

## Clinical Reasoning Skills

This dimension of competence is one of two that are currently almost entirely defined by and within the key features of the priority topics.

Each key feature suggests, explicitly or implicitly, the dimensions of competence as well as the phase of the clinical encounter, and, hence, the specific cognitive skills, that are characteristic of competence when dealing with the problem in question. All the key features have been individually coded as to the skills and phases assessed. The majority of the key features (60%), however, involve clinical reasoning skills, so using them in an unselected fashion will certainly touch on this dimension.

Clinical reasoning is a more familiar territory and the framework used is that of clinical problem solving using the hypothetico-deductive model, with particular emphasis, however, on using it in an expert fashion. The skilled physician will use this model efficiently, in a manner adapted to the patient's needs, as well as to those of the problem at hand and the context of the encounter, to deal with a patient's problems.

What are some of the characteristics of expert clinical reasoning, as opposed to the not-yet-expert? Repeated studies have shown that the history is the most important part of the clinical encounter and that it is usually sufficient to suggest the correct diagnoses. We use the term "diagnosis" in its widest sense, including problem identification at all levels, not just medical diagnoses. The experienced clinician often generates the diagnostic possibilities or hypotheses within the first minute of the clinical encounter. The expert then uses these hypotheses to direct the subsequent data gathering: he may collect less information than a non-expert, but the information selected is often much more detailed around the important points—he or she gathers the data necessary to deal with the problem, and does not lose time gathering non-contributory information for the problem at hand. The data is interpreted as it is obtained, to finish with a second round of diagnostic hypotheses—this step certainly requires expertise, but it is often self-evident if the initial diagnostic hypotheses and the data gathering have been done in a skilled fashion. The physical examination and investigation phase often play minor roles—indeed it is often a question of confirming or eliminating diagnostic possibilities generated by the history.

Is it reasonable to almost equate clinical reasoning skills (and medical problem solving) with skill in arriving at an accurate diagnosis? Most would agree with this assumption, for two reasons. First, management and treatment certainly require skill, but they are heavily knowledge dependent, so they are situated closer to the lower cognitive levels of clinical competence, as well as being particularly dependent on an accurate set of diagnoses. Second, with a few domain-specific exceptions, the various cognitive and non-cognitive skills required in the later phases of the clinical encounter are all required to a higher degree in making an accurate and pertinent diagnosis.

Of course, although skill at making accurate diagnoses is a necessary element of competence in clinical reasoning skills, it is probably not sufficient by itself. A well-planned assessment of competence in clinical reasoning skills will put great emphasis on taking the history and making diagnoses, but it will also include some tasks situated in the later parts of the clinical encounter. It will not do this in a random fashion, however. This brings us back to the concept of the interaction between the patient, the physician, and the problem. Each interaction will itself determine which steps are most critical: for some it may well be the treatment or the physical examination, and, if this is so, then this is where competence lies for this interaction, and this is what should be assessed. The challenge, for valid assessment, is to match the evaluation with the interaction. The key feature analysis did this, so the best definition of competence in clinical reasoning skills can be found in the Priority Topics and Key Features List.