

Examples of PICO Questions

In children with asthma, are inhaled steroids more likely to result in growth delay than standard therapy with beta-agonists?

In infants with possible sepsis, is physical exam sensitive and specific in diagnosing pneumonia, when compared to the gold standard of chest x-ray?

In elderly patients, are ACE inhibitors more effective than beta blockers in controlling high blood pressure and minimizing adverse effects?

What is the average survival after onset of patients with congestive heart failure, and what clinical features, if any, identify patients likely to survive longer or shorter than average?



To learn more about Evidence-Based Medicine (EBM):

McMaster University
Health Information Research Unit
<http://hiru.mcmaster.ca/>

SUNY Downstate Medical Center EBM Course:
<http://library.downstate.edu/EBM2/contents.htm>

Users' Guides to Evidence Based Practice (Centre for Health Evidence)
<http://www.cche.net/usersguides/main.asp>

To learn more about PICO:

Oxford-Centre for EBM
Focusing Clinical Questions:
http://www.cebm.net/focus_quest.asp

Armstrong EC. The well-built clinical question: the key to finding the best evidence efficiently. *Wisconsin Medical Journal* March/April 1999;25-28.

Richardson W, Wilson MC, Nishikawa J, Hayward RSA. The well-built clinical question: a key to evidence-based decisions. *ACP Journal Club* 1995;123:A-12.

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Evidence-Based Medicine: The Well-Built Clinical Question



**Formulating sound clinical
questions using PICO**

What is Evidence-Based Medicine?

"The process of systematically finding, appraising, and using contemporaneous research findings as the basis for clinical decisions. Evidence-based medicine asks questions, finds and appraises the relevant data, and harnesses that information for everyday clinical practice. Evidence-based medicine follows four steps: **formulate a clear clinical question from a patient's problem**; search the literature for relevant clinical articles; evaluate (critically appraise) the evidence for its validity and usefulness; implement useful findings in clinical practice."

From: British Medical Journal 1995;310:1122

What is a Well-Built Clinical Question?

"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..."

From: Richardson W, Wilson MC, Nishikawa J, Hayward RSA. The well-built clinical question: a key to evidence-based decisions. ACP Journal Club 1995;123:A-12.

What is PICO?

A well-built clinical question has four components. The mnemonic **PICO** is useful for remembering these.

PICO Stands For...

Patient or Population

Be specific to about the group you are interested in (e.g., children and asthma, infants with possible sepsis). Consider age, sex, ethnic group, risk profile, or other traits that may be clinically relevant.

Intervention

Again, be specific about the intervention (or exposure) you are looking for (e.g., treatment with inhaled corticosteroids, passive smoking, surgical procedure).

Comparison Intervention

What alternatives do you want to compare the intervention to (e.g., standard therapy for asthma, chest x-ray)? *This may not apply to all questions.*

Outcome

Try to be precise, yet brief, in defining the outcome (e.g. growth delay, diagnostic usefulness) and the aspect (i.e. sensitivity or specificity) of interest. What is it you hope to accomplish?

Defining the clinical question in this way will easily lead to the second step in the EBM process--searching for relevant research results.

Some Advice

"How can you recognize and formulate clinical questions as they occur?..."

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 and writing them down with all four components included...

What if too many questions arise?... If you are stuck... 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?"

From: Richardson W, Wilson MC, Nishikawa J, Hayward RSA. The well-built clinical question: a key to evidence-based decisions. ACP Journal Club 1995;123:A-12.