



## AN APPROACH TO EVIDENCE BASED DENTISTRY

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### ABSTRACT

Evidence based dentistry is a set of principles and methods intended to insure to the greatest extent possible, clinical decisions, guidelines and other types of policies are based on and consistent with good evidence of effectiveness and benefit. This brief method note is therefore written to best guide you about Evidence based dentistry.

#### Key words:

Evidence based dentistry, Pubmed,  
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Introduction

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## INTRODUCTION

American Dental Association define it as “an approach to oral health care that requires the judicious integration of systematic assessments of clinically relevant scientific evidence, relating to the patient’s oral and medical condition and history, with the dentist’s clinical expertise and the patient’s treatment needs and preferences.”<sup>1,2</sup>

### History of the evidence-based movement

The evidence-based movement first took hold in the medical field. Formally introduced in the 1990s, evidence-based medicine outlines a methodical way to incorporate the best available evidence into the decision making process for clinical practice and patient treatments.<sup>3</sup>

EBD’s incorporation into dentistry is progressing quickly. Dental schools are integrating the principles into their curriculum and resources are becoming more widely available.

### How to practise EBD

1. Recognize a need for information and formulate an answerable question.
2. Find best evidence with which to answer that question. Look for systematic reviews, meta-analyses and double blind randomized controlled studies.
3. Evaluate the evidence for its validity, reliability, relevance and usefulness.
4. Integrate the evidence with your clinical expertise and your patient’s needs.

5. Evaluate the overall results and your process. Make any necessary changes.

Below are some essential online resources for evidence based research.

### Pub Med

Pub Med is a free medical database provided by the U.S. National Library of Medicine and the National Institutes of Health (NLM). Highly authoritative and up-to-date, Pub Med gives you access to MEDLINE, NLM’s database of citations and abstracts in the fields of medicine, nursing, dentistry, veterinary medicine, health care systems and preclinical sciences. Updated daily, Pub Med gives you access to over 14 million citations dating back to the 1950s. Records are indexed using the NLM’s Medical Subject Headings (MeSH).<sup>4</sup>

### The Cochrane Library

The Cochrane Library is an international collection of 7 evidence-based health care databases updated quarterly. With the latest research on the effectiveness of health care treatments and interventions, current technology assessments, economic evaluations, and individual clinical trials, the Cochrane Library is the best single source of the world’s highest quality research studies and current evidence on clinical treatments<sup>5</sup>

**Table 1** Grading strength of recommendations and quality of evidence in clinical guidelines<sup>9</sup>

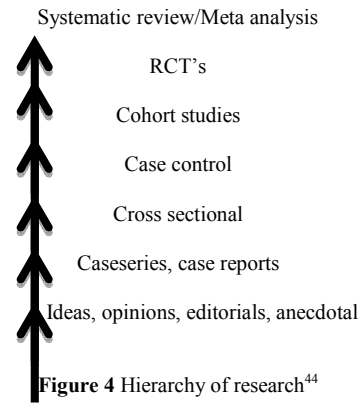
Grade of recommendation/description	Benefit vs. risk and burdens	Methodological quality of supporting evidence	Implications
1A/strong recommendation, high quality evidence	Benefits clearly outweigh risks and burdens, or vice versa	RCTs without important limitations or overwhelming evidence from observational studies	Strong recommendation, can apply to most patients in most circumstances without reservation
1B/strong recommendation, moderate quality evidence	Benefits clearly outweigh risks and burdens, or vice versa	RCTs with important limitations (inconsistent results, methodological flaws, indirect, or imprecise) or exceptionally strong evidence from observational studies	Strong recommendation, can apply to most patients in most circumstances without reservation
1C/strong recommendation, low quality or very low quality evidence	Benefits clearly outweigh risks and burdens, or vice versa	Observational studies or case series	Strong recommendation, but may change when higher quality evidence becomes available
2A/weak recommendation, high quality evidence	Benefits closely balanced with risks and burdens	RCTs without important limitations or overwhelming evidence from observational studies	Weak recommendation, best action may differ depending on patients' or societal values
2B/weak recommendation, moderate quality evidence	Benefits closely balanced with risks and burdens	RCTs with important limitations (inconsistent results, methodological flaws, indirect, or imprecise) or exceptionally strong evidence from observational studies	Weak recommendation, best action may differ depending on circumstances or patients' or societal values
2C/weak recommendation, low quality or very low quality evidence	Uncertainty in the estimates of benefits, risks, and burdens; benefits, risks, and burdens may be closely balanced	Observational studies or case series	Very weak recommendations; other alternatives may be equally reasonable

**Three Components of EBD**  
**Clinical expertise**  
**Patient preferences & needs**

**Evidence**

**Hierarchy/levels of evidence:** To the extent that the evidence is protected against bias it would lead to more confident decision making.<sup>6</sup> Using “risk of bias” as an organizing principle results in a hierarchy of evidence that places studies with better protection against bias at the top and less-protected evidence at the bottom. “Risk of bias” may not be the only desirable organizing principle of all available hierarchies, but we will focus on it and on the ability to apply evidence to the care of the individual patient when we discuss the position of different forms of evidence on a hierarchy of evidence.<sup>7</sup> The hierarchy of evidence includes several types of studies used to evaluate treatment effects, starting from case reports,

observational studies, and randomized controlled trials (RCTs), the tip of which are systematic reviews, which constitute the highest level of evidence because they attempt to collect, combine, and report the best available evidence using systematic, transparent, and reproducible methodology.<sup>8</sup>



**Figure 4** Hierarchy of research<sup>44</sup>

The limitation of current hierarchies is that most focus solely on effectiveness, although the focus on the use of hierarchies of evidence is now moving towards dimensions of evidence and a range of research matrixes.

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