gen Intern Med* 2006;21:410-4.
- 8 Furney S, Orsini A, Orsetti K, Stern D, Gruppen L, Irby D. Teaching the one-minute preceptor: a randomized controlled trial. *J Gen Intern Med* 2001;16:620-4.
- 9 Irby D, Aagaard E, Teherani A. Teaching points identified by preceptors observing the one-minute preceptor and traditional preceptor encounters. *Acad Med* 2004;79:50-5.
- 10 Lake F, Ryan G. Teaching on the run tips 4: teaching with patients. *Med J Australia* 2004;181:158-9.
- 11 Neher J, Gordon K, Meyer B, Stevens N. A five-step “microskills” model of clinical teaching. *J Am Board Fam Pract* 1992;5:419-24.
- 12 Salerno S, O’Malley P, Pangaro L, Wheeler G, Moores L, Jackson J. Faculty development seminars based on the one minute preceptor improve feedback in the ambulatory setting. *J Gen Intern Med* 2002;17:779-87.
- 13 Teherani A, O’Sullivan P, Aagaard E, Morrison E, Irby D. Student perceptions of the one minute preceptor and traditional preceptor models. *Med Educ* 2007;29:323-7.
- 14 Regan-Smith M, Hirschmann K, lobst W. Direct observation of faculty with feedback: an effective means of improving patient-centered and learner-centered teaching skills. *Teach Learn Med* 2007;19:278-86.
- 15 Cunningham A, Blatt S, Fuller P, Weinberger H. The art of precepting: Socrates or Aunt Minnie? *Arch Pediatr Adolesc Med* 1999;153:114-6.
- 16 Schmidt H, Norman G, Boshuizen H. A cognitive perspective on medical expertise: theory and implications. *Acad Med* 1990;65:611-21.

**KEY POINTS**

In clinical settings, teachers need time efficient methods to help them to assess the learner’s level of knowledge and skill, teach quickly, and provide feedback on performance.

*Step 1:* Identify the needs of each individual learner by asking questions or by doing a two-minute observation.

*Step 2:* Select a model for rapid teaching such as:

- “One-minute preceptor” model (for targeting instruction);
- Aunt Minnie model (for teaching pattern recognition);
- SNAPPS model (for encouraging learner self direction);
- “Activated demonstration” (for making visible the teacher’s clinical expertise);
- Case presentations at the bedside (for efficiently engaging the learner and the patient).

*Step 3:* Provide feedback on performance by quickly commenting on strengths and making recommendations for improvement

- 17 Wolpaw TM, Wolpaw DR, Papp KK. SNAPPS: a learner-centred model for outpatient education. *Acad Med* 2003;78:893-8.
- 18 Chacko K, Aagaard E, Irby D. Teaching models for outpatient medicine. *Clin Teacher* 2007;4(2):82-6.
- 19 Irby D, Bowen J. Time-efficient strategies for learning and performance. *Clin Teacher* 2004;1(1):23-8.
- 20 Smith AG, Bromberg MB, Singleton JR, Forshe DA. The use of "clinic room" presentation as an educational tool in the ambulatory care setting. *Neurology* 1999;52:317-20.
- 21 Usatine RP, Nguyen K, Randall J, Irby DM. Four exemplary preceptors' strategies for efficient teaching in managed care settings. *Acad Med* 1997;72:766-9.
- 22 Hewson M, Little M. Giving feedback in medical education: verification of recommended techniques. *J Gen Intern Med* 1998 13:111-6.
- 23 Davis D, Mazmanian P, Fordis M, van Harrison R, Thorpe K, Perrier L. Accuracy of physician self-assessment compared with observed measures of competence: a systematic review. *JAMA* 2006;296:1094-102.
- 24 Ruedy J, MacDonald N, MacDougall B. Ten-year experience with mission-based budgeting in the faculty of medicine of Dalhousie University. *Acad Med* 2003;78:1121-9.
- 25 Stites S, Vansaghi L, Pingleton S, Cox G, Paolo A. Aligning compensation with education: design and implementation of the educational value unit (EVU) system in an academic internal medicine department. *Acad Med* 2005;80:1100-6.
- 26 Watson R, Romrell L. Mission-based budgeting: removing a graveyard. *Acad Med* 1999;74:627-40.
- 27 Irby D, Cooke M, Lowenstein D, Richards B. The academy movement: a structural approach to reinvigorating the educational mission. *Acad Med* 2004;79:729-36.
- 28 Simpson D, Fincher R, Hafler J, Irby D, Richards B, Rosenfeld G, et al. Advancing educators and education by defining the components and evidence associated with educational scholarship. *Med Educ* 2007;41:1002-9.

## RATIONAL IMAGING

# Investigating perianal pain of uncertain cause

Rebecca Greenhalgh,<sup>1</sup> C Richard Cohen,<sup>1</sup> David Burling,<sup>2</sup> Stuart Andrew Taylor<sup>1,3</sup>

This article explores the radiological investigations available to diagnose perianal pain of unknown cause, with particular reference to perianal sepsis

include occult perianal sepsis such as intersphincteric abscess (the prevalence of anal fistula in the general population is about 0.01%<sup>1</sup>), anal complications of inflammatory bowel disease, and anal cancer. Rarer causes include retrorectal developmental cysts, sacrosplanal tumours, and sacral nerve tumours. Proctalgia fugax (intermittent severe anal or lower rectal pain of unknown aetiology) remains a diagnosis of exclusion.

### The patient

A 29 year old woman presented with constipation, constant perianal burning, and pain on defecation. Digital rectal examination was uncomfortable with induration in the right posterior quadrant, but there was no evidence of anal fissure or skin tag, thrombosed haemorrhoid, perianal haematoma, anal mass, or palpable abscess or fistula. Perianal skin sensation was normal.

### Anal endosonography

Anal endosonography is a quick, safe, and cheap technique but requires operator experience. It provides detailed, high resolution images of the anal sphincter complex and intersphincteric space. Although its main clinical role is in investigating faecal incontinence, anal endosonography will usually reveal the presence of occult intersphincteric abscesses. It may also show anal tumours and developmental cysts, particularly if they communicate with the intersphincteric space, but data on its accuracy for these rarer conditions are limited.

### What is the next investigation?

The aim of further investigation is to identify those causes of perianal pain not always detected by direct clinical examination. Commoner causes to consider

### Advantages and disadvantages of the use of anal endosonography and magnetic resonance imaging in the investigation of perianal pain of uncertain cause

Anal endosonography	Magnetic resonance imaging
No ionising radiation	No ionising radiation
High resolution images of anal sphincter complex	Good resolution of anal sphincter complex
Small field of view limits evaluation of tissues and disease processes extending beyond anal canal	Large field of view allows evaluation of tissues and disease processes extending beyond anal canal
Examination time around 5 minutes	Examination time around 20 minutes
No reported patient safety issues <sup>3</sup>	Contraindicated in patients with certain metal implants; relatively contraindicated in first trimester of pregnancy <sup>4, 5</sup> ; claustrophobia can prevent scanning
Operator dependent	Standardised scanning protocol
Requires specialised ultrasound equipment	Requires standard MRI scanner only
Requires insertion of endoanal probe	Can be performed without insertion of endoanal coil
All statements are supported by evidence, but references are supplied only for the less well established statements.	

<sup>1</sup>University College Hospital, London NW1 2BU

<sup>2</sup>St Mark's Hospital, Harrow HA1 3UJ

<sup>3</sup>University College London, London

Correspondence to: S A Taylor [stuart.taylor@uclh.nhs.uk](mailto:stuart.taylor@uclh.nhs.uk)

BMJ 2008;336:387-9

doi:10.1136/bmj.39455.393299.AD

This series provides an update on the best use of different imaging methods for common or important clinical presentations. The series advisers are Fergus Gleeson, consultant radiologist, Churchill Hospital, Oxford, and Kamini Patel, consultant radiologist, Homerton University Hospital, London.