

ASKING CLINICAL QUESTIONS

There are two main types of clinical questions: background questions and foreground questions. *Background* questions are those which apply to the clinical topic for all patients (e.g. Does Atrovent improve bronchospasm in asthmatics?). *Foreground* questions, on the other hand, relate to a specific patient (e.g. Does Atrovent given by nebulization prevent hospital admission in wheezing children aged 6-10 years who present to the ED).

The difference is in the granularity or specificity of the question: background questions are true of the world in general whereas foreground questions consider specific aspects of a given patient and give answers that can directly improve an outcome meaningful to your patient.

Objectives

The resident will be able to:

- ? Formulate a patient-based clinical question using the PICO format
- ? Discuss how to map the PICO question onto a literature search

Key Concept

The PICO format lends itself very well to searching the biomedical literature for *quantitative* studies. It has you take your question and break it down into subcomponents that can then form the basis for a search for evidence.

PICO

P – Population

I – Intervention

C – Comparison

O – Outcome Measured

Quicklinks

Centre for Evidence-based Medicine (University of Toronto):

<http://www.cebm.utoronto.ca/practise/formulate/>

An excellent step by step guide to formulating questions.

Centre for Health Evidence: “Users’ Guides to Evidence Based Practice”

www.cche.net/usersguides/main.asp

This is the chapter from the AMA User’s Guides that we recommend as the handbook for EBP in the residency. It’s available online free at this website.

Evidence-based Answers for Busy Clinicians (Monash University, Australia)

<http://www.med.monash.edu.au/healthservices/cce/ebpcav10.pdf>

We’ve used this handbook throughout our mini-series as it’s nice and concise but covers all the major points in showing you the process.

2. Ask an answerable question

Write down a clinical question that you would like answered from the literature

Unfortunately, it's not as easy as typing this question in to the database and getting the answer.

Clinical questions are often broad, complex and multilevel, so we need to refine and narrow questions to make them answerable from the literature.

As an example, clinical questions frequently use words like "best" or "quickest" or "most effective". Health practitioners want to know what the best treatment is that will work fastest with the least number of adverse effects. Unfortunately, in general, questions with these types of words are very difficult to answer from the literature.

Why is this?

Think about how you would search a database for "best treatment for asthma".

A search for "asthma" in PubMed retrieves 85330 records (as @ January 2005). What would you search for next? How can you search for "best"? Can you see the difficulty? Instead you have to include some form of treatment in the search to limit the number of records you retrieve.

It is often very difficult to translate a clinical question into a form that can be answered from the literature, but there is a way...

We use a framework called “PICO” to make the process of asking an answerable question easier (but it is still tricky and takes practice).

PICO stands for:

- Patient or Population
- Intervention or Indicator
- Comparison or Control
- Outcome.

Why PICO?

- To get the question clear in your mind
- To identify the information you need to answer the question
- To translate the question into searchable terms
- To develop and refine your search approach

It looks easy. It can be tricky. It is absolutely invaluable.

Minutes spent properly formulating your question will save you hours in searching.

Work through the PICO process with your clinical question. Be as detailed and explicit as you can.

How would you describe your Patient or Patient group?

What characteristics of your **Patient/s** are important? Age, gender, condition, etc can all be very significant.

What Intervention or Indicator (therapy, diagnostic test or exposure) are you interested in?

Defining the **Intervention** is often the central part of PICO.

What alternative or different option do you want to Compare your intervention to?

You might want to **Compare** the chosen intervention to another intervention or to no intervention.

What measurable Outcome/s are you interested in?

Outcome is the final aspect of PICO. Some examples include: symptoms of asthma, accuracy of diagnosis or mortality.

Now rewrite your original clinical question to follow the PICO format.

For example:

In _____
how does _____
compared with _____
effect _____

Reformatted (PICO) Clinical Question

In _____	<i>P component</i>
how does _____	<i>I component</i>
compared with _____	<i>C component</i>
effect _____	<i>O component</i>

Now that you've structured a well-built answerable question, the next step is to work out what type of study will answer your question...

Different types of questions are best answered by different types of studies.

You want accurate, reliable information to answer your question, so you need to look for the best type of studies that are available and relevant.

Ideally, you would like to find a systematic review to answer your question. Systematic reviews are often referred to as “Level I Evidence”*.

What is a Systematic Review?

Good question. A systematic review synthesises the results from all available studies in a particular area, and provides a thorough analysis of the results, strengths and weaknesses of the collated studies.

A **systematic review** has several qualities:

1. It addresses a focused, clearly formulated question.
2. It uses systematic and explicit methods:
 - a. to identify, select and critically appraise relevant research
 - b. to collect and analyse data from the studies that are included in the review

Systematic reviews may or may not include a meta-analysis used to summarise and analyse the statistical results of included studies.

Beware of **narrative reviews** masquerading as systematic reviews. Narrative reviews are opinion with selective illustrations from the literature. Although they may be useful for some background information, they do not qualify as adequate evidence to answer clinical questions and are very prone to bias.

Unfortunately, there aren't systematic reviews to answer every clinical question (not yet – but the Cochrane Collaboration is working on it!).

So we have to look for other types of studies that are lower down on the hierarchical tree of evidence.

*For more information on ‘Levels of Evidence’ see the page 19 at the back of this workbook.

The following table gives an indication of the highest level of evidence for each type of question. Other study designs may be useful but are more prone to bias.

If your question is about...	Look for a...
Intervention or Therapy	➤ Randomised Controlled Trial
Diagnosis/Screening	➤ Cohort study where all subjects receive both the study test and gold standard reference test ➤ Randomised Controlled Trial
To assess the accuracy of the test To assess effect of test on health outcomes:	
Prognosis	➤ Longitudinal cohort
Aetiology/Risk factors	➤ Randomised controlled trial ➤ Cohort for rare exposure with common outcome ➤ Case-control for rare outcome with common exposure

Is your question about Therapy, Diagnosis/Screening, Prognosis or Aetiology/Risk factors?

What type(s) of study design will you look for to answer this question?

	Systematic Review
	Randomised, Controlled Trial
	Cohort Study
	Case-Control Study
	Other:

Now you have worked out what type of studies will best answer your question, you need to go and find some...