Asking Appropriate Clinical Questions

By Michael Haneline, DC, MPH

One of the most important aspects of evidence-based chiropractic (EBC) is the DC's ability to answer clinical questions by locating appropriate evidence from research articles. Finding scientific evidence tailored to specific clinical circumstances is not that difficult, although the required literature search must be done correctly. The search terms should be specific and purposeful, based on a clear clinical problem.

To improve the results, it is useful to generate a relevant clinical question to help direct the search—prior to performing the search, to avoid wasting time, aimlessly sorting through irrelevant material. An appropriate question is clinically relevant and will help you manage a specific patient. The question must contain certain elements of the clinical problem to enable purposeful searching strategies.[1]

Questions

Questions are considered to be either background or foreground in nature. Background information is broad knowledge about a condition's anatomical and pathophysiological basis. Foreground information is focused knowledge that will lead to the best diagnostic and treatment strategies for a particular patient.

Background

These are simple 2-part questions that address the basic facts about a patient's health problem and that are based on general background knowledge addressing the condition under investigation. Such questions are of limited value because the information obtained does not fully address the best diagnostic or treatment options. On the other hand, this knowledge is essential to a practitioner who is not well read on a given topic and it facilitates the construction of a more complex question later on. Familiarity with background information is necessary prior to dealing with matters in the foreground. Background gives the practitioner the foundation to create useful foreground questions. For instance, if a patient presents with suspected multiple sclerosis, a general definition of the condition and information about its common characteristics would be helpful. This type of information can best be acquired from thoroughly referenced and regularly peer-reviewed sources, such as current textbooks and electronic publications (e.g., *Harrison's Online*[2] and *UpToDate*[3] journal articles, in contrast, are typically not efficient sources of background information.

Foreground questions deal with issues that are more involved and apply to the best strategies for treatment or diagnosis.

Answers to these types of questions are derived from primary or secondary sources. *Primary* (also called unfiltered) sources are original journal articles, while *secondary* (also called pre-filtered) sources include expert reviews of available original articles on a given topic. Essentially, pre-filtered information sources employ teams of experts from the various specialties to perform a topic-specific literature search and methodical evaluation of each of the applicable articles, and then provide a synopsis and overall conclusion derived from this evidence. Since much of the work has been done for the clinician, pre-filtered information sources are an efficient first step in obtaining evidence.

The biggest disadvantage for DCs with regard to pre-filtered information is that the reviewers are almost always medically oriented. Their reports may be negatively biased against chiropracticand may not cover topics germane to chiropractic and natural health care. One example of medical bias can be found in the *ACP Journal Club* regarding neck manipulation.[4] The Commentary section of this article by Paul Shekelle, MD, states, "Because neck manipulation has no proven benefit compared with mobilization and has been associated with serious, albeit rare, adverse events, neck manipulation cannot be recommended and should be avoided." At the very least, this statement is inaccurate and not evidence-based.

Foreground Questions

Foreground questions, being more complex than background ones, are more difficult to compose and require more careful planning. Better clinical questions are made up of several components that can be divided into three or four sections. The general idea is to produce a question regarding a given patient that considers whether a relationship exists between a treatment, a diagnostic test, or a risk factor and some specific outcome.

The mnemonic PICO is frequently used to help remember the components of a correctly formatted clinical question.[5] (See Table 1.) The letter ***P*** represents the patient or problem that is under consideration and can involve a single patient or group of patients with a particular condition. When composing this part of a question, consider characteristics such as age, ethnicity, and risk factors that may be clinically relevant. An example would be: "an elderly male with lower-back pain." ***I*** concerns the intervention or exposure that is being considered. An example would be: "treatment with manipulation." ***C*** may not apply to all clinical questions, so it is optional. It has to do

Table 1. Components of *PICO* Questions

Patient or problem
Intervention
Comparison intervention
Outcome(s) of interest

with comparison treatments that the clinician might want to contrast with the usual intervention. An example would be: "comparison of manipulation with exercise." ***O*** represents the outcome of interest, which should be patient-relevant, i.e. of interest to patients, such as pain level or degree of disability. While the practitioner may be interested in watching a patient's straight leg raise test go from 30 to 60 degrees or his surface EMG findings normalize, patients simply want to feel and function better. Joining these elements into a single question would read something like this: "In an elderly male with lower back pain, would manipulation be preferable to exercise in reducing pain and disability?"

The previous example was straightforward, involving the type of patient commonly seen in chiropractic offices. Consider now another example involving a not-so-common condition that may/may not call for chiropractic management. A middle-aged female patient complains of lower-back pain with radiation to both legs involving the posterior thighs. She also notices numbness of both feet affecting the S1 nerve distribution after prolonged sitting or standing. The radiology report, based on plain films and CT, points to mild to moderate spinal stenosis, but there are no objective neurological signs present on examination. The doctor considers accepting this patient for a trial of manipulation and wonders if there is evidence available that supports this type of management, and also if there are alternative therapies that might be superior. The PICO formatted question: "Is manipulation effective at reducing back and leg pain in a middle-aged female patient with lumbar spinal stenosis and concomitant radicular pain, or are there any more effective alternative methods?" A dissection of this question into its elements would be as follows:

P A middle-aged female patient with lumbar spinal stenosis and concomitant radicular pain

I Manipulation

C Any alternative method that might be superior to manipulation

O A reduction of lower back and leg pain.

After creating an answerable question, the next step is to choose search terms that can be used to query one or more of the available databases: PubMed, MANTIS, CINAHL, etc. One could choose *low-back pain*, *leg pain*, and *manipulation* as suitable terms for this example. The best way to combine these terms so that you retrieve a manageable number of relevant articles is a topic for another paper. PubMed (http://www.pubmed.com) has a very helpful free tutorial available, however, that provides an excellent introduction to search strategies.

One more example will hopefully make this very important topic more understandable. A 50-year-old female patient with a family history of breast cancer is told by a physician that she should consider hormone replacement therapy as a preventative strategy for Alzheimer's disease since both of her parents with progressive dementia were recently diagnosed with Alzheimer's. She asks the doctor for an opinion and wants to know what risks are involved with the intervention, and if, indeed, taking hormones does prevent Alzheimer's. The PICO formatted question: "Would hormone replacement therapy in a 50-year-old female with a family history of breast cancer and Alzheimer's disease actually prevent the occurrence of Alzheimer's, and would it offset the added risk of breast cancer?"

P A 50-year-old female patient with a family history of breast cancer

I Hormone replacement therapy

C None

O Prevention of Alzheimer's disease

Search terms resulting from this question could include *breast cancer*, *hormone replacement therapy*, and *Alzheimer's disease*. It is important to combine these terms properly for the search because, using the exact same terms just mentioned, one strategy that integrated the terms using "AND" returned a manageable 63 references while another strategy using "OR" returned 187,401. How would you like to sort through 187,000 plus references in an effort to find just a few pertinent articles? Taking the tutorial offered by PubMed is very important.

Asking good clinical questions is not as difficult as it may seem and can be utilized rather quickly with a little practice. Making use of appropriate clinical questions in practice can be very helpful in sorting out thoughts, finding solutions to problems, and directing patient management. It is not at all an exercise in futility that will be a waste of your time, as some have suggested.[6] A positive goal is involved in asking these questions and once achieved, the end result will facilitate better-quality patient care.■

Acknowledgment

I would like to thank Robert Cooperstein, MA, DC, for his outstanding assistance with the preparation of this manuscript.

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