

Evidence Based Medicine Series

ASKING FOCUSED ANSWERABLE CLINICAL QUESTIONS

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Identifying the need for new information from important and relevant issues in patient care in the face of clinical uncertainties, and converting this need into answerable questions is the first step of Evidence Based Medicine (EBM).¹ Different types of questions come up in our minds during the bedside rounds or clinic consults. Some are questions that concern general knowledge, the answers of which are readily available in the standard texts. For example:

What causes Hand Foot Mouth Disease?

What should we use to treat migraine?

How common is hip pain in the elderly?

When (at what age) should we start screening for breast cancer?

How does liver become enlarged with heart failure?

These are "Background questions", with two major components: A question root (what, why, when, where, how) linking with a disorder, test, treatment or health care issue². Most background questions have answers that increase knowledge and the amount of information that we can share with patients, but they generally do not help directly in improving patient care. Other background questions are unanswerable, for example question no 2, because whatever answer to these questions will amount to inappropriate generalization, as the questions do not consider specific patient characteristics and outcomes of interest, which are essential elements to consider in deciding whether certain treatment should be used in different clinical circumstances.

With some "touch-ups", background questions can be converted to specific questions with direct bearing on clinical decisions - the "foreground questions". For example:

1. In children with Hand Foot Mouth Disease, does treatment with antiviral compared to no antiviral result in faster resolution of lesions?
(Question on THERAPY)
2. In adult patients with heart failure, does the presence of ascites increase the risk of mortality? (in 1 year/3 years/5 years etc)
(Question on PROGNOSIS)

There are four components in the foreground questions, as shown below:

Patient	Intervention, Index diagnostic test or prognostic Indicator	Comparison	Outcome
In children with Hand Foot Mouth Disease	does treatment with antiviral (intervention)	compared to no antiviral	result in faster resolution of lesions?
In patients with heart failure	does the presence of ascites (prognostic Indicator)	(compared to no ascites) – not stated, but implied in question	increase the risk of mortality (in 1 year/3 years/5 years etc)

The PICO framework encompasses the important elements of a focused, answerable question, which are the predominant questions we should be asking in our day-to-day patient encounters. The answers to these questions may not be readily available from the standard text. Even if they are, they may no longer be accurate when we find them. The best answers to these questions reside within the sea of up-to-date clinical literature, waiting for us to gather using a set of skills that our next article in the series will elaborate.

Why PICO?

There are several advantages when we formulate questions using the PICO framework:²

- It is a convenient way of helping us focus on the clinical needs of our patients as well as our learning needs, especially when our times are limited.
- It helps identify the types of research that can best answer our questions, provides us important keywords in our search, and appears to improve search precision.³
- Communication between colleagues making use these four elements, for example, during referral, helps in putting across a clear picture of our patients.
- This framework presents a systematic and easy-to-follow method of acquiring retainable clinical knowledge from patient encounters.
- It makes teaching (bedside or classroom teaching like Problem Based Learning) more efficient and focused.

Issues in patient care leading to questions¹

These are broadly categorised into the issues relating to:

- **Diagnosis:** the diagnostic accuracy of a test, including clinical symptoms or signs.
- **Therapy:** the effectiveness of a treatment (medication, surgery or other therapeutic regimes) in improving or preventing certain outcomes. The safety/harm of a treatment.
- **Prognosis:** whether certain patient or disease characteristics predicts certain outcomes/ complication.
- **Other issues** (health care related or personal) like cost and efficiency of care, self-improvement in clinical skills and knowledge

Prioritizing questions to be answered

Among the many questions that might surface during our practice, we may not have enough time or memory with the pressure of work to remember them all, let alone finding answers for them. The following is a rough guide on how to choose questions to answer (these are not in the order of importance):¹

- Choose the most immediately relevant : the one that concerns the most urgent decisions we have to make on the patient
- Choose the one that we would like to know most
- Choose the one that our patient asks
- Choose the one we know is most likely to have answers, for example, common issues
- Choose the one that is most likely to recur in our practice

Intensive glycaemic control (compared with standard regimen) significantly reduces coronary events without an increased risk of death

Ray KK, Seshasai SR, Wijesuriya S, et al. Effect of intensive control of glucose on cardiovascular outcomes and death in patients with diabetes mellitus: a meta-analysis of randomised controlled trials. *Lancet*. 2009;373(9677):1765-72

Five randomized controlled trials included in this meta-analysis (UKPDS, PROactive, ADVANCE, VADT, ACCORD). The mean HbA1c was 0.9% lower for participants given intensive treatment than for those given standard treatment. Intensive glycaemic control resulted in a 17% reduction in events of non-fatal myocardial infarction (OR 0.83, 95% CI 0.75-0.93), and a 15% reduction in events of coronary heart disease (0.85, 0.77-0.93). Intensive glycaemic control had no significant effect on events of stroke (0.93, 0.81-1.06) or all-cause mortality (1.02, 0.87-1.19).

WORKSHEET FOR CLINICAL QUESTIONS

Patient

What are the important patient characteristics, like age, gender, disease, co-morbidities etc that we believe could affect how the intervention works?

Intervention, Index diagnostic test or prognostic Indicator

What is the treatment/action/test/exposure or characteristic that we are trying to assess?

Comparison

What are we comparing the "I" against? Another treatment/exposure, no treatment/placebo?

Outcome

What is the main measure that we are interested in? We hope patient gets better in what sense?: More likelihood to survive (lower risk of mortality), less symptoms, shorter hospital stay, or better quality of life? Each patient, even with the same condition undergoing the same treatment, may have different wishes.

References

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3. Schardt C, Adams MB, Owens T, *et al*. Utilization of the PICO framework to improve searching PubMed for clinical questions. *BMC Med Inform Decis Mak*. 2007;7:16