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The Well-built Clinical Question: A Key to Evidence-based Decisions

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Consider the following clinical situations:

A 19-year-old woman comes home from college with an acute maxillary sinusitis. You just heard about treating this with a shorter 3-day course of antibiotics rather than the usual 10 days of prescribed treatment. You wonder whether you should try the shorter course with this patient.

A 44-year-old woman with recently diagnosed ovarian cancer presents to the emergency room with dyspnea and inspiratory chest discomfort. The ventilation-perfusion scan is read as 'indeterminate.' The emergency room doctor asks your advice 'now that embolism has been ruled out.'

A 69-year-old retired teacher returns for follow-up of congestive heart failure that first presented 1 month before. After you review her progress, she asks you about her prognosis.

What do these scenarios have in common? Among other things, they are all opportunities to make explicit and systematic use of the best available evidence when teaching and practicing clinical medicine. In other words, they are moments of opportunity for evidence-based medicine (1, 2). Many readers of *ACP Journal Club* are already recognizing and capitalizing on these moments in their daily work. In so doing, these clinicians are using their searching skills to track down published evidence; they are using their critical appraisal skills to judge the scientific validity and clinical usefulness of that evidence; and they are using their clinical judgment to decide with their patients how best to put the evidence into practice. For these steps to be efficient and effective, they must start by using an additional fundamental skill for evidence-based medicine: asking well-built clinical questions.

What makes a clinical question well built? First, the question should be directly relevant to the problem at hand. Next, the question should be phrased to facilitate searching for a precise answer. To achieve these aims, the question must be focused and well articulated for all 4 parts of its 'anatomy' (3):

- 1. the patient or problem being addressed;**
- 2. the intervention or exposure being considered;**
- 3. the comparison intervention or exposure, when relevant;**
- 4. the clinical outcomes of interest.**

For example, for the clinical scenarios we began with, the following questions could be asked: In adults with acute maxillary sinusitis, does a 3-day course of trimethoprim-sulfamethoxazole yield the same cure rates as a 10-day course, with fewer adverse effects and costs?- a question of therapy (4).

When compared with pulmonary angiography, how well does an indeterminate result of a ventilation-perfusion scan rule out pulmonary embolism in a patient with a high pretest probability?-a question of diagnosis (5).

What is the average survival after onset in patients with congestive heart failure, and what clinical features, if any, identify patients likely to survive longer or shorter than average?-a question of prognosis (6).

How often do clinicians ask questions about their patients? Investigators have observed and interviewed doctors while they practice, counting the questions. The rate of question asking in these studies ranged widely, from as few as 1 question every 15 patients in outpatient family practices (7), to 1 question every 1 or 2 patients in mixed specialty offices (8, 9), and up to 5 questions per patient on an inpatient teaching service (10).

But can clinicians actually ask focused, 4-component questions? We believe so, but, as with many clinical skills, it takes practice. Doing it well requires that you have insight into what you do not know, coupled with curiosity and a willingness to learn. Also, knowing how questions arise, where they come from, and how to recognize and articulate them can help you refine your skills.

How do clinical questions arise? During a patient encounter, the clinician may be uncomfortable making a decision until more is known. Finding these 'knowledge gaps' can cause the clinician to react in several ways, some affective, such as with anxiety or guilt, and some cognitive, such as asking questions and searching for answers. Although not always possible, we recommend quieting your emotions while turning your implicit knowledge gaps into explicit questions.

Where do these questions come from? They can arise from virtually any point in the clinician's work with patients. After years of being asked questions, as well as asking our own, we have found that most of our questions arise from the following 6 aspects of clinical work:

1. Clinical evidence: how to gather clinical findings properly and interpret them soundly.
2. Diagnosis: how to select and interpret diagnostic tests.
3. Prognosis: how to anticipate the patient's likely course.
4. Therapy: how to select treatments that do more good than harm.
5. Prevention: how to screen and reduce the risk for disease.
6. Education: how to teach yourself, the patient, and the family what is needed.

We keep this list handy and use it to 'map' where clinical questions come from.

How can you recognize and formulate clinical questions as they occur? Here are some tactics that we have found useful. First, pay careful attention to the questions that spontaneously occur to you. Also listen for the 'question behind the question'; thus, 'should I increase this patient's diuretic dose beyond the recommended daily maximum?' might become 'in this patient with uncontrolled heart failure despite full doses of diuretic and an angiotensin-converting enzyme inhibitor, should I add digoxin to reduce congestion and improve exercise tolerance?'

Next, try saying your questions out loud or writing them down with all 4 components included. If you are stuck, use the map above to locate where you are stuck. Then build your question in 2 steps, starting with the 'location,' such as 'my question is about therapy,' then filling in all 4 components explicitly, such as 'do persons with insulin-dependent diabetes who are treated with an intensive insulin regimen have fewer long-term complications or a lower mortality rate than those treated with a traditional insulin regimen?'

What if too many questions arise? For patients who have more than 1 active problem, and with possible questions about diagnosis, prognosis, therapy for each problem, your questions may be too numerous to even ask, let alone answer. In this predicament, we still recommend building good questions, then selecting from the many the few questions that are most important to answer right away. If you are stuck on this selection, try this sequence of queries: What is the most important issue for this patient now? What issue should I address first? Which question, when answered, will help me most?

After some practice, you should be able to recognize key clinical questions readily and build them well to help you find the answers. We invite correspondence from those who want to become better question-askers on the way to becoming better clinicians.

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