The PICO Format Explained

Patient/Population/Problem:

Defining the patient characteristics is essential. A specific, narrow definition will provide very applicable evidence for that particular patient, but may limit the evidence too much so that important evidence is excluded from search results. A common error is to specify a particular narrow age range when it is unlikely to make any difference to the eventual outcome of the intervention. Race or sex can be essential to some health issues, but inclusion may limit the retrieved results. Be prepared to search with and without some terms and limits such as age, sex and race. Be specific without becoming too narrow. Consider key words and phrases that will allow a health care provider imagine the patient in front of you. Try not to include irrelevant or extraneous information or terms.

Intervention (therapy, diagnostic):

An intervention component may be broad or narrow. When seeking the best evidence," several interventions may be specified in separate foreground questions. Broad phrases ("What is most effective?") often lead to background questions. Searching for background information from reliable, high quality resources such as current textbooks, practice guidelines and Web sites such as Natural Standard, DynaMed, and MedlinePlus can help narrow the intervention component so a good foreground clinical question can be composed from a background question. A specific intervention should suggest something that will influence the desired outcome.

Comparison/Control/Context:

The comparison component is often the second half of the intervention component. In therapy questions, intervention A might be compared to a well-known or standard therapy. For diagnosis questions, the comparison is often the "gold standard" diagnostic. Prognosis or etiology questions may include a factor which may affect the patient population in some way. In some cases, including symptoms (e.g., chronic low back pain) or lifestyle factors (e.g., extended computer use) in this component may provide a way to narrow the search without excluding essential results.

Outcome:

The outcome is what the clinician hopes to accomplish. An outcome should be patient oriented (taking patient values, expectations, preferences and priorities into consideration), definable, measurable, and clinically relevant. In many cases, there will be more than one relevant, important outcome that depend on what aspect of care is needed or desired. Each outcome can be defined in a separate PICO question. Outcomes should not be vague ("feel better") since vague phrases are not measurable and will not help define a search strategy for relevant evidence. Outcomes such as "decrease pain" or "decrease the time to return to normal activities" and "increase physical function" which can be defined and measured may restrict a search, but should be considered once again when evaluating results from a search (i.e., when evaluating the methods section of selected results for relevance to the PICO question). (See next page for examples of PICO questions.)

Examples of PICO Questions

- Does joint protection education (I) improve function and reduce stiffness (O) for adults with rheumatoid arthritis (P) compared with standard arthritis education (C)?

- In children with acute otitis media (P) are antibiotics (I) more effective than watchful waiting (C) in relieving pain (O)?

- In adults with neck pain (P) does manipulation alone (I) or manipulation combined with exercise (C) result in a greater reduction in pain (O)?

- Is St. John's Wort (I) effective in relieving symptoms (O) in patients suffering from depression(P)?

- Is there evidence that tylenon (I) is more effective than gentle forms of exercise or swimming (C) in managing patients with herniated disk pain (P)?