Socrates or Aunt Minnie?

One can spend $1 if one has more than $1, but one has to either borrow to spend that dollar or basically forget about spending that dollar if one does not have $1 or more! Socrates is like having a lot of money in the wallet out of which Aunt Minnie can be made possible whenever and wherever needed.1

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In reply

Dr Dave’s metaphor implies that Aunt Minnie (rapid diagnosis and precepting) requires experience, and we agree. We agree also that Socratic dialogue is an important part of medical training. We emphasize that our commentary was directed to the needs of patients and trainees in a busy pediatric office or outpatient clinic.

Training programs provide ample opportunity for Socratic dialogue: journal club, morning report, “curbside consults,” and so on. But the leisurely, free-wheeling and stimulating discussions in these venues are usually not appropriate in the clinic. The most obvious problem is time. Neither patients nor other trainees like to be kept waiting during lengthy preceptor-trainee dialogues. This is especially true when some time must be allocated to teaching examination techniques and validating the findings.

The second problem depends on individual preceptors and trainees. Too often Socratic dialogue becomes interrogation. In general we think interrogation is poor pedagogy.

The third problem is a common side effect of Socratic dialogue. Trainees schooled in the Socratic method are virtuosos at diagnostic lists (“... rule out this, rule out that...”). But they have trouble coming to grips with a practical working diagnosis. Furthermore, we wonder how much unnecessary testing and treatment (eg, pH probes, “septic workups,” and so on) result from unfocused Socratic discussion in the clinical setting.

Part of Socratic discussion is the “mini-lecture” by the preceptor. When time permits we enjoy indulging in this nonthreatening form of information transfer. We admit that much of the information is readily available in textbooks and journals, and that part of our job is to stimulate trainees to use them instead.

Our faculty is not unanimous about Aunt Minnie. We do agree that we need time to talk with colleagues and ask questions, to read, and to think. Meanwhile, the patients are waiting, and it is they who give trainees clinical experience. Aunt Minnie actually likes Socratic dialogue, but she keeps it short.

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Aunt Minnie: Will Inexperienced Trainees Recognize Her?

The commentary by Cunningham et al,1 as an example of “out of the box” thinking as an alternative way to teach in the ambulatory setting in this era of managed care, was interesting and entertaining, and the authors are to be commended. I do, however, have reservations about adopting this technique either personally or for instructing others as a faculty development teaching tool for the following reasons:

1. An innovation such as this needs to be examined and studied as a randomized controlled trial or through qualitative analysis to be certain that learner behavior and outcome is at least as effective as that resulting from traditional teaching.

2. In a recent article, Irby2 states that “physicians develop an exhaustive knowledge base of medicine” through experiencing a variety of clinical cases, and knowledge then develops into tighter connections and is retained in memory as “illness scripts.” Irby goes on to state that effective instruction emerges from the complicated interaction between understanding the learner and comprehending the subject matter. Grum et al3 also emphasizes the importance of previous clinical experience and having the learner exposed to large volumes of patients. The process of understanding the interplay between learner and content, in my extensive work in faculty development, takes in-depth instruction and practice for faculty to learn. The authors do not mention how they’ve marketed this teaching approach to their faculty, and how well the latter has adapted it. Finally, Norman et al4 also have studied the pattern recognition phenomenon in students and reported that medical students have difficulty recognizing common and classic physical signs from photographs, most of which are self-evident to more experienced clinicians. In a recent
discussion of pattern recognition with second-semester third-year clerks on a pediatrics rotation, I asked what the blurrring of the right heart border on a posteroanterior radiograph indicated to them regarding location of the infiltrate and only some of the class knew the correct answer. I'm assuming that those who didn't know the answer hadn't had enough or any exposure to this principle.

In fact, this process of pattern recognition and developing the contextual relationship between content and learner takes time. Whereas we can expect medical students to start this developmental process during their clinical experiences, faculty need to be realistic and ask themselves what the "gold standards" should be regarding this process. The article doesn't address this nor has the literature definitively studied this.

3. The authors propose that trainees present a chief complaint and presumptive diagnosis when presenting a case (30 seconds); Irby similarly calls for a "distilled summary" of the case. Whereas a short, efficient presentation is very important to maintain patient flow in an ambulatory setting, the preceptor must know enough about the learner's assessment of the patient and, as importantly, how he or she arrived at this assessment. As an extension of the "1-minute preceptor" that has been popularized as a teaching technique, I have suggested and teach 2 additional steps not mentioned in the original article; namely, to be aware of the learner's previous experience with the kind of case he or she is presenting and, after the preceptor-learner interaction, to identify student or resident learning objectives that would improve performance with the next case.3

4. The chief complaint doesn't always reflect the patient's hidden agenda and may be a detractor for an inexperienced trainee. Once the hidden agenda is identified, the preceptor needs to dissect what information the learners garnered and used in their decision-making and to instruct them in what issues were critical in arriving at a correct diagnosis, perhaps not related to the chief complaint.

5. It has been stated repeatedly that 80% to 90% of diagnoses can be made from history alone. For an experienced clinician, many of these will come through pattern recognition and not problem-solving. For the inexperienced trainee, this will evolve through meticulous history-taking and astute descriptions of findings. As preceptors, we should be challenging learners to put forward hypotheses about patients and test them, determining what in the history and/or physical examination is compatible with their assessment. If the learner were taught to develop hypotheses prior to the interaction with the preceptor, it would save significant time.

Cunningham et al may be on to something, but my guess is that the real answer to more effective teaching in the ambulatory setting lies someplace between their model and the traditional one.

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In reply

Dr Greenberg rightly observes that Aunt Minnie has not been validated by formal testing. The same is true of traditional teaching which, he also observes, lacks a gold standard to measure its effectiveness. He makes several other points in his thoughtful and challenging letter, but his overriding claim is that we must understand the learners. This itself is a hypothesis that needs to be tested. The only evidence offered by Irby were his observations of 6 internal medicine faculty members in small teaching conferences on the inpatient units of 2 university hospitals.1 Irby provides no gold standard, and his study setting is very different from a busy pediatric outpatient clinic, which was the focus of our commentary.

Recent research suggests that clinical expertise is based on rapid pattern recognition rather than on complex problem-solving involving data acquisition, hypothesis generation, and reasoning skill.2,3 We like Aunt Minnie because her method recognizes that trainees need to see a volume of patients to build their repertoire of clinical patterns. It also recognizes that (1) even the least experienced trainees, including medical students, have some facility for diagnosis and can contribute to patient care; (2) trainees enjoy immediate reinforcement when they are correct; (3) trainees benefit from immediate correction when they are wrong; (4) trainees have other sources of information beside clinic preceptors; and (5) time in an outpatient clinic is limited.

Professional educators use a certain amount of jargon, and a few comments on vocabulary are in order since the vocabulary colors our approach to teaching.

Learners vs trainees. Learners acquire knowledge. Trainees have a job to do. Learners are passive. Trainees are active. Learners are subordinates. Trainees are colleagues. We believe that, in the clinic setting, trainees are preferred to learners.

Assessment vs diagnosis. Our medical students use the SOAP (Subjective-Objective-Assessment-Plan) system for writing notes on patients. The assessments tend to be summaries of the clinical examination. While they are meant to foster open-mindedness and skill in differential diagnosis, "assessments" often retard commitment to a working diagnosis and a plan.

Understanding (as in "understanding the learner"). In the vocabulary of professional educators, this means learning about the thoughts and knowledge of the trainee.1 Typically the process is interrogative. But understanding also comes from sharing responsibility, as when colleagues work together to arrive at a diagnosis or clinical impression.

We do not think Aunt Minnie is so far from traditional teaching. She may not be as meticulous, but she is less...
likely to inhibit communication or to mislead us with extraneous information.⁶,⁷ She may save time but she also focuses thinking.

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Owens et al¹ found that night terrors in a 5-year-old girl characterized by agitation, unresponsiveness, violent shaking, flailing, screaming, crying, a “choking” sensation at sleep onset, and extreme autonomic arousal were exacerbated by sleep deprivation and environmental noise. They also noted that the periods of exacerbation immediately preceded or coincided with linear growth spurts, and a recent move and the father’s frequent absences on business travel were identified as potential stressors. She had had a recent onset of severe, unilateral headaches accompanied by photophobia, which were subsequently diagnosed as migraine headaches by a pediatric neurologist. Neurobiological features are suggested by reports linking noise stress, wakefulness, subclinical impairment of lung airways, disruption of brainstem cardiovascular control, and dysregulation of cortical silent periods, growth hormone, the microvasculature, and mood with dopamine abnormalities lateralized to the right hemisphere for which the metabolic rate is higher in females. This hypothesis is supported by optimal response organization and working memory at intermediate dopamine tone in a mediofrontostriatal activation system and deactivation of the right hemisphere, a state marker of depression, that promotes dominance of the left hemisphere associated with cardiac dysrhythmia, vasoconstriction, and aggressive response.⁵,⁶ It is also supported by the correlation of periodic leg movements in sleep with microarousals lasting more than 3 seconds and a more marked shortening of the R-R interval in the electrocardiographic signal.⁶ Therefore, the reemergence of an abnormally increased percentage of slow-wave sleep after of discontinuation of treatment with benzodiazepines in this patient prompts cognitive-behavioral and/or pharmacological strategies that balance asymmetrical brain functions and promote a primary rhythm in the central nervous system that entrains heart rate, blood pressure, and respiratory rate,² to prevent the arousal response going from autonomic activation to bursts of δ activity to α activity to a full awakening.⁶