

## The Critically Appraised Topic: Closing the Evidence-Transfer Gap

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**See related editorial, p 675, and related article, p 629.**

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Clinical questions arise within an ED from the need to develop a clinical policy, proposed guideline, or interdepartmental protocol or in the course of treating an individual patient. In all cases it is appropriate to conduct a targeted literature search, select a handful of relevant studies, appraise them, and formulate conclusions. The results of such efforts may be brought to bear on a departmental guideline or be presented at a journal club or case follow-up exercise. However, none of these tasks, no matter how well performed, guarantee that their results will be available to others, when needed most, at the bedside.

The Critically Appraised Topic (CAT), a concept developed by internal medicine fellows at McMaster University,<sup>1</sup> and with continuing development under the direction of David Sackett,<sup>2</sup> is a vehicle that can simplify the task of making the results of evidence-based medicine available to patient care, teaching, and learning at the point of care.

### What is a CAT?

A CAT is an instrument for maintaining and retrieving relevant evidence. It summarizes and condenses the process through which a well-formulated question leads to a literature search, selection of relevant primary studies, critical appraisal of the studies' validity, results, and applicability, and the reviewer's conclusions regarding the original question. Critical appraisal of the studies is efficiently based on the criteria published in the "User's Guides to the Medical Literature."<sup>3</sup> As a one- or two-page synthesis of a point of care review, a CAT is a means for closing what has been called the "evidence transfer gap," the gulf that separates the results of clinical research from the realm of medical decision making. The exact form and content of CATs vary with the practice context in which they are used.<sup>4</sup> CATs tend to be most useful if they include the components listed in the Figure.

Converting the results into a form that can be directly applied to patient care may require calculation of numbers needed to treat in a therapeutic trial or of the likelihood ratios in a diagnosis study. In the course of assessing the applicability of the studies reviewed, value issues likely to influence practitioners' and patients' decisions are identified. It is advisable to temper the strength of the recommendations in accordance with the scope of the search and review that was performed. The proposed expiration or "staleness" date is determined by the reviewers' sense of how rapidly evidence in this area is changing. Ideally, the author or authors of the original CAT will be responsible for the update. However, the CAT user also may easily update the search, since the full strategy has been given.

Several limitations of CATs must be recognized for them to be used appropriately. They fall short of the rigor of publishable systematic overviews. For example, they are frequently based on limited search strategies. They also stop short of the methods of pooling results of individual studies used in formal metaanalyses. For the same reasons, they may not be validly transportable from one practice setting to another.<sup>1</sup> Both form and content may need to be importantly modified.

The most important feature of CATs is that they be concise, to the point, and retrievable at the site of patient care. "Homegrown" CATs can be stored on computers in the ED and printed as required. The CAT summaries can then be attached to patients' medical records. They also may be used as vehicles for physician education and communication during sign-out at the end of a shift.

In practice, whether in community hospitals or teaching programs, CATs form a bridge between research information and patient care. In teaching hospitals, a resident may be assigned to develop a CAT on a focused clinical question that arises during patient care. In hospitals without resident physicians, CATs may serve to make the results of a journal club or departmental discussion available to the staff to improve the care of subsequent patients. Building such bridges and making them available at the point of care is one of the most important benefits of evidence-based medicine.

## REFERENCES

1. Sauve S, Lee HN, Meade MD, et al: The critically appraised topic: A practical approach to learning critical appraisal. *Ann Roy Coll Phys Surg Canada* 1995;28:396-398.
2. Sackett DL, Richardson WS, Rosenberg W, et al: *Evidence-based medicine: How to practice and teach EBM*. New York: Churchill Livingstone, 1997.
3. Guyatt G, Rennie D: User's guides to the medical literature. *JAMA* 1993;270:2096-2097.
4. An electronic CAT maker is currently under construction and will soon become available on the website of the Centre for Evidence Based Medicine (<http://cebmr2.ox.ac.uk>).

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### Useful components of a critically appraised topic.

#### Title

The clinical question is stated.

#### Search

The search strategy, search engine, date of search, and the results are described in a fashion that is reproducible. The full citations of the studies selected are given.

#### Summary

The populations, interventions, and outcomes of the selected studies are summarized.

#### Appraisal

A summary of the **validity** of the selected studies is given.

The **results** most relevant to clinical practice are summarized in a form that facilitates their application.

The **relevance and applicability** of the study results to practice are reassessed.

#### Reviewers

The authors of the CAT are identified.

#### Expiration Date

A proposed date for updating the CAT is stated.