Scholar role activities – Critical appraisal of a topic guidelines

Introduction

Critically appraising a topic is the process of finding the best evidence available and assessing the strength of this evidence, especially in relation to its findings or conclusions. The trainee must select the topic in consultation with the Departmental Scholar Role Tutor (DSRT) and be of relevance to patients and/or clinicians working in the department. The topic must be presented to the relevant department. This activity should represent approximately 20 hours of work by the trainee.

Evaluation

There are four main aspects of to be evaluated: topic, literature search, analysis of evidence, and applying results to clinical practice.

When observing the trainee, the DSRT considers each of the items on the form and determines: whether significant improvement is required; whether the item has been addressed, though some improvement is required; or whether the item has been satisfactorily addressed. If multiple items require significant improvement it may be helpful for the trainee to be observed and evaluated again. If there are one or two items that the trainee requires some improvement on, it is recommended that the assessor discuss these with the trainee, including how the trainee might improve when critically appraising a topic in the future.

Once the activity has been completed satisfactorily, the DSRT should confirm completion in the training portfolio system.

Topic

It is important the topic is focused by a specific, relevant question. To benefit patients and clinicians, questions should be directly relevant to patients' problems and phrased in a way that directs the search to precise answers.

One useful approach is to use the PICO acronym to build the question (Patient, Intervention, Comparator, Outcome):

- Patients' problem of interest
- The main intervention (e.g. diagnostic test or treatment) that is going to be compared
- The comparison intervention
- Outcome of interest

For example, rather than "ACE inhibitors in the peri-operative period", a more easily answered question might be "For adult patients with hypertension, should ACE inhibitors be continued in the perioperative period or should these medications be ceased, in order to decrease adverse cardiac and other events?"

Not all elements of the PICO acronym maybe appropriate. The topic can be narrowed or broadened to suit the departmental needs, but should not be too broad such that a full systematic review would be more appropriate. Topics should not be chosen just because there is a recent systematic review.

- When evaluating the trainee's topic, consider:
- Is the question clearly defined, relevant and specific (not too narrow or too broad)?
- Are most of the elements of PICO present?
- Is there a clear rationale for selecting the topic?

Literature search	The search strategy needs to be documented and should include relevant electronic sources (e.g. EMBASE, MEDLINE, Cochrane) as well as other internet sources and reference lists. Search terms should relate back to the original PICO question.
	Trainees should be familiar with the types and sources of information available, where to look for particular types of evidence, and how to select articles with a high level of evidence. The most relevant articles should be selected based on the extent to which they address the question and the methodology used.
	When evaluating the trainee's search, consider:
	• Are the inclusion/exclusion criteria explicit? • Has a comprehensive search been made? • Have key studies been included (requires assessor to complete search)? • Has the search used the major electronic sources? • Are the key words/Medical Subject Headings (MeSH) terms stated?
Analysis of evidence **– quality of the studies**	Retrieved articles need to be evaluated for their relevance to the clinical question, their internal validity, external generalisability as well as their levels of evidence.
	Checklists should be used as appropriate to assess the validity and strength of any conclusions, recommendation or guidelines. These are freely available for each type of study. Examples include PRISMA for systemic reviews, STROBE for observational studies and CONSORT for randomised trials. The trainee should state which they have used.
	Those that are most relevant to the current question, have a higher level of evidence, and are more valid compared to other articles should be selected.
	When evaluating the trainee's analysis of evidence, consider:
	• Has the quality of included studies been assessed? • Was the appropriate checklist used for each study? • Have studies been graded according to quality? • Are there appropriate comments on potential errors in studies? • Is the study design of individual papers appropriate for the question? • Is the statistical analysis appropriate?
Conclusion – Applying the results to clinical practice	The results from the selected and appraised articles are interpreted with regard to level of evidence of the article, its internal and external validity and the similarity of the PICO of the article to the current PICO question. Results are then applied to the patients' problem of interest. A conclusion should be obtained from the whole search and appraisal process with regard to the clinical problem and the applicability of the test or treatment is discussed.
	The question may not be directly answerable by the evidence available. An assessment of the strength of any conclusion or recommendation will need to be made for the topic as a whole using the GRADE approach (refer to resources).
	Generally strong evidence leads to a strong recommendation but not always. For example, there is low-level evidence relating aspirin to Reye's syndrome in febrile children (case reports). However, because paracetamol works equally well to control fever and pain, the use of paracetamol is strongly recommended.
	When evaluating the trainee's conclusion, consider:
	• How well do the included studies combine to answer the question? • Does the trainee have a conclusion/recommendation? • Does the evidence agree with the recommendation? • Is there a statement about the relevance/use of the topic's conclusion to their local population?

More Information and resources are available in Networks under the Scholar role support resources.