



toolbox

Critically appraised topics (CATs): bringing evidence to the chairside (1)

Patrick Sequeira

Green College, Oxford University, UK and Private Practice, Cham, Switzerland

Dental practitioners are generally supportive of the principles of evidence-based practice, but many do find working in this way time-consuming. This paper introduces the concept of the critically appraised topic or CAT, a simply-applied technique found to be of value on general medical wards and in clinics, that could also be of value to the busy dental practitioner.

Evidence-based dentistry (EBD) is the integration of best research with clinical expertise and patient values¹ (Figure 1). When these three parts are integrated, the partnership between patient and clinician will result in optimal clinical outcomes and quality of life. Whenever practitioners are confronted with the latest idea, technique or trend as part of their continuing professional development (CPD) they have to consider its time–cost–benefit value (Figure 2).

Often colleagues will agree with all the principles of EBD but refrain from taking it on board because of an already overloaded daily schedule. Even in the 'Ivory Towers' of dental teaching hos-

pitals EBD is pushed into a corner. Time is considered by many to be a key requirement to practice EBD but, as busy practitioners, time pressure is constant. The time to indulge in searching or appraising the literature², two of the core skills of the evidence-based approach, is limited. So how can EBD be implemented in busy everyday practice?

Implementing EBD in a busy practice

If EBD is going to work for practising dentists then it needs to work at the chairside and valid evidence needs to be quickly accessible. The team at the Centre for Evidence-based Medicine in Oxford, UK, has done just that –

made evidence instantly available – or at least within about 15 seconds using critically appraised topics (CATs).³ The CAT was invented by internal medicine residents working at McMaster University in Canada,⁴ and was developed further by doctors in Oxford in the UK. This model has resulted in paper and electronic publications in internal medicine that will be regularly updated.⁵ Our medical colleagues have shown that using CATs can bring evidence-based tools to the chairside to make patient-specific decisions.

The critically appraised topic

A CAT is an organised one-page summary of the evidence. A CAT begins with a declarative title and immediately states a clinical 'bottom line' showing the clinical action that results from the CAT. There is a short description of the clinical question, search terms and a source of evidence to help with later updating. Next the study methods are outlined and there follows a table to

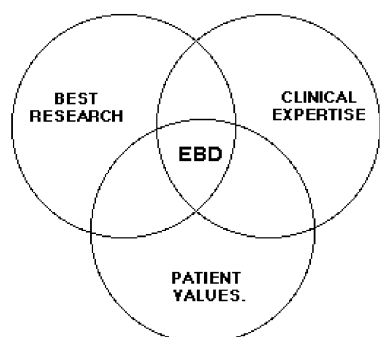


Figure 1 EBD is the integration of best research with clinical expertise and patient values

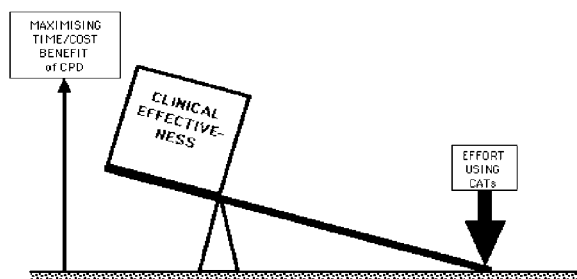


Figure 2 Using CATs can be a cost-effective way to improve practitioner knowledge and clinical outcomes

summarise the results. If there are any special features relating to implementing the CAT they can be inserted after the results table in the comments section¹ as illustrated in Figure 3. It is advisable to learn to produce workable evidence to become fully competent at practising EBD. The busy clinician needs effective tools not rules or reams of theory.⁶ In my experience, one of the best ways to ‘hit the ground running’ is to start writing CATs. This process has the combined advantage of reinforcing the critical appraisal process and creating a useful resource for the dental practice.

Using evidence-based dentistry on a day-to-day basis?

In a busy practice the appointment book often governs us and this provides the ideal place to develop a CAT. When you see a patient try to ask yourself one question about any of the following: Treatment, Diagnosis, Prognosis, Prevention, Aetiology, Harm/risk, or Cost-effectiveness. The daily schedule is the perfect place to jot this in (Figure 4). After a few days there will probably be at least one question that you find inter-

esting enough to go searching for. In a university general medicine clinic, practitioners found they asked on average five questions for each patient.⁷ Once you have a question or questions, before you dive into your local database or library it is worth taking the time to plan your question and search strategy. The aim is to ask an answerable question⁸ and it is useful to use a table-form worksheet to do this (Figure 5). As an example, we can take the endodontic patient noted in Figure 4 to tease out some of the possible search terms for each part of the question (see Figure 6).

Q. In patients requiring endodontic therapy, do single or multiple visits affect postoperative pain?

The best places to start searching are secondary databases where articles have already been filtered for quality, such as the Cochrane Library (www.update-software.com/clibhome/clib.htm) or *Evidence-Based Dentistry*. Both are available as Web resources and cheap enough to have online access to, which allows out-of-hours searches to be conducted if necessary. There are many other sources of evidence as comprehensively described by Robin Snowball.⁹ PubMed (www.ncbi.nlm.nih.gov/

CAT Structure
1. Declarative Title
2. Clinical bottom line
3. Clinical scenario -> 3 part question -> Search terms -> Evidence source
4. The study - the results
5. Comments
6. References

Figure 3 The structure of a CAT

Time	Patient	Info	Questions
8	0 Mr Albert Jones	40	
	10 I	Fit veneers	veneers or crowns?
	20 I	Teeth 11,21	
	30 V		
9	40 Mrs T. Ward	30	
	50 I	Comp Fill	Which composite?
9	0 V	Tooth 15 do	
	10 Mr Eric Smith	50	
	20 I	Endodontics	1 or two visits?
	30 I	Tooth 24	
	40 I		
10	50 V		
	0 Miss M. Murphy	60	
	10 I	Perio Ops/GTR	Which membrane?
	20 I	Tooth 16 /17	
	30 I		
	40 I		
50 V			

Figure 4 The appointment book becomes the question list

1st part Patient or problem	2ndpart Intervention (-vs- comparative intervention)	3rd Part Outcomes

Figure 5 Worksheet for structuring questions

1st part Patient or problem	2ndpart Intervention (-vs- comparative intervention)	3rd Part Outcomes
Endodontic	Single visit-vs-multiple visits	Pain
Root canal therapy	Calcium hydroxide	Discomfort
Pulpitis		
Non-vital pulp		

Figure 6 Initial search terms derived from the question

entrez/query.fcgi) is attractive as a MEDLINE resource, not least because it is free but also because it has recently introduced a cubby service to store search strategies. In addition there are features to tackle clinical problems using search filters developed at McMaster University.

Once the articles have been identified they can be photocopied on a visit to a local dental library or otherwise ordered from the BDA Information Centre (www.bda-dentistry.org.uk/infoctr/index.html) or Royal Society of Medicine Library (www.rsm.ac.uk/librar/docreq.htm), both of which provide an efficient and reliable service. When the articles arrive, the next step is to appraise them and create a CAT. The next article will explain the process of creating a CAT for your own use.

Time spent developing CATs will contribute to Continuing Professional Development and Education (CPD/CPE) generally, and support the need to develop clinical governance in primary dental care in the UK. By basing this on everyday clinical problems this will help improve patient outcomes and practice.

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