TEACHING ON THE RUN

Teaching on the run tips: doctors as teachers

Fiona R Lake

Setting

The new intern and registrar are about to commence. The students are also starting soon. These days, the hospital is pushing you to do more for the junior medical officers, the clinical colleges' forms are getting longer, and the medical school has not only changed its course but increased the intake of students. You like teaching, but it is stressful fitting it in with your other duties. Looking around, you realise there are some good teachers. You wonder what they do that you don't.

THERE IS A TRADITION for doctors to teach their colleagues and students. The Hippocratic oath states, in part, that the duties of a doctor are "...to teach them this art, if they want to learn it, without fee or indenture".[1] Sharing expertise is regarded as a rewarding and enjoyable aspect of medicine. But it is becoming harder. The task is to maintain our teaching commitments while improving the quality of teaching and keeping it rewarding and enjoyable.[2]

Problems

Lack of time. With increased patient and administrative loads, the single most important factor clinicians cite is lack of time. The fact that there are fewer patients to teach on, shorter hospital stays and sicker patients also contributes to the problem. These pressures are unlikely to lessen.[2]

Lack of knowledge. Clinicians need to increase their knowledge about how to motivate the learner, assess competence, give constructive feedback, teach multiple trainee levels at the same time and deal with competing demands of patient care and education.[3]

Lack of training. Most of us who teach have never been taught how to teach, supervise or assess students, junior doctors or trainees.[3]

Criticism of teaching. Although we do our best to teach, we are told we do it poorly. Evidence suggests, even today, that there is still teaching by humiliation and sarcasm, teaching that is variable and unpredictable, and poor supervision and assessment, with little feedback.[4] A recent inquiry into the clinical services at a tertiary hospital in Western Australia noted poor supervision and training and recommended all senior doctors should partake in "train the trainer"-type courses.[5]

Lack of rewards. Material rewards and recognition for the teaching we do are poor.

To cope with these challenges, we, as teachers, need knowledge and skills[2,6] to teach effectively in the clinical setting "on the run".

Solutions

Teachers' goals

Research confirms that the performance of students, as measured by knowledge and skills assessments, is directly related to the prowess of their teachers.[7] Good teachers are recognised not only by their teaching abilities (organisation and clarity of presentation, enthusiasm and stimulation of interest, group interaction skills) but also by their "doctoring" qualities (competence, clinical knowledge, analytic ability, professionalism) and their supervisory skills.[8]

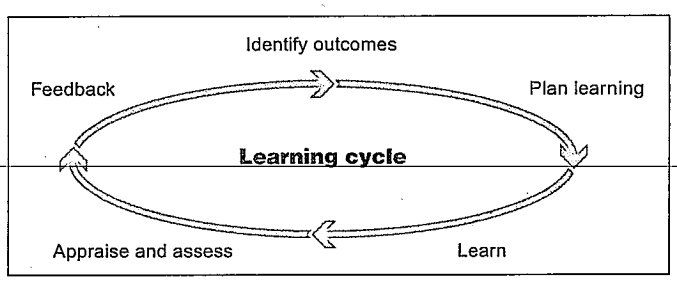
The goals of an effective clinical teacher are:[8,9]

- to provide a clinician role model: being knowledgeable, competent, caring and professional;
- to be a supervisor: giving direction in patient care when required; providing feedback; involving trainees, junior medical officers and students in clinical care;
- to provide support: mentoring, caring, showing an interest, and providing advice about careers;
- to be a dynamic teacher: planning, motivating, understanding the relevance for learners, and identifying learner needs.

The teacher–learner relationship has an enormous impact on the quality of teaching and learning, with interpersonal variables accounting for half the variance in teaching effectiveness.[10]

The learning cycle

Junior doctors learn while caring for patients. Mistakes may occur and clinical decisions could sometimes be better. As teachers, we need to anticipate mistakes, minimise them, and, when they occur, ensure that a supportive environment allows junior doctors to reflect on their practice and learn from it, rather than feel blamed.[8] A framework for thinking about how students, junior doctors or trainees learn and how we can help them learn — either in a discrete session or



For editorial comment, see page 376

Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, Nedlands, WA.

Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Associate Dean (Teaching and Learning).

Reprints will not be available from the author. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, First Floor, N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009.
flake@cyllene.uwa.edu.au

Take-home message

Effective clinical teachers of students, junior doctors and specialty trainees

- are good clinicians;
- understand basic educational principles and have the skills to apply these in practice.

A particular teaching tip may not suit all circumstances or all people — each of us has our own style. Different learners have different needs, and different circumstances require different actions. Therefore, we need a wide range of skills, together with flexibility in applying them at different times. So ...

- evaluate your own teaching;
- try new methods as suggested in this series and elsewhere, and evaluate their effectiveness;
- get feedback from others, and try again.

Evidence suggests we can improve!

across a clinical attachment — is embodied in the learning cycle (Box).[9,11] We will be better teachers if we can address each component of the cycle.

The series "Teaching on the run tips" as it unfolds will explore with clinicians basic educational principles to apply in the clinical setting for all phases of learning and teaching with students, junior doctors and specialty trainees.

Acknowledgements

I would like to thank Dr G Ryan and the teachers and participants in Teaching on the Run courses for valuable input and the Medical Training Review Panel, Department of Health and Ageing, for funding support.

Competing interests

None identified.

References

1. Jones WHR, translator. The Hippocratic oath. In: Judge JR, Zuedama GD, Fitzgerald FT. Clinical diagnosis: a physiological approach. Boston: Little Brown and Company, 1982: ii.
2. Spencer J. ABC of learning and teaching in medicine. Learning and teaching in the clinical environment. *BMJ* 2003; 326: 591-594.
3. Gibson DR, Campbell RM. Promoting effective teaching and learning: hospital consultants identify their needs. *Med Educ* 2000; 34: 126-130.
4. Irby DM. Teaching and learning in ambulatory care settings: a thematic review of the literature. *Acad Med* 1995; 70: 898-931.
5. Douglas N, Robinson J, Fahy K. Vol 1 — Inquiry into the obstetric and gynaecological services at King Edward Memorial Hospital 1990–2000. Perth: Department of Health, Government of Western Australia, 2001. Available at: www.health.wa.gov.au/kemhinquiry/about (accessed Feb 2004).
6. Wall D, McAleer S. Teaching the consultant teachers: identifying the core content. *Med Educ* 2000; 34: 131-138.
7. Irby DM, Papadakis M. Does good clinical teaching really make a difference? *Am J Med* 2001; 110: 231-232.
8. Ulian J, Bland C, Simpson D. An alternative approach to defining the role of the clinical teacher. *Acad Med* 1994; 69: 832-838.
9. Parsell G, Bligh J. Recent perspectives on clinical teaching. *Med Educ* 2001; 35: 409-414.
10. Tiberius RG, Sinai J, Flak EA. The role of teacher-learner relationships in medical education. In: Norman GR, van der Vleuten CPM, Newble DI, editors. International handbook of research in medical education. Dordrecht: Kluwer Academic Publishers, 2002: 463-497.
11. Peyton JWR. The learning cycle. In: Peyton JWR, editor. Teaching and learning in medical practice. Rickmansworth, UK: Manticore Europe Limited, 1998:13-19.

(Received 17 Dec 2003, accepted 16 Feb 2004) □

TEACHING ON THE RUN

Teaching on the run tips 2: educational guides for teaching in a clinical setting

Fiona R Lake and Gerard Ryan

Setting

You are a specialist in a teaching hospital. The unit is busy and you think there is a wealth of clinical material. You can't seem to get the junior medical officers motivated to learn on the unit. They don't seem interested in the discussions on the round. You've heard about building a good educational environment — but what does this mean?

IN THE CLINICAL SETTING we want to enhance the learning of students, junior doctors and trainees to help them be better doctors, but not increase the time we spend making that happen. Junior doctors are adults who want to learn. If we feel that learning is not progressing as it should, we need to consider whether the style in which we teach and the style in which junior doctors like to learn are matched and whether the clinical setting is conducive to learning.

Adult learning

Adult learning principles are not "evidence based", but rather, as suggested by Malcolm Knowles, should be regarded as "models of assumption about learning".[1,2] If you ask yourself or the junior doctors to think back over what have been the best learning situations, and why, the following ideas are likely to surface:

- ***Personal motivation.*** Are junior doctors interested and eager to learn (internal motivation) or do they want to learn simply to pass an exam (external motivation)?
- ***Meaningful topic.*** Is the topic relevant to junior doctors' current work or future plans? Have you made it clear why it is important?
- ***Experience-centred focus.*** Is learning linked to the work junior doctors are doing and based on the care they are giving patients?
- ***Appropriate level of knowledge.*** Is learning pitched at the correct level for junior doctors' stage of training?
- ***Clear goals.*** Have you articulated the outcomes for the session/attachment/year so that everyone knows where you are heading?
- ***Active involvement.*** Do junior doctors have the opportunity to be actively involved in the learning process, to influence the outcomes and process?
- ***Regular feedback.*** Do junior doctors know how they are going? Have you told them what they are doing well, as well as what areas could be improved (positive critique)?
- ***Time for reflection.*** Have you given junior doctors time and encouragement to reflect on the subject and their performance (self-assessment)?

Shifting from thinking about what you want to teach to what junior doctors want to learn (eg, asking what areas they are unclear about) shifts you from a teacher-centred to a learner-centred approach.

Adults like to have an input into their learning

Knowing the learners

Learning is about creating knowledge based on integrating new information with old, an active process that challenges the learner's prior knowledge.[3,4] As the learner progresses, there is often a shift from being dependent (where the learner needs substantial input and direction) to being interested (where the learner needs some guidance) to being self-directed (where the learner takes personal responsibility for his or her own learning). Our teaching style needs to take into account junior doctors' prior knowledge and their stage of learning (Box).[3,5]

Expecting a struggling junior doctor to define his or her own needs, or presenting a mini-lecture to a mature and enquiring registrar, will demotivate both. Nevertheless, a degree of mismatch can challenge a learner and be a good thing. Shifting teaching styles from authoritarian (telling students what to learn) to delegating (getting them to tell us what they need to know) shifts the workload away from us and makes teaching and learning more fun. On the other hand, we all like to learn in different ways at different times — sometimes a didactic presentation is all we want.

As teachers, we need to be flexible to suit the learners and the circumstances

Matching learner stages to teaching styles[3]*

		Teacher styles		
		Authority	Motivator/ facilitator	Delegator
Learner stages	Dependent learner	Match		
	Interested learner		Match	
	Self-directed learner			Match

* Adapted from Grow.[4]

Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, Nedlands, WA.
Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Medical Education.
Department of Respiratory Medicine, Sir Charles Gairdner Hospital, Nedlands, WA.
Gerard Ryan, MB BS, FRACP, Respiratory Physician.
Reprints will not be available from the authors. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, First Floor, N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009.
flake@cyllene.uwa.edu.au

Take-home message

In considering how to enhance learning in the clinical setting, ask yourself the following questions:

- Have I considered how junior doctors like to learn?
- What is my students' motivation? Is the topic meaningful, pitched at the correct level and with clear goals? Is there active involvement, regular feedback, and time for reflection?
- Does my teaching style match my students' learning stage?
- Is the environment supportive of learning?

Educational environment

Not all "moments" in the clinical setting are good teaching moments, and to enhance the moments requires you to consider the following:[5]

- Are the learners (or you) distracted by other duties, time constraints, tiredness, or hunger?
- Is the location busy, noisy, too public or uncomfortable?
- What is the atmosphere? Do the learners feel comfortable to demonstrate their lack of knowledge and ask questions *or* are they fearful of being humiliated?
- Do the learners feel as though they belong? Do they believe that their opinion is valued?
- Do the patients know what is expected? Have they agreed to be involved? Is their dignity respected?

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input, as well as the Medical Training Review Panel, Commonwealth Department of Health and Ageing, for funding support.

Competing interests

None identified.

References

1. Kaufman DM. ABC of learning and teaching in medicine: applying educational theory in practice. *BMJ* 2003; 326: 213-216.
2. Neuman P, Piele E. Valuing learners' experiences and supporting further growth: educational models to help experienced adult learners in medicine. *BMJ* 2002; 325: 200-202.
3. Vaughn L, Baker R. Teaching in the medical setting: balancing teaching styles, learning styles and teaching methods. *Med Teacher* 2001; 23: 610-612.
4. Grow G. Teaching learners to be self directed. *Adult Educ Q* 1991; 41: 125-149.
5. Hutchinson L. ABC of learning and teaching in medicine: educational environment. *BMJ* 2003; 326: 810-812.

(Received 17 Dec 2003, accepted 24 Mar 2004) □

Teaching on the run tips 3: planning a teaching episode

Fiona R Lake and Gerard Ryan

Setting

You are in the emergency department and have just treated a patient with ventricular tachycardia. You have 5 minutes you can spend with some new interns and decide to discuss the management of VT.

TEACHING can be thought of as a planned learning activity.[1] Clinicians think teaching "on the run" in the clinical setting can't be planned. But given that we know we will be teaching, we know we are going to be busy, and we know the topics that recur, we *can* plan. With experience from seeing many patients, we build up "teaching scripts" on common topics (such as ventricular tachycardia) related to diagnosis, management, social circumstances and so forth.[2] We can draw on these, in the context of assessing the patient, to guide us in covering the essential points. This can be in a 5-minute grabbed moment, a 30-minute interactive tutorial or a 1-hour lecture, as appropriate.

Peyton and colleagues[3] have described a method for planning any teaching event based on a triad of concepts:

- *Set:* what you need to think about beforehand;
- *Dialogue:* what happens during the event; and
- *Closure:* how you finish off.

Some aspects of *Set* can be decided during the planning stage, but others occur as you are starting your session. The essentials of *Set* include being clear about the desired learning outcomes, which should be specific and achievable in the time available. They should be relevant and important for the learner and pitched at the right level. Remember the principles of adult learning discussed in our "Tips 2" article.[4] Consider the environment and whether the seating, the room and the teaching "props" are adequate. Ensure that there is privacy, that the patient is suitable, and that the learners are not tired or distracted by other work. Think about the roles of the patient and learner. Tell learners what teaching method will be used and what is expected of them.[5]

Dialogue is the crucial part of the learning experience and involves interaction between the learner and the teacher. Given that the attention span of an adult is 10–15 minutes, varying your delivery in longer sessions (eg, by including a learner activity or case study in the middle of a tutorial) can significantly increase factual recall in learners.[6] The essentials of *Dialogue* include delivering the content in a stimulating way to make it engaging. Use eye contact, address people by their names, and ask questions to keep them involved. Questioning also allows you to check understanding.

In the *Closure*, provide a summary with the take-home message and links to topics for self-directed or future learning (as not everything can be covered in the time available), and make sure you finish on time.

Remember that sometimes, when you or the learners are too busy, it isn't worth trying to teach. Delay teaching for a time when you and they are all able to concentrate, but don't delay it forever.

Stop and think! How could you apply Set, Dialogue, and Closure next time you teach?

Reflective teaching

Improvements in your teaching can only occur if you reflect on how each encounter went.[6,7] You can do this in simple ways.

- Ask yourself, How did that go? What went well? If you did it again tomorrow, what would you change to make it better? Think through how well you did with *Set*, *Dialogue* and *Closure*. Too often we rush on to our next busy task and never do this, then find ourselves doing the same thing year after year.
- Ask the learners for feedback:
  - ➢ Verbal. Ask them what they thought went well and what could be improved;
  - ➢ Written. Ask them to write down any points that were not clear, then collect and read the comments to find out what they are still confused about. Also ask learners to fill in an evaluation form.
- Review the learners' progress. Next time, do they remember the lessons learnt, and did they perform well in assessments?
- Ask a colleague to observe your teaching and provide feedback in a structured way.

Take-home message

When you next teach "on the run":

- Consider the concepts of *Set*, *Dialogue* and *Closure* in planning teaching sessions.
- During a session, vary your methods to keep learners engaged.
- After a session, make time to reflect on or ask "What went well?" and "What could be improved?".

Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, Nedlands, WA.

Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Medical Education.

Department of Respiratory Medicine, Sir Charles Gairdner Hospital, Nedlands, WA.

Gerard Ryan, MB BS, FRACP, Respiratory Physician.

Reprints will not be available from the authors. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, First Floor, N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009. flake@cyllene.uwa.edu.au

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support.

Competing interests

None identified.

References

1. D'Andrea V. Organising teaching and learning. In: Fry H, Ketteridge S, Marshall SA, editors. Handbook for teaching and learning in higher education: enhancing academic practice. London: Kogan Page, 1999: 41-57.
2. Parsell G, Bligh J. Recent perspectives on clinical teaching. *Med Educ* 2001; 35: 409-414.
3. Harris D. Lectures. In: Peyton JWR, editor. Teaching and learning in medical practice. Rickmansworth, UK: Manticore Europe Limited, 1998: 193-207.
4. Lake FR, Ryan G. Teaching on the run tips 2: educational guides for teaching in a clinical setting. *Med J Aust* 2004; 180: 527-528.
5. Gordon J, Hazlett C, Ten Cate O, et al. Strategic planning in medical education: enhancing the learning environment for students in clinical settings. *Med Educ* 2000; 34: 841-850.
6. Cantillon P. ABC of teaching and learning in medicine: teaching large groups. *BMJ* 2003; 326: 437-440.
7. Morrison J. ABC of teaching and learning in medicine: evaluation. *BMJ* 2003; 326: 385-387.

(Received 6 Apr 2004, accepted 11 May 2004) □

Teaching on the run tips 4: teaching with patients

Fiona R Lake and Gerard Ryan

Setting

You usually see your patients and then teach outside their room. You do this because you worry that the junior medical officer or student might come up with something that will upset the patient. But recent reports suggest your concern may be unfounded.

There should be no teaching without the patient for a text, and the best teaching is often that taught by the patient himself.[1]

This advice by William Osler, at the beginning of the 20th century, has been continually handed down since then. Osler's style wouldn't be acceptable today, with large rounds, and consent rarely obtained from the patient. Now, simulation is being used for teaching, but teaching that involves patients remains invaluable. Teaching with the patient rather than about the patient should be considered vital for students, junior medical officers and registrars to learn the practice of medicine.

Benefits of teaching with the patient

Patients like to be included in the teaching process. Case presentations by junior staff at the bedside significantly increase the time doctors spend with patients, and such patients are more likely to be satisfied with their inpatient stay.[2] They prefer having students present their history in front of them than outside the door.[3]

Teaching with patients allows the important domains of learning to be integrated through teaching, observation and role modelling.[4,5] These domains include:

- Clinical (knowledge, decisions, skills)
- Professionalism (ethics, teamwork)
- Communication (with patients, families and other staff).[5]

Teaching with the patient incorporates adult learning principles, as it is meaningful, relevant to work, and allows active involvement (see "Tips 2"[6]).

Downsides of teaching with the patient

Patients may be adversely affected by teaching in their presence if their rights are not respected,[4,7] or if the teacher fails to recognise that patients may have conditions not appropriate to be discussed in front of a group.[7]

The patient's perception as to the competence of the junior medical officer or registrar may be harmed by negative feedback that senior clinicians give in front of the patient. Remember that the doctors in training are the ones the patient sees on a daily basis.

In some instances, the patient may be upset and confused by the discussion.[2,7]

Patients want to be asked for consent beforehand and to be introduced to people. They appreciate an approachable tutor, clear explanations, the opportunity to ask questions, and the feeling that their feedback is valuable.[2,4]

How to teach with patients in the clinical setting

Plan your teaching using the "Set, Dialogue and Closure" framework (see "Tips 3"[8]). Important factors in teaching with patients include choosing the correct patient, obtaining consent, and explaining the patient's role.

Structure your dialogue using methods described such as the "One-minute teacher" and SNAPPS (see below). These have been shown to significantly increase learners' motivation, their involvement in decision-making, evaluation of their knowledge, and provision of feedback.[9,10]

Aids to teaching with patients

The "one-minute teacher"

The "one-minute teacher"[9] uses five steps to direct the learner's focus to a key aspect of a case, and the clinician teaches around that issue. Feedback is explicitly given (a step we often omit when busy). The clinician

- Asks the learner to outline his or her diagnosis or management plan;
- Questions the learner for reasoning;
- Teaches general rules (take-home points);
- Provides feedback on what was done well; and
- Corrects errors and suggests what could be improved.

SNAPPS

In the "SNAPPS" approach,[10] the learner

- Summarises the case;
- Narrows the differential diagnosis;
- Analyses the differential diagnosis;
- Probes (asks the teacher about areas not understood);
- Plans management; and
- Selects an issue for self-directed learning.

SNAPPS makes learners do most of the work, through justifying their thinking and exploring what they don't know (rather than questioning them on what they do know!). A pilot study of SNAPPS showed that learners were more actively involved and readily came up with questions, whereas in more traditional interactions they rarely did. The teachers were relieved of having to think up questions and, instead, could respond to the learner.[10]

Before you try out the "one-minute teacher" or SNAPPS, orient your learners so they know what to do and expect.

Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, Nedlands, WA.
Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Medical Education.
Department of Respiratory Medicine, Sir Charles Gairdner Hospital, Nedlands, WA.
Gerard Ryan, MB BS, FRACP, Respiratory Physician.
Reprints will not be available from the authors. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, First Floor, N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009. flake@cyllene.uwa.edu.au

Take-home message

When teaching with patients, remember that:

- Patients like being involved in teaching sessions (as long as their rights and wishes are respected).
- Teaching with patients incorporates adult learning principles, in that it is meaningful, relevant to work, and allows active involvement.
- Good communication with patients is important: ask for their consent, ensure understanding, and ask for questions and feedback.
- Teaching methods like the "one-minute teacher" or SNAPPS can make teaching and learning more efficient.

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input, and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support.

Competing interests

None identified.

References

1 Bliss M. William Osler: a life in medicine. New York: Oxford University Press, 1999: 239.
2 Lehmann LS, Brancati FL, Chen M, et al. The effect of bedside case presentations on patients' perceptions of their medical care. *N Engl J Med* 1997; 336: 1150-1155.
3 Rogers HD, Carline JD, Paauw DS. Examination room presentations in general internal medicine clinic: patients' and students' perceptions. *Acad Med* 2003; 78: 945-949.
4 Howe A, Anderson J. Involving patients in medical education. *BMJ* 2003; 327: 326-328.
5 Janicik RW, Fletcher KE. Teaching at the bedside: a new model. *Med Teacher* 2003; 25: 127-130.
6 Lake FR, Ryan G. Teaching on the run tips 2: educational guides for teaching in a clinical setting. *Med J Aust* 2004; 180: 527-528.
7 Lynoe N, Sandland M, Westberg K, Duchek M. Informed consent in clinical training – patient experiences and motives for participating. *Med Educ* 1998; 32: 465-471.
8 Lake FR, Ryan G. Teaching on the run tips 3: planning a teaching episode. *Med J Aust* 2004; 180: 643-644.
9 Furney SL, Orsini AL, Orsetti KE, et al. Teaching the one minute preceptor. A randomised controlled trial. *J Gen Intern Med* 2001; 16: 620-624.
10 Wolpaw TM, Wolpaw DR, Papp KK. SNAPPS: a learner centred approach for outpatient education. *Acad Med* 2003; 78: 893-898.

(Received 6 Apr 2004, accepted 31 May 2004) □

Teaching on the run tips 5: teaching a skill

Fiona R Lake and Jeffrey M Hamdorf

Setting

You are a registrar with a new intern who has had little experience with arterial puncture for blood gas analysis. You show her how to do one, then suggest she'll get practice when on call that night. She could even show the medical student how to do them, so he can help out.

Junior doctors need to have the skills to competently perform a wide range of procedures, and inability to do so is an important stressor for a new doctor.[1] Skills may range from carrying out practical tasks (intravenous cannulation), to examining patients (cranial nerve examination), to communicating well (breaking bad news). Teachers rated practical skills teaching 11th in a list of educational themes they felt they needed instruction on, whereas junior medical officers ranked it 5th, suggesting that we don't teach as well as we think we do.[2]

How are skills learnt?

Simulated patients, videos, manikins, computers and virtual reality technology are increasingly being used to ensure that trainees learn skills in a safe environment, receive feedback, and reach a certain level of competence before they use the skills on patients.[3]

The first trainee year is critical for learning many of these skills.[4] Skills centres are playing an increasing role these days, but the challenge is to make sure that laboratory-learnt skills are safely implemented in the workplace. Abundant opportunities arise during work that learners are eager to be involved with. As practising clinicians, part of our teaching role is to decide whether junior staff can safely carry out procedures on patients under our care.

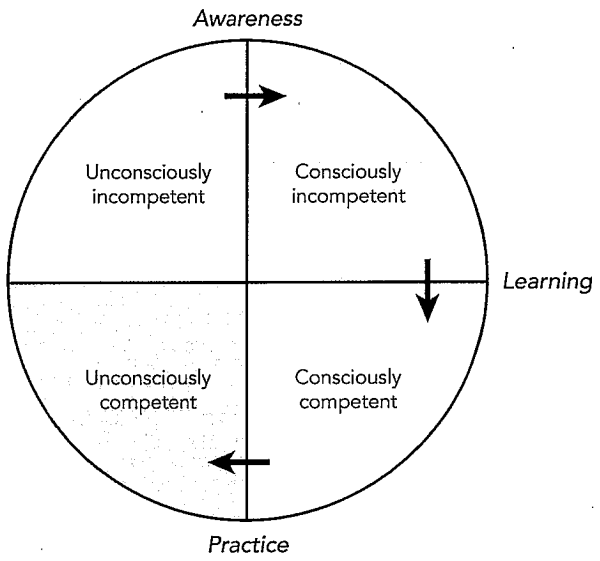
Skills require more than performing tasks. They include:

- Knowledge (indications, contraindications, complications and their prevention);
- Skill (preparation, technique, dexterity); and
- Communication (consent, comfort and dignity of patients; realising when to get help).

How are skills learned on the job? The "see one, do one, teach one" approach is limited, often failing to teach the skill properly or to check whether the trainee can perform the skill.

University of Western Australia, Nedlands, WA.
Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Medical Education, Education Centre, Faculty of Medicine and Dentistry;
Jeffrey M Hamdorf, PhD, FRACS, Associate Professor in Surgical Education, School of Surgery and Pathology.
Reprints will not be available from the authors. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, First Floor N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009.
flake@cyllene.uwa.edu.au

Stages in acquiring skills



Modified from Peyton.[7]

A four-step approach to teaching skills

One way of teaching skills, suggested by Rodney Peyton of the Royal College of Surgeons,[5] uses four steps:

- *Demonstration.* Trainer demonstrates at normal speed, without commentary.
- *Deconstruction.* Trainer demonstrates while describing steps.
- *Comprehension.* Trainer demonstrates while learner describes steps.
- *Performance.* Learner demonstrates while learner describes steps.

This four-step approach ensures that the teacher breaks the process into manageable steps, asks the learner to vocalise the steps, and provides repetition to reinforce the learning and correct mistakes.

Session structure

In applying Peyton's model, consider the structure of the session, as described in "Tips 3":[6]

- *Set.* Have you made assumptions about the learners' basic knowledge ("You know that, don't you?"). Consider their orientation: are they sitting beside you or opposite (mirror image)? are they left- or right-handed? can they see?
- *Dialogue.* Have you broken the procedure into clear steps? Is the task too large to learn at one sitting? Are you giving positive feedback (what they did well, what they could improve)? Have you corrected mistakes? Avoid talking too much — either giving too much detail (trying to cover too much in one sitting) or chatting about something else (worried they are bored).
- *Closure.* Can they do it? Do you need to explain how the procedure may differ under different circumstances?

Take-home message

- Teaching a skill involves knowledge (indications, contraindications, complications and prevention); skill (dexterity, performance); and communication (consent, dignity, realising when to get help).
- When teaching a skill, consider using or adapting a four-step approach.
- Consider the structure of your teaching session: *set* (prior learning, orientation), *dialogue* (manageable steps), and *closure* (application to other settings).

Application in practice

Rarely are four patients lined up to allow you to take someone through the four steps one after the other. However, each step adds an important component. How can the model be adapted to reality?

- Step 1 should be demonstrated with a real patient. It is important to allow the learner to identify with a competent performance.
- Steps 2 and 3 can be done theoretically or with the equipment, away from the patient.
- Steps 1 and 2 can be repeated in a larger group (eg, with a video), then steps 3 and 4 can be done in small groups.
- Steps should be done in more than one sitting.

Consider the way you currently teach a skill and think about what the four-step approach may add

Practice makes perfect

By following the four-step approach, the trainee has shifted from being "consciously incompetent" (realising they can't do it) to being "consciously competent" (being able to do it with great thought) (Box). Only with repeated practice will he or she be able to perform satisfactorily in a variety of situations.

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support.

Competing interests

None identified.

References

1 Bogg J, Gibbs T, Bundred P. Training, job demands and mental health of pre-registration house officers. *Med Educ* 2001; 35: 590-595.
2 Wall D, McAleer S. Teaching the consultant teachers: identifying the core content. *Med Educ* 2000; 34: 131-138.
3 Kneebone R. Simulation in surgical training: educational issues and practical implications. *Med Educ* 2003; 37: 267-277.
4 Marel M, Lyon P, Field M, et al. Clinical skills in early postgraduate medical trainees: patterns of acquisition of confidence and experience among junior doctors in a university teaching hospital. *Med Educ* 2000; 34: 1013-1015.
5 Walker M, Peyton JWR. Teaching in theatre. In: Peyton JWR, editor. Teaching and learning in medical practice. Rickmansworth, UK: Manticore Europe Limited, 1998: 171-180.
6 Lake FR, Ryan G. Teaching on the run tips 3: planning a teaching episode. *Med J Aust* 2004; 180: 643-644.
7 Peyton JWR. The learning cycle. In: Peyton JWR, editor. Teaching and learning in medical practice. Rickmansworth, UK: Manticore Europe Limited, 1998: 13-19.

(Received 16 Jul 2004, accepted 11 Aug 2004) □

Teaching on the run tips 6: determining competence

Fiona R Lake and Jeffrey M Hamdorf

Setting

On the round you review a patient who needs long-term intravenous antibiotics. Your registrar says she will put in a "PIC" (percutaneous intravenous catheter) later that day. As you wander off, you wonder how good she is at putting in a PIC line. You wonder who taught her, as you know *you* didn't and, indeed, it is many years since you have done one.

Doctors in training need to practise to improve, and, whether we like it or not, practice often involves patients.[1] While learning, it is possible that errors will occur. It is our responsibility as senior doctors to ensure that our trainees provide safe and good care and receive support in the learning environment. At a certain point, we also need to decide whether they are good enough to work alone. This involves assessing knowledge, skills, communication skills and professional behaviour. Often we rely on our "gut feeling" about whether they are capable. Is this sufficient? The focus of this teaching tips article is on how to decide *when* trainees are capable of carrying out procedural skills on patients.

Skills training

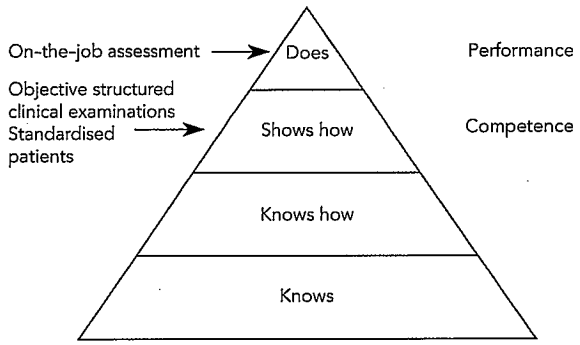
It is important to consider what skills you expect your junior doctor or trainee to perform either independently or under your observation, to let them know and to give them training when needed. As many hospitals or training programs now have structured training for common simple skills (eg, suturing) and extensive training and testing of competency for infrequently performed but life-saving skills (eg, intubation), it is initially important to find out what training junior doctors have had in such skills.[2]

Framework for clinical assessment

A basic framework for determining clinical competence is shown in Box 1.[3,4] The four stages move from "knowing" (awareness) up to "doing" (performance). For clinicians who assess junior staff, *competence* can be viewed as what these staff do in controlled situations, whereas *performance* is what they actually do when unsupervised.[5] As described in "Tips 5",[6] trainees should not only demonstrate *technical competence*, but also be able to articulate the indications, contraindications and risks of a procedure, and be able to communicate these details to patients and know when to seek assistance. A trainee may be competent to insert a PIC line in a simulated setting, but, to perform well, he or she needs to be able to cope with a variety of situations (eg, patients who are obese, thin, well, unwell, agitated, or receiving anticoagulants) and know when to call for help.

University of Western Australia, First Floor N Block, QEII Medical Centre, Nedlands, WA.
Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Medical Education, Education Centre, Faculty of Medicine and Dentistry; Jeffrey M Hamdorf, PhD, FRACS, Associate Professor in Surgical Education, School of Surgery and Pathology.
Reprints will not be available from the authors. Correspondence: Associate Professor Fiona R Lake, University of Western Australia, 1st Floor N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009. flake@cyllene.uwa.edu.au

1 Framework for clinical assessment*



*Adapted from Miller.[3,4]

2 Competence rating scale*

- No errors observed.
- Occasional errors, corrected by trainee.
- Frequent errors, corrected by trainee.
- Frequent errors, not corrected by trainee.
- Trainee unable to proceed without step-by-step instruction.

*Adapted from a competence rating scale used in the Royal Australasian College of Surgeons Basic Surgical Skills Course. Student assessment materials. 2000.

As clinicians, we are usually called upon to determine competence (can they do it safely in a supervised environment?) or performance (are they safe to do it alone?) while they work with us. How can we do this?

Methods of assessment

Methods that can be used to assess skills include objective, structured clinical examinations, simulated and virtual settings, and "on-the-job" assessment.[4,7] Each medical school, medical board, hospital and college uses its own range of tools and uses different methods for different levels (Box 1). Being competent doesn't guarantee good performance.[8] Knowing that trainees passed their medical school course or progressed from internship doesn't mean they can safely care for patients without supervision.

A review of the reliability or validity of these methods of assessment is beyond the scope of this article, but no single method can provide all the data required for deciding something as complex as whether a trainee is capable of delivering professional services.[3]

Tips for assessing competence and performance in the clinical setting

- Think about assessable moments. Structure work and teaching so you can observe behaviour.
- Gather information from multiple sources. Observe often and ask others (colleagues, registrars, nurses, patients).
- Ask trainees how they think they are going.

Take-home message

In determining whether a trainee is safe to carry out procedures on your patient:

- Know what you would expect at each level of training.
- Decide whether you are determining competence (can the trainee do it safely in a supervised environment?) or performance (is he or she safe to do it alone?).
- In the clinical setting, observe often and ask others.
- Provide constructive feedback and further training when needed.

- Tell trainees how they performed, offering timely and constructive feedback and supporting them when things don't go well.
- Use a simple rating scale (Box 2) to guide your assessment as to whether further training is required.
- Get trainees to describe and demonstrate. This will allow you to determine their weaknesses (Box 2).

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support.

Competing interests

None identified.

References

1 Gawande A. Complications. A surgeon's notes on an imperfect science. London: Profile Books, 2002: 11-34.
2 O'Connor HM. Teaching undergraduate medical students in procedural skills. *Emerg Med* 2002; 14: 131-135.
3 Miller GE. The assessment of clinical skills/competence/performance. *Acad Med* 1990; 65(9 Suppl): S63-S67.
4 Norcini JJ. ABC of learning and teaching in medicine. Work based assessment. *BMJ* 2003; 326: 753-755.
5 Epstein RM, Hundert EM. Defining and assessing professional competence. *JAMA* 2002; 287: 226-235.
6 Lake FR, Hamdorf JM. Teaching on the run tips 5: teaching a skill. *Med J Aust* 2004; 181: 327-328.
7 Smee S. ABC of learning and teaching in medicine. Skill based assessment. *BMJ* 2003; 326: 703-706.
8 Talbot M. Monkey see, monkey do: a critique of the competency model in graduate medical education. *Med Educ* 2004; 38: 587-592.

(Received 3 Sep 2004, accepted 27 Sep 2004) ❑

Teaching on the run tips 7: effective use of questions

Fiona R Lake, Alistair W Vickery and Gerard Ryan

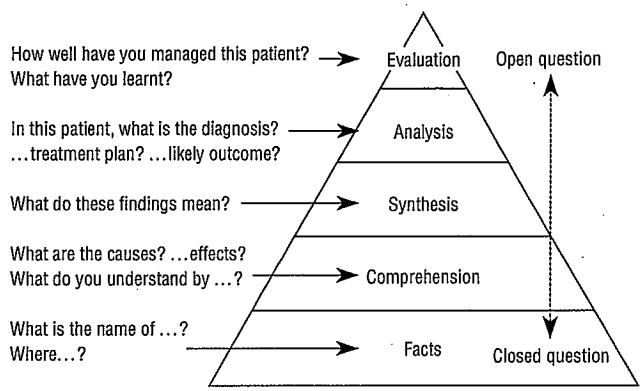
Setting

When teaching in the clinical setting, you often quiz students, the junior medical officer and registrar on patients they present. Sometimes it works well, sometimes it makes the trainees clam up, sometimes you are not sure it is hitting the mark and wonder what they have learned. You wonder whether there are ways to make questioning more effective.

Your students and trainees learn better when they are involved in the teaching episode,[1-3] and an effective way to involve them is to ask questions. By using questions you are able to:

- stimulate and engage learners;
- find out their learning needs and knowledge level, so that what you teach them is relevant and pitched at an appropriate level;
- promote higher-order thinking (ie, clinical reasoning);
- monitor how learners are progressing; and
- encourage reflection.

Hierarchy of knowledge and examples of questions to determine the learner's knowledge*



*Adapted from Peyton and Allery[5] and Douglas et al.[6]

Types of questions

When using questions to test knowledge, we should recognise the concept of a hierarchy of knowledge,[4] from low level (facts) to high level (synthesis and analysis) (Box).[4,5] The kind of questions used — whether "closed" (ie, requiring a single correct answer) or "open" (requiring the learner to combine pieces of information and formulate an answer) — pitches the discussion at different levels.[6] Questions used should be appropriate to the learner's level of knowledge. However, we should be attempting to promote thinking in all, from the medical student to the registrar.

Promoting higher-order thinking and reasoning

When teaching, clinicians often ask questions aimed at elucidating low level knowledge. In 1933, John Dewey, one of the most influential thinkers on education in the 20th century, proposed that thinking and problem-solving occurred not when answering a question posed by a teacher, but when attempting to solve a problem important to the learner.[7] We learn more from what we "don't know" than what we "do know". So shifting from asking "What is the cause of ...?" to "What are you uncertain about?" moves away from simple factual recall and promotes thinking. A strategy to introduce this approach is SNAPPS, as described in "Tips 4",[8] in which the *learner* probes the *teacher* about the learner's areas of uncertainty.

Other types of questions

When questioning a student, involve others by deflecting back to the group to promote thinking ("What do the rest of you think?"). Use questions to clarify points ("Can you explain that again?") and encourage students to elaborate ("Can you expand on that?").

Good habits when questioning

- Use the learner's name.
- Use the "pose, pause, pounce" technique — pose a question to the group, pause long enough for all the group to consider the answer, then direct it to someone at random.
- Spread the questions around to involve everyone — don't let a few dominate. Start at one end, then the other, and randomly move to the middle. It keeps learners engaged.
- Remember that questioning can be intimidating. Provide a supportive atmosphere by being friendly, by encouraging questions and making it clear that any response is acceptable (nothing is "too stupid").
- When you ask a question, don't get embarrassed by the silence that follows and rush to rephrase it or answer it yourself. Just pause, and they will get embarrassed before you do.
- Expect the unexpected. Brief the patient and learners first, because you don't want to upset patients with an unexpected answer ("cancer") or embarrass learners if they don't know.
- Remember the principle espoused by David Pencheon, a UK public health doctor: the three most important words in education are "I don't know",[9] whether they come from the teacher or the learner.

Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, Nedlands, WA.
Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Medical Education; Alistair W Vickery, MB BS, FRACGP, Senior Lecturer in General Practice.
Department of Respiratory Medicine, Sir Charles Gairdner Hospital, Nedlands, WA.
Gerard Ryan, MB BS, FRACP, Respiratory Physician.
Reprints will not be available from the authors. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, First Floor N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009. flake@cyllene.uwa.edu.au

Coping with different levels of learners

In the clinical setting, groups often include students, junior doctors and registrars. The challenge is to involve them all, but teach each at his or her appropriate level. Set the ground rules first, so everyone knows what is expected of them. The most junior learners may be asked to focus on interpreting the history or clinical signs, the most senior on applying evidence-based therapy. Avoid asking a more junior person a question their senior couldn't answer. Deflect questions from junior staff onto seniors. Get the registrar to explain to the students his or her reasoning.

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input, and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support.

Competing interests

None identified.

Take-home message

When using questions:

- Be aware that the type of question asked ("open" or "closed") pitches it at certain levels.
- Promote thinking and problem-solving by focusing on what learners don't know (areas of uncertainty) rather than what they do know (factual recall).
- Use names, and then "pose, pause, pounce".
- Clarify, elaborate and deflect.
- Establish a supportive environment in which everyone can say "I don't know", even the teacher.
- Remember that these principles also apply to other settings such as tutorials.[10]

References

1 Lake FR, Ryan G. Teaching on the run tips 3: planning a teaching episode. *Med J Aust* 2004; 180: 643-644.
2 Kaufman DM. ABC of learning and teaching in medicine. Applying educational theory in practice. *BMJ* 2003; 326: 213-216.
3 Gordon J. ABC of learning and teaching in medicine. One to one teaching and feedback. *BMJ* 2003; 326: 543-545.
4 Miller GE. The assessment of clinical skills/competence/performance. *Acad Med* 1990; 65(9 Suppl): S63-S67.
5 Peyton JWR, Allery L. Setting objectives. In: Peyton JWR, editor. Teaching and learning in medical practice. Rickmansworth, UK: Manticore Europe Limited, 1998: 57-67.
6 Douglas CK, Hosokawa MC, Lawler FH. Learning in the clinical setting. In: A practical guide to clinical teaching in medicine. New York: Springer, 1988: 7-18.
7 Connell KJ, Bordage G, Chang RW, et al. Measuring the promotion of thinking during precepting encounters in outpatient settings. *Acad Med* 1999; 74(10 Suppl): S10-S12.
8 Lake FR, Ryan G. Teaching on the run tips 4: teaching with patients. *Med J Aust* 2004; 181: 158-159.
9 Smith R. Thoughts for new medical students at a new medical school. *BMJ* 2003; 327: 1430-1433.
10 Jaques D. ABC of learning and teaching in medicine. Teaching small groups. *BMJ* 2003; 326: 492-495.

(Received 4 Nov 2004, accepted 15 Dec 2004) □

Teaching on the run tips 8: assessment and appraisal

Fiona R Lake and Gerard Ryan

Setting

The hospital and the colleges keep sending forms for you to complete about your junior staff. They are variously titled "Assessment", "Appraisal" or "Evaluation", but they all look the same. You are confused by the terms and the purpose of the forms and are unsure about how to accurately complete them.

Doctors find the terms "assessment", "appraisal" and "evaluation" difficult and confusing. This is understandable given that there are no agreed definitions and the terms are commonly used interchangeably. As supervisors, we are asked to make judgements on the suitability of junior staff for medical registration, entry into vocational training programs or receiving the fellowship of a clinical college. In short, we are asked to assess junior staff. Clinicians also have roles as teachers and supervisors/mentors.[1] As junior doctors both learn and are assessed on the job, they require feedback about their progress in learning outcomes and about their strengths and weaknesses, so that they can plan how to improve. All these processes are integrally linked, as shown by the learning cycle ("Tips 1").[1] Poor understanding of their role in assessing junior doctors' performance may cause problems for some doctors. Furthermore, many of us have never been appraised or received feedback on how we are doing, yet we are expected to do it for our junior staff.

Definitions

The following are some working definitions to help clinicians understand the roles and processes:[2-6]

Assessment: a judgement about how someone's performance meets defined criteria. The standards are usually set by external bodies (eg, medical boards or colleges), and the result of the assessment will affect progress of trainees in their career. It is also known as "summative" assessment.

This means your recommendation to the hospital, medical board or college allows it to decide, "Yes, the trainee can progress to the next stage" or "No, the trainee has not satisfied the criteria".

Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, Nedlands, WA.
Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Medical Education.
Department of Respiratory Medicine, Sir Charles Gairdner Hospital, Nedlands, WA.
Gerard Ryan, MB BS, FRACP, Respiratory Physician.
Reprints will not be available from the authors. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, First Floor N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009. flake@cyllene.uwa.edu.au

"Formative" assessment mimics the summative, but the purpose is to "inform" the learner of his or her progress before the summative assessment. Along with the quality of your observations, essential ingredients for accurate assessment are the explicit learning outcomes, which must be clearly stated. The assessment forms used should list the learning outcomes and provide a scale to help assessment.

Appraisal: a process that is primarily educational and developmental, in that it reviews current performance and develops plans to address the learning needs of an individual. It is jointly developed by the trainer and trainee and should be seen as confidential and non-threatening.

This involves you and the trainee having a discussion about your respective impressions of how the training is going, giving your advice, and jointly developing a plan on how to address any problems.

Although similar to a formative assessment, appraisal is usually much broader, including not only criteria that might be listed on the assessment form, but other things such as personal progress, career interests, and how the trainee is coping with the workload, study and family life. Appraisal is a key role of a good supervisor. Giving feedback on how junior doctors are doing and helping them to address concerns increase the likelihood that they will pass their assessment and feel fulfilled in professional life.

Evaluation: the trainee's judgement of the trainer (clinician) or program (hospital, unit).

This gives the trainee the opportunity to tell you how good the training program was, enabling you to change and improve your practice.

If you really want to know how good you have been as a supervisor, evaluation should be collected, preferably anonymously, at a time that is separate from when you are giving feedback. A clinician who asks, "Why don't you tell me how you've found the training program and then I'll tell you how you've performed" won't elicit much meaningful information.

Conflicts[2]

As clinicians, we appraise and assess the same trainee. The information on which both are based, gathered while we work with the trainee, is the same. It might not be in the candidate's best interests to reveal in an assessment confidential information gathered during an appraisal. On the other hand, a trainee needs to be honest, open and capable of self-assessment in order to benefit from appraisal. Most of the time there is little conflict between the processes of appraisal and assessment, as our trainees are keen to improve, but occasionally a conflict may arise. For instance, the clinician may be torn between the wish to support and the need to fail a poorly performing trainee, or may be unable to develop a good supervising relationship, which in turn may prejudice the

Take-home message

- *Assessment* is making a judgement about someone's performance, using defined criteria.
- *Appraisal* is an educational process jointly carried out by the trainer and trainee to review progress and plan educational needs.
- *Evaluation* is the learner's judgement of the trainer (clinician) or program (hospital, unit).
- If conflicts between the clinician's roles as an assessor and appraiser arise, external help should be sought.

assessment. In such circumstances, we should recognise the conflict and call for external help from, for example, a director of clinical training.

Key features of good in-training assessment[2-4] and appraisal[2,4] are:

- Clear outcomes and criteria
- Appropriate timing
- Accurate evidence
- Learner input
- Constructive, regular feedback.

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input, and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support.

Competing interests

None identified.

References

1 Lake FR. Teaching on the run tips: doctors as teachers. *Med J Aust* 2004; 180: 415-416.
2 Cowan G, editor. Assessment and appraisal of doctors in training. Principles and practice. Salisbury, UK: Royal College of Physicians of London, 2001.
3 Jolly B. Assessment and appraisal. *Med Educ* 1997; 31: 20-24.
4 Shumway RM, Harden RM. AMEE Guide No. 25: The assessment of learning outcomes for the competent and reflective physician. *Med Teacher* 2003; 25: 569–584.
5 Jolly B, Peyton B. Evaluation. In: Peyton JWR, editor. Teaching and learning in medical practice. Rickmansworth, UK: Manticore Europe Limited, 1998: 107-115.
6 Morrison J. ABC of teaching and learning in medicine: evaluation. *BMJ* 2003; 326: 385-387.

(Received 25 Feb 2005, accepted 24 Mar 2005) □

Teaching on the run tips 9: in-training assessment

Fiona R Lake

Setting

Every few weeks produces yet another assessment form to fill out on the junior medical officer, student or registrar. It becomes a bit of a blur and you default to ticking the boxes down the middle of the form. They're all pretty bright — maybe putting in more effort wouldn't make much difference to the result anyway?

Medical schools, clinical colleges and other groups are committed to improving the measurement of trainees' clinical skills by using specific assessments such as OSCEs (objective structured clinical examinations),[1,2] simulated patients,[1] mini-short cases[3] or portfolios[1,2] (the latter a collection of evidence of ability, such as supervisor reports, audit of procedures or publications). However, as Miller has noted,[4] "no single assessment method can provide all the data required for judgement of anything so complex as the delivery of professional services by a successful physician". Most of us contribute by assessing trainees as they work with us — so-called "in-training assessment".[2,5,6] Our judgments are based on observing their performance (how they are "doing" the job) — ie, the highest level of Miller's four-level clinical assessment pyramid[4,5] (see "Tips 6"[7]).

What we need to judge is broad — covering clinical competence, communication and professional skills. Unless we plan in advance, we could find ourselves lost at the end of a 12-week attachment, not really sure how well trainees are doing in these areas. Although there are many problems with the reliability of in-training assessments,[2,6] they are extensively used and there are strategies for improving their reliability.

How do we measure performance?[5]

There are several ways to measure performance:

- Outcomes — eg, patient outcomes. However, this is difficult, as many factors influence patient outcomes.
- Process — eg, how well trainees have carried out a task, communicated, assessed a patient or written in the notes.
- Volume — eg, how many procedures the trainee has done.

In most circumstances, we measure performance based on how well trainees are working (ie, the "process", as noted above), which is feasible and simple. Measuring patient outcomes or volume of work is more difficult.

Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, Nedlands, WA.
Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Medical Education.
Reprints will not be available from the author. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, First Floor N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009.
flake@cyllene.uwa.edu.au

Challenges with in-training assessment[6,8]

- As raters, we aren't very good at being objective. Comparing results across examiners shows we tend to be either "hawks" (marking hard) or "doves" (marking easily).
- We tend not to distinguish between items — if trainees perform well in one area, we tend to assess them well in other areas (the "halo" effect).
- Personality traits (eg, extroversion, introversion) or poor command of English may have either a positive or negative impact on our assessment, irrespective of the trainee's ability.
- If we do the trainee assessment long after the actual training period has taken place, we tend to mark towards the mean.
- Interaction with the trainee is important. If you are both the teacher and assessor, marks tend to be higher.

How can we improve?[8-10]

- Be familiar with the outcomes expected for trainees — in clinical competence, communication and professionalism.
- Turn these outcomes into observable behaviours:
  - *Clinical competence* — observe trainees doing an examination or taking a history, test their knowledge, review the inpatient notes or discharge summaries;
  - *Communication* — observe trainees speaking to patients, and require them to present to you;
  - *Professional skills* — note punctuality, time-management skills, whether trainees can cope with responsibility and whether they are interested in learning.
- Set expectations at the beginning of the rotation. Get trainees to take some responsibility for the assessment, such as bringing case notes for discussion.
- Find "assessable moments", such as on rounds, in which trainees examine or talk to the patients and you watch. Write down your thoughts at the time and accumulate results across the term.[9]
- Assess *multiple events* during the training period, to make assessment more reliable.[2,9]
- Involve *multiple people* — ask other doctors, nurses or patients for their opinions ("360° assessment").[8,10]

Feedback

Perhaps more important than the assessment per se is using the information we have gathered to give feedback (such as in appraisal). In assessment, although rating by means of a global score ("overall pass", "borderline" or "fail") works well,[6] junior medical officers also want detailed feedback, not simply broad comments like "overall, you are very good".

Self-assessment

It is useful to encourage a habit of self-assessment.[11] Children tend to overestimate their abilities, whereas adults underestimate their own abilities. Poor students often overestimate their abilities.

Take-home message

When considering in-training assessment

- Consider assessable moments, looking at clinical competence, communication and professionalism.
- Assess multiple events by multiple people.
- Note down what you thought at the time — otherwise you will forget.
- Give feedback — that is what junior medical officers want.

However, if feedback is given, a side effect is that we get better at our self-assessment. So, before giving your feedback, ask trainees to fill in the assessment form before *you* do (self-assessment), or ask how they feel they are going.

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input, and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support.

Competing interests

None identified.

References

1 Holmboe ES, Hawkins RE. Methods for evaluating the clinical competence of residents in internal medicine. A review. *Ann Intern Med* 1998; 129: 42-48.
2 Wass V, van der Vleuten C, Shatzer J, Jones R. Assessment of clinical competence. *Lancet* 2001; 357: 945-949.
3 Norcini JJ, Blank LL, Duffy D, Fortna GS. The mini-CEX: a method for assessing clinical skills. *Ann Intern Med* 2003; 138: 476-481.
4 Miller GE. The assessment of clinical skills/competence/performance. *Acad Med* 1990; 65 (9 Suppl): S63-S67.
5 Norcini JJ. Work based assessment. *BMJ* 2003; 326: 753-755.
6 Turnbull J, Van Barneveld C. Assessment of clinical performance: in-training assessment. In: Norman GR, van der Vleuten CPM, Newble DI, editors. International handbook of research in medical education. Dordrecht, Netherlands: Kluwer Academic Publishers, 2002: 793-810.
7 Lake FR, Hamdorf JM. Teaching on the run tips 6: determining competence. *Med J Aust* 2004; 181: 502-503.
8 Turnbull J, Gray J, MacFadyen J. Improving in-training evaluation programs. *J Gen Intern Med* 1998: 317-323.
9 Turnbull J, MacFadyen J, van Barneveld C, Norman G. Clinical work sampling. A new approach to the problem of in-training evaluation. *J Gen Intern Med* 2000; 15: 556-561.
10 Wilkinson J, Benjamin A, Wade W. Assessing the performance of doctors in training. *BMJ* 2003; 327: s91-s92.
11 Evans AW, McKenna C, Oliver M. Self-assessment in medical practice. *J R Soc Med* 2002; 95: 511-513.

(Received 25 Feb 2005, accepted 27 Apr 2005) □

Teaching on the run tips 10: giving feedback

Alistair W Vickery and Fiona R Lake

Setting

Your intern presents three cases on the ward round. You are nearing the middle of term and you have time before the afternoon clinic to give some informal feedback as to how she went on those cases and how the term is progressing.

Giving trainees feedback means letting them know, in a timely and ongoing way, how they are performing. Providing feedback is an essential part of training junior doctors.[1-4] Most trainees welcome the opportunity to discuss their strengths and areas for improvement. Feedback should encourage self-reflection, raise self-awareness and help students plan for future learning and practice. Medical students and junior medical officers report that feedback doesn't occur frequently enough and that it is not always conveyed effectively.[5] In contrast, teachers feel they give more feedback than learners claim to receive.[6] Perhaps we can do better. The Confederation of Postgraduate Medical Education Councils recommended in 2001 that effective feedback should be given to students and junior doctors as a strategy for preventing distress.[7]

Feedback may be formal or informal. *Formal* feedback is planned as part of appraisal and assessment[1,4] and occurs episodically (eg, at the middle and end of a rotation). It may cover specific areas or outcomes as set down by the hospital or a clinical college. *Informal* feedback should be given on a daily basis in relation to specific events (eg, managing a case or doing a procedure). Indeed, daily feedback should be part of the culture of our hospitals and other sites of training.

Ensuring good feedback requires:[1-4]

- Adequate time;
- Clear goals and outcomes — so you know what you are appraising or assessing;
- Direct observation of learners — so you know how well they are doing; and
- Skills in giving positive and negative feedback — so you are an effective facilitator of junior doctors' development.

Positive critique[3,8]

Positive critique, in which the trainee is asked to speak first, is a powerful framework for giving feedback (Box). This approach, while not avoiding negative feedback, emphasises the positive and encourages self-reflection. Often the positive critique approach is easier on the supervisor, as the trainee may bring up areas of concern first, so you can agree rather than break the bad news! A mismatch in trainer/trainee understanding revealed by feedback raises flags as to trainees' insights.

Principles of the positive critique[3,7]

As a supervisor, you should:

- ask the trainee what went well;
- list the tasks you thought the trainee did well;
- ask the trainee what could be improved; and
- add any other things you think could be improved.

Best practice

As outlined in "Tips 8",[4] when giving feedback, make sure you cover all important areas of professional competence (knowledge, skills, communication, attitudes) and collect good data (from multiple people on multiple occasions) on which to base your feedback. Feedback should not skim across the surface task. Good feedback should:

- **Be timely.** Give feedback soon after an event and as regularly as possible (preferably daily or weekly). Waiting till the end of a rotation is too late. Don't give feedback at times when you or the trainee are tired or emotionally charged.
- **Be specific.** Trainees want the specifics, rather than a global "overall, you are doing fine".
- **Be constructive.** Help provide solutions for areas of weakness. The positive critique, which looks at "what can be improved" rather than "what is wrong", encourages looking for solutions.
- **Be in an appropriate setting.** Positive feedback is effective when highlighted in the presence of peers or patients. Constructive criticism should be given in private — an office or some neutral territory where you are undisturbed is ideal. Phones should be off the hook, mobiles and pagers turned off.
- **Allow the trainee input.** Trainees should be given the chance to comment on the fairness of the feedback and to provide explanations.
- **Involve attentive listening.**
- **Focus on the positive.**
  - Avoid jokes, hyperbole or personal remarks (concentrate on the act or behaviour, not the person).
  - Try not to dampen positive feedback by qualifying it with a negative statement ("I was very happy with your presentation, Sharon, BUT ..."; "Overall, James, we are pleased with your performance, HOWEVER ...").

Impact of feedback

Using regular feedback to encourage, enthuse and correct learning[9] improves outcomes and helps to define goals. A survey of junior doctors on interactions with their supervisors showed that when feedback (especially when given in a positive fashion) was an integral part of the solution it was more likely to be associated with

Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, Perth, WA.
Alistair W Vickery, MB BS, FRACGP, Senior Lecturer in General Practice; Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Medical Education.
Reprints will not be available from the authors. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, First Floor N Block, QEII Medical Centre, Verdun Street, Nedlands, Perth, WA 6009. flake@cyllene.uwa.edu.au

Take-home message

Feedback should be:

- both formal (regular and covering term outcomes) and informal (daily);
- given as a positive critique (ie, trainee lists good points, supervisor lists good points, trainee lists areas to improve, supervisor lists areas to improve) to encourage self-assessment and emphasise the positive;
- specific and constructive, and done at the right time, in the right place.

For senior doctors, a good question to ask at the end of the day is, "Have I given my trainees any feedback today?".

a positive view of medicine as a career and junior doctors having confidence in themselves as doctors.[10] And remember, it is not just poorly performing doctors who want feedback — good doctors want to know how to be even better.

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input, and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support.

Competing interests

None identified.

References

1 Riley W. Appraising appraisal [career focus]. *BMJ* 1998; 317 (Classified section, 21 Nov): 2-3. Available at: http://bmj.bmjjournals.com/cgi/content/full/317/7170/S2-7170 (accessed Aug 2005).
2 Gordon J. ABC of learning and teaching in medicine. One to one teaching and feedback. *BMJ* 2003; 326: 543-545.
3 King J. Giving feedback [career focus]. *BMJ* 1999; 318 (Classified section, 26 Jun): 2. Available at: http://bmj.bmjjournals.com/cgi/content/full/318/7200/S2-7200 (accessed Aug 2005).
4 Lake FR, Ryan G. Teaching on the run tips 8: assessment and appraisal. *Med J Aust* 2005; 182: 580-581.
5 Cowan G, editor. Assessment and appraisal of doctors in training. Principles and practice. Salisbury: Royal College of Physicians of London, 2001.
6 Gibson DR, Campbell RM. Promoting effective teaching and learning: hospital consultants identify their needs. *Med Educ* 2000; 34: 126-130.
7 The student and junior doctor in distress — "our duty of care". Proceedings of a conference of the Confederation of Postgraduate Medical Education Councils, 19–20 July 2001. *Med J Aust* 2002; 177 (1 Suppl): S1-S32.
8 Pendelton D, Schofield T, Havelock P, Tate P. The consultation: an approach to learning and teaching. Oxford: Oxford University Press, 1984.
9 Ferenchick G, Simpson D, Blackman J, et al. Strategies for efficient and effective teaching in the ambulatory care setting. *Acad Med* 1997; 72: 277-280.
10 Paice E, Moss F, Heard S, et al. The relationship between pre-registration house officers and their consultants. *Med Educ* 2002; 36: 26-34.

(Received 22 Jun 2005, accepted 29 Jul 2005)

Teaching on the run tips 11: the junior doctor in difficulty

Fiona R Lake and Gerard Ryan

Setting

Your junior medical officer (JMO) has been with you for 5 of his 10 weeks and you are not happy with how things are going. He is disorganised on ward rounds, makes few chart notes and often doesn't have a grasp of patients' problems, leaving things mostly to the registrar. This is his fourth term and he should be performing better. You think it's time for a chat.

Working as a junior doctor is stressful — 25% of interns show signs of "burnout" and 25% are mildly depressed.[1-4] Senior doctors, as their teachers and supervisors, are in an ideal position to care for JMOs.[5] While a small proportion (3%–7%) of JMOs in training programs are "difficult" or "problem" doctors who require the intervention of someone in authority,[1,6,7] a higher proportion of JMOs are simply unable to cope with the stress of the job and exhibit signs of being "in difficulty", "stressed" or "distressed".[1,2,4,6]

Helping the "JMO in difficulty" has important flow-on effects, such as optimising patient safety and care, reducing self-harm of doctors and reducing the number of doctors who drop out of medicine.[2] Despite these benefits, consultants (and registrars) often avoid addressing the problems because they:

- Are embarrassed, lack the skills, and fear it may expose their own inadequacies;
- Don't like upsetting people;
- Believe it will only make matters worse;
- Fear reprisals through legal action against their judgement; and/or
- Feel they have no time to deal with the problem because they are already overstretched.

However, it is incumbent on senior clinical staff to play a major role in managing problems and preventing poor outcomes. Indeed, it is part of their obligation to the profession.

A framework for approaching a JMO who you think may have a problem is to ask yourself the following questions:

- Is there a problem and, if so, what is it?
- What are the underlying causes?
- What is the best way to manage the problem, and what documentation is needed?

Education Centre, Faculty of Medicine and Dentistry and School of Medicine and Pharmacology, University of Western Australia, Nedlands, WA.
Fiona R Lake, MD, FRACP, Associate Professor in Medicine and Medical Education; also at Royal Perth Hospital.
Department of Respiratory Medicine, Sir Charles Gairdner Hospital, Nedlands, WA.
Gerard Ryan, MB BS, FRACP, Respiratory Physician.
Reprints will not be available from the authors. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, First Floor N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009. flake@cyllene.uwa.edu.au

Is there a problem and, if so, what is it?

Most junior doctors in difficulty are identified either through direct observation (82%), such as poor presentations in the clinical setting, or critical incidents (59%), such as inappropriate prescribing or failure to organise investigations.[1,8] The most important first step is to be sure that there really is a problem. Observe and gather information confidentially from all relevant sources: previous supervisors, the Director of Clinical Training, and at some stage, the trainee. Doctors who have significant problems are usually identified through what appears to be insufficient knowledge (48%), poor clinical judgement (44%), inefficient use of time (44%), poor communication (39%) and/or unethical behaviour (15%).[1,8] It is important to recognise that there may be self-denial and that stressed doctors who are performing adequately may not admit to problems unless asked in a supportive environment.

What are the underlying causes?

When someone is performing poorly, contributing factors (and therefore solutions) are usually multiple (Box). It may be difficult to be sure of the cause(s). As it is essential to ensure the JMO is treated fairly and confidentially, particularly if sharing information may have an impact on assessment, the ideal time to deal with the problem is while the JMO is working with you.

Ask yourself, Am I supporting my trainee? Have I ever given feedback? How is the team working?

Factors that may contribute to poor performance in JMOs[1,2,5,7-9]

Personal factors*

- Stress (eg, relating to career concerns, poor self-esteem, relationship or financial problems) is frequent.
- Medical/psychiatric factors. About 25% of interns are mildly depressed.
- Substance abuse. In one study, 12.6% of JMOs were misusing alcohol, based on the CAGE† questions, but consultants only suspected it in 1%.
- Cultural differences. Doctors from a different culture are at high risk of having difficulties.
- Poor communication skills.
- Lack of clinical knowledge (this is relatively uncommon).

Supervisor or system factors

- Receiving no feedback or support, or being given responsibilities beyond their level of competence.
- Interpersonal problems (eg, in dealing with the registrar, in breaking bad news to patients).
- Overwork (hours, intensity, menial tasks, conflicting demands).
- Exposure to patients with serious illness and death, often for the first time — especially patients of their own age.

*Remember the "Bs" (blues, birds/blokes, banks, babies, booze, bilingual background). †CAGE = Cutting down, Annoyed by criticism, Guilty about drinking, Eye-opener drinks.[10] ◆

Take-home message

For the junior medical officer (JMO) in difficulty:

- Define early whether there is a problem and the nature of the problem.
- Consider underlying causes — personal factors (the "Bs"*) or institutional (supervisor or system) factors.
- When having a chat, make it confidential, let the JMO speak first, and agree on a plan.
- Provide frequent follow-up and feedback.

* Blues, birds/blokes, banks, babies, booze, bilingual background.

What is the best way to manage the problem, and what documentation is needed?

The best way to help doctors in difficulty depends on the underlying problem(s). Management may range from support, change of attachment, or time off, to referral to a general practitioner or psychiatrist. It is important to separate the roles of "therapist" and "supervisor" and ensure that appropriate referral occurs. For major problems, the Director of Clinical Training should provide supervisors with support. Early intervention, involving information gathering and discussion with the JMO, is essential. Documentation may be necessary, even if it remains confidential and may only be used if called upon later.

The "quiet chat" — discussing the problem with the JMO

The critical intervention of having a private discussion with the JMO (see "Tips 10")[11] requires:

- Setting aside time in a confidential setting;
- Getting the JMO to speak first (positive critique);
- Defining the issues involved (are they important, measurable, reproducible?);
- Determining the remediable cause(s);
- Agreeing on an action plan; and
- Monitoring outcomes and following up with frequent feedback.

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input, and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support. We also thank Dr Daryl Mackender (Gastroenterologist, Gosford Hospital, NSW) for his list of the "Bs".

Competing Interests

None identified.

References

1 Yao DC, Wright SM. The challenge of problem residents. *J Gen Intern Med* 2001; 16: 486-492.
2 Firth-Cozens J. Interventions to improve physicians' well-being and patient care. *Soc Sci & Med* 2001; 52: 215-222.
3 Hume F, Wilhelm K. Career choice and experience of distress among interns: A survey of New South Wales internship 1987-1990. *Aust N Z J Psychiatry* 1994; 28: 319-327.
4 Willcock SM, Daly MG, Tennant CC, Allard BJ. Burnout and psychiatric morbidity in new graduates. *Med J Aust* 2004; 181: 357-360.
5 Kilminster SM, Jolly BC. Effective supervision in clinical practice settings: a literature review. *Med Educ* 2000; 34: 827-840.
6 The student and the junior doctor in distress — "our duty of care". Proceedings of a conference of the Confederation of Postgraduate Medical Education Councils; 2001 Jul 19-20; Adelaide, Australia.
7 Rolfe IE, Andren JM, Pearson S, et al. Clinical competence of interns. Programme Evaluation Committee (PEC). *Med Educ* 1995; 29: 225-230.
8 Yao DC, Wright SM. National survey of internal medicine residency program directors regarding problem residents. *JAMA* 2000; 284: 1099-1104.
9 Paice E, Rutter H, Wetherall M, et al. Stressful incidents, stress and coping strategies in the pre-registration house officer year. *Med Educ* 2002; 36: 56-65.
10 Ewing JA. Detecting alcoholism. The CAGE questionnaire. *JAMA* 1984; 252: 1905-1907.
11 Vickery A, Lake FR. Teaching on the run tips 10: giving feedback. *Med J Aust* 2005; 183: 267-268.

(Received 22 Jun 2005, accepted 22 Aug 2005)

Teaching on the run tips 12: planning for learning during clinical attachments

Fiona R Lake and Gerard Ryan

Setting

The new junior medical officer is arriving next week. You have just been to a workshop about planning for JMO learning during clinical attachments and feel enthused about applying what you learned to her 3-month attachment with you. This also means you will be well prepared for the accreditation visit.

A term working in a clinical unit, whether in the community or in a hospital, is a great learning opportunity for junior medical officers (JMOs). Increasing the amount of teaching in the clinical setting, improving teaching methods and providing feedback can improve a JMO's experience.[1,2] Previous "teaching on the run" tips have focused on single teaching episodes,[3-5] but it is also important to have an overall plan for what should be achieved during the attachment.[2]

Planning learning during a clinical attachment (Box)

Outcomes

What will the JMO learn? Define what you want him or her to know or be able to do by the end of the attachment.[6] Writing outcomes isn't about narrowing down learning and ignoring unexpected topics that may arise, but rather about organising learning.[6,7] Outcomes need to be:

- *Specific.* Each outcome should be clearly defined, important and relevant;
- *Achievable.* Outcomes should involve areas JMOs are likely to be exposed to, at a level appropriate for their training. Avoid listing too many outcomes;
- *Measurable.* By observing or testing, you should be able to determine at the end of term whether the JMO has achieved specific outcomes.

Outcomes should cover all areas important to being a doctor, such as knowledge, skills, communication and professional behaviour.[3] Ensure that trainees have input into topics, and include any areas of particular interest or areas in which they are deficient.[8]

Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, Nedlands, WA.
Fiona R Lake, MB BS, FRACP, MD, Senior Lecturer in Medicine and Associate Dean (Teaching and Learning).
Department of Respiratory Medicine, Sir Charles Gairdner Hospital, Nedlands, WA.
Gerard Ryan, MB BS, FRACP, Respiratory Physician.
Reprints will not be available from the authors. Correspondence: Associate Professor Fiona R Lake, Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, 1st Floor, N Block, QEII Medical Centre, Verdun Street, Nedlands, WA 6009.
flake@cyllene.uwa.edu

Take-home message

When planning learning for a clinical attachment:

- Use a framework that defines outcomes; methods of teaching and learning; appraisal (with feedback) and assessment.
- Ensure the desired outcomes are specific, achievable and measurable.
- Use all available resources and settings.
- Set aside a formal time for teaching. ◆

Methods

How will the JMO learn? Learning on the job means that teachers should be teaching and giving feedback on a continual basis. One of the biggest complaints from JMOs is the lack of formal teaching, so some time should be set aside to provide this on a regular basis.[9] Use a variety of methods and encourage input from JMOs themselves. Ensure your program complements rather than duplicates hospital tutorials.

Appraisal and assessment

Remember to give feedback to JMOs at the time they complete a task, such as after a case presentation.[5]

Assessment may be a formal requirement of your hospital or the medical colleges. Remember the criteria on which JMOs are being assessed and find "assessable moments" to observe their performance.

Much of this may be happening now — but is it organised?

Strategies to make it work

Gordon et al[2] advise that a strategic approach is needed to implement a learning plan in the clinical environment. ("Strategy" comes from the Greek *strategos* — an approach to battle!)

Orientation

Meet the JMO within the first few days and inform him or her of the learning plan during the attachment. Also issue written material. A good orientation covers:

- The JMO's clinical duties;
- The plan for appraisal and assessment during the attachment;
- Administrative information (rosters, key contact people, meetings);
- A summary of how you expect the JMO to contribute to the teaching program; and
- An outline of how you and other staff will help the JMO with service work and learning.

Seizing the moment

Your regular contact with the JMO and opportunities for teaching usually revolve around cases in the practice, clinics or ward. Relate these cases to training outcomes, using cases notes, discharge

Illustrative plan for a postgraduate Year 2 doctor attached to a respiratory unit for 3 months. The trainee's interest is to work in general practice

OUTCOMES (should be specific, achievable and measurable)	METHODS (what you or your colleagues will do; what your trainee will do; resources to be used)	APPRAISAL AND ASSESSMENT (should be matched to outcomes)
Clinical (knowledge)		
Causes and investigation of common respiratory presentations (shortness of breath, chest pain, cough with or without sputum, haemoptysis)	• Ward work • Departmental tutorials (JMO-led, case-based) • Check JMO hospital tutorial program for relevant topics (eg, respiratory failure and pulmonary embolism)	• Data: inpatient presentations, outpatient cases • Feedback: ➢ Regular (with each case) ➢ Mid-term appraisal ➢ End-of-term assessment
Clinical (practical skill)		
Aerosol therapy (techniques, educating patients on use)	• Demonstrations by asthma nurse educator	• Giving instructions to a patient (observed by asthma nurse educator)
Communication (with patients or colleagues)		
Ability to write concise and accurate discharge summaries	• Hospital orientation session • Departmental manual	• Review of summaries • Copies to consultant for review and regular feedback • JMO to bring summaries to mid-term appraisal
Professional		
Attendance to duties, punctuality, time management	• Departmental orientation	• Data: observation and feedback from registrar • Feedback: mid-term appraisal (more often if required)
Individual learning needs		
Interpretation of basic lung function test reports	• Internet-based tutorials, texts and guides (eg, <www.woolcock.org.au/teaching/teaching3.htm>) • Session with respiratory technician measuring own lung function and performing spirometry • Reporting lung function tests on current inpatients • Participation in weekly reporting sessions with registrar when possible	• Consultant feedback on inpatient reports • Technician feedback on spirometry measurements

JMO = junior medical officer. ◆

summaries, letters and drug charts as the basis for discussion. Debriefing after recent challenges can be a powerful learning exercise. Remember to give feedback at these times and gather information for the end-of-term assessment.

Sharing the work

Recruit others with expertise relevant to the learning outcomes (eg, nurse educators, laboratory staff, radiologists). Involve the JMO in any program by allocating topics for him or her to present. There is an increasing amount of relevant Internet-based material that you could use.

Evaluate the teaching at the end of the term. Ask JMOs what was useful for their learning and what could be improved.

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input, and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support.

References

1 Prideaux D, Alexander H, Bower A, et al. Clinical teaching: maintaining an educational role for doctors in the new health care environment. *Med Educ* 200; 34: 820-826.
2 Gordon J, Hazlett C, Ten Cate O, et al. Strategic planning in medical education: enhancing the learning environment for students in clinical settings. *Med Educ* 2000; 34: 841-850.
3 Lake FR, Ryan G. Teaching on the run tips 2: educational guides for teaching in a clinical setting. *Med J Aust* 2004; 180: 527-528.
4 Lake FR, Ryan G. Teaching on the run tips 3: planning a teaching episode. *Med J Aust* 2004; 180: 643-644.
5 Lake FR, Hamdorf JM. Teaching on the run tips 8: assessment and appraisal. *Med J Aust* 2005; 182: 580-581.
6 Prideaux D. The emperor's new clothes: from objectives to outcomes. *Med Educ* 2000; 34: 168-169.
7 D'Andra V. Organising teaching and learning: outcomes-based planning. In: Fry H, Ketteridge S, Marshall S, editors. A handbook for teaching and learning in higher education. London: Kogan Page Ltd, 2001: 41-57.
8 Newman P, Peile E. Valuing learners' experience and supporting further growth: educational models to help experienced adult learners in medicine. *BMJ* 325: 200-202.
9 Luck C. Reducing stress among junior doctors. *BMJ Classified* (Career focus) 2000 Oct 28; 321: 2.

Competing interests

None identified.

(Received 1 Dec 2005, accepted 29 Jan 2006) ◻

Teaching on the run tips 13: being a good supervisor — preventing problems

Fiona R Lake and Gerard Ryan

Setting

You bump into a junior medical officer you know. She looks tired and harassed. She has been working long hours and spent much of the previous evening sorting out a sick patient without getting help from anyone. She felt she had made some mistakes. You wonder whether the JMO in your unit has ever been in the same situation.

Work in medicine has many stressors.[1,2] Failing to cope well with these stressors can lead to emotional exhaustion and burnout.[1,2] Junior medical officers (JMOs) who can't cope with stress make significantly more errors.[3] This leads to increased costs as a result of JMO absenteeism and litigation by patients against hospitals because of suboptimal care.[4,5] As outlined in "Tips 11", the causes of poor performance may lie with the person, the system, or the supervisor.[6] Supervision is often perceived to be inadequate by JMOs and lack of supervisors one of their greatest stressors.[7]

The concept of supervision is more global than clinicians providing episodes of help with patient care, teaching at ward rounds or performing at outpatient clinics or in operating rooms.[8] It means planning to ensure that JMOs provide high-quality patient care all the time, that the term in a clinical service provides a good professional experience for them, and that potential problems are anticipated and prevented.[8-10]

What are the qualities of a good supervisor of JMOs?[2,8-10]

A good supervisor:

- Ensures that he or she and the JMO are clear about their respective roles and responsibilities for the term, particularly with regard to patient care (see below).
- Informs the JMO how supervision will occur — that time will be set aside to observe the JMO's performance.
- Provides feedback in a positive way. Unless weaknesses are tackled in a clear, unambiguous way, JMOs won't get the message.
- Makes time to get to know the JMO as a person, as someone who has a life outside medicine as well. It can be interesting and impressive to learn what JMOs can do, along with letting them learn something of your own life.
- Recognises that there are power factors (eg, age, gender, sexuality, race) that may influence the relationship. If this causes a problem that can't be satisfactorily resolved, a different supervisor should be found for the JMO.

Another way of considering the qualities of a good supervisor is to examine the factors that are associated with a happy JMO (Box).

Supervising patient care[8-11]

When it comes to supervising patient care, you should:

- Be available. Check that the JMO knows how to contact you at all times.
- Be approachable to discuss problems. Don't give JMOs a hard time — be empathetic, respectful, supportive, focused and practical.
- Be aware of the type of environment in which the JMO is working. Supervision is harder when JMOs work in circumstances in which they are isolated in patient care (eg, an outpatient or community setting) compared with the ward setting, where there may be a range of people who can offer advice. You may need to take more time to ensure care is appropriate.
- Directly observe the JMO carrying out patient care. For example, allow the JMO to lead the interaction with patients on rounds, set aside one clinic every 3 months in which you sit in with the JMO, or watch the JMO perform procedures. Those who are more often observed and observe their seniors gain skills more rapidly.
- Think where mistakes often occur in your unit and watch out for these (eg, check medication charts for prescribing errors, which are common).
- Handle any errors made with a no-blame approach, exploring all contributing factors and discussing how to prevent a similar problem next time. Turn the experience into a good learning opportunity.
- Recognise that errors often occur out of hours. Ensure that your unit has out-of-hours cover and that communication is good (not "Ring me when there is a problem" but "Feel free to ring me at any time").

Ask your JMO, "Have you ever felt out of your depth and unable to get help?"

Impact of good supervision

Evidence shows that following these principles of good supervision has a positive impact on patient outcomes[8,12] and JMO learning.[2] When there is more supervision, patient satisfaction is higher, there are less patient-reported problems with care, and lower death rates occur in areas such as surgery and anaesthesia. The effect is greater when the trainee is less experienced and the cases more complex.[8] Good supervision reduces JMO stress and increases learning.[2] JMOs don't mind working long hours as long as they receive good support.[8]

Mentoring

Many of us have had mentors at various stages of our lives. Mentoring overlaps with supervision, but has some specific differ-

What makes a happy junior medical officer?[2,4,5,7,8]

- Being supported, especially out of hours
- Being given responsibility for patient care
- Good teamwork
- Receiving feedback
- Having a supportive learning environment
- Being stimulated to learn
- Having a supervisor take a personal interest in him or her ◆

Take-home message

- Good supervision improves patient outcomes, reduces the stress on junior medical officers (JMOs) and increases JMO learning.
- A good supervisor clarifies what is expected of both parties and ensures good communication on training and personal issues.
- When supervising patient care, clinicians should ensure that JMOs feel supported and have someone to contact at all times. They should directly observe work and be on the lookout to prevent common JMO errors.
- A mentor is ideally not the supervisor or a person involved in assessment, but someone chosen by the JMO to mentor over a long period. ◆

ences.[13] A mentor is someone who can confidentially discuss difficult issues and guide and encourage trainees in their career — usually over a long period, not just the 3–6 months of a standard clinical rotation. Ideally, the mentor should be chosen by the JMO and not be involved directly in supervision or assessment, allowing the mentor to stand aside and provide support.

Acknowledgements

We would like to thank the teachers and participants in Teaching on the Run courses for their input, and the Medical Training Review Panel, Australian Department of Health and Ageing, for funding support.

Competing interests

None identified.

Author details

Fiona R Lake, MB BS, FRACP, MD, Associate Professor in Medicine and Medical Education[1]

Gerard Ryan, MB BS, FRACP, Respiratory Physician[2]

1 Education Centre, Faculty of Medicine and Dentistry, University of Western Australia, Perth, WA.

2 Department of Respiratory Medicine, Sir Charles Gairdner Hospital, Perth, WA.

Correspondence: Fiona.Lake@uwa.edu.au

References

1 Willcock SM, Daly MG, Tennant CC, Allard BJ. Burnout and psychiatric morbidity in new graduates. *Med J Aust* 2004; 181: 357-360.
2 Luck C. Reducing stress among junior doctors. *BMJ Classified* (Career focus) 2000 Oct 28; 321: 2.
3 Jones JW, Barge BN, Steffy BD, et al. Stress and medical malpractice: organizational risk assessment and intervention. *J Appl Psychol* 1988; 73: 727-735.
4 Firth-Cozens J. Doctors, their well-being and their stress. *BMJ* 2003; 326: 670-671.
5 Firth-Cozens J. Interventions to improve physicians' well-being and patient care. *Soc Sci Med* 2001; 52: 215-222.
6 Lake FR, Ryan G. Teaching on the run tips 11: the junior doctor in difficulty. *Med J Aust* 2005; 183: 475-476.
7 Paice E, Rutter H, Wetherall M, et al. Stressful incidents, stress and coping strategies in the pre-registration house officer year. *Med Educ* 2002; 36: 56-65.
8 Kilminster SM, Jolly BC. Effective supervision in clinical practice settings: a literature review. *Med Educ* 2000; 34: 827-840.
9 Busari JO, Weggelaar NM, Knottnerus AC, et al. How medical residents perceive the quality of supervision provided by attending doctors in the clinical setting. *Med Educ* 2005; 39: 696-703.
10 Freeth R. Supervision. *BMJ Classified* (Career focus) 2001 Sep 15; 323: 2.
11 Osborn LM, Sargent JR, Williams SD. Effects of time-in-clinic, clinical setting and faculty supervision on the continuity clinical experience. *Pediatrics* 1993; 91: 1089-1093.
12 McKee M, Black N. Does the current use of junior doctors in the United Kingdom affect the quality of medical care? *Soc Sci Med* 1992; 34: 549-558.
13 Grainger C. Mentoring — supporting doctors at work and play. *BMJ Careers* 2002 Jun 29; 324: s203.

(Received 26 Jan 2006, accepted 5 Mar 2006) ◻