

# Evidence-Based Dentistry : What's New?

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## Introduction

It has been said that "...the art (of dentistry) is in using the science and matching it with the patient's characteristics and needs..." In reality, however, it may not always be the case that good practice rests on evidence from the literature as well as on the art and intuition of the practitioner. The awareness that the practice of dentistry needs to be based on research evidence actually appears to be quite recent.

The importance of evidence for every branch of medicine in teaching in order to orient the practitioners among the great amount of most actual scientific information's, and to support clinical decisions, is well established in health care, including dentistry. The practice of evidence-based medicine is a process of lifelong, self-directed, problem-based learning which leads to the need for clinically important information about diagnosis, prognosis, therapy and other clinical and health care issues. Nowadays the practice of dentistry is becoming more complex and challenging because of the continually changing in dental materials and equipments, an increasingly litigious society, an increase in the emphasis of continuing professional development, the information explosion and the consumer movement associated with advances on the Internet.

The need for reliable information and the electronic revolution have come together to allow the "paradigm shift" towards evidence-based health care. Recent years have seen an increase in the importance of evidence-based dentistry, aiming to reduce to the maximum the gap between clinical research and real world dental practice. Aim of evidence-based practice is the systematic literature review, which synthesizes the best evidences and provides the basis for clinical practice guidelines.

## Definition

Evidence-based practice has been defined as the practice of dentistry that integrates the best available evidences with clinical experience and what a patient prefer in making clinical decisions. To do it successfully, certain skills need to be obviously acquired, being the intention of evidence-based dentistry the providing better information for the clinician, improved treatment for the patient, and consequently an increased standing of the profession.

## Implications

Good and sound dental practice relies not upon bits and pieces of conveniently selected evidence (dentistry based on evidence), but rather upon the collection of the best available research evidence (evidence-based dentistry). The key phrase, "best available research evidence", implies a most important and fundamental nature of this approach to dentistry: It seeks to identify what is the "best"

research evidence presently at the disposal of the dentist for any given patient, and it recognizes that dental research evidence is continuously evolving. Evidence-based methodology reflects the vitality that is inherent in the research process itself questioning, testing, discovering, and questioning anew and in so doing seeks to generate novel and improved treatments. It is important to note that the term "research evidence" implies data generated by a variety of research modalities (i.e., observational research, experimental research, clinical research, basic research, translational research).

The use of evidence-based dentistry may help in the reducing the variations of patient care and outcomes that appears to be associated with four factors: 1. the quality of science underlying clinical care, 2. the quality in making clinical decisions, 3. the variations of the level of clinical skill, 4. the large and increasing volume of literature.

Evidence-based dentistry has two main goals: best evidence/research, and the transfer of this in practical use. This involves four basic phases: Asking evidence-based questions (framing an answerable question from a clinical problem); Searching for the best evidence; Reviewing and critically appraising the evidence; Applying this information in a way to help the clinical practice.

The use of an evidence-based approach can surely help clinicians who want to stay abreast of changes in their areas of health care by assisting them with the selection of relevant articles, and will aid them to efficiently extract and apply the information's. Computerised medical databases, such as Medline, Pub Med and The Cochrane Collaboration, have made easier both the distribution and the access to information. Today, other strategies available to help the dentist keep abreast with the current information are: Professional journals, many also available on-line; Web-based continuing education programs; Books, audio and video tapes (which often not suggest the most recent information and may suffer from the personal point of view of the author(s); Professional and university continuing education meetings which should give the possibility to interact with the author of a new evidence; Study clubs composed by colleagues.

It is generally accepted that systematic reviews and randomised controlled trials represent the best levels of evidence, whereas case reports and expert opinions are the lowest; with regard to diagnosis, prognosis or causation, cohort studies or case control studies are surely more appropriate, remaining clearly defined in any of these study inclusion and exclusion criteria adopted.

Scientific evidence, when collected and analyzed systematically, can provide useful and current information to dental practitioners. However, scientific evidence by itself is insufficient for dentists to provide appropriate

dental care. By necessity, dentists also should consider patients' circumstances and preferences regarding outcomes when recommending treatments.

The ADA definition of EBD, included within the Association's EBD policy statement, is explicitly addresses the need to incorporate patients' characteristics in treatment planning, including their "treatment needs and preferences," social factors and the dentist's judgment of the patient's compliance level with recommended treatments. Expanding the scientific basis for clinical care also will increase patients' access to better information, and could significantly affect the choices they make regarding their oral health care.

In an evidence-based model of clinical practice, a patient's consent for treatment requires full disclosure of scientifically validated information. In instances in which the evidence is lacking or weak, patients should be so informed. While EBD may seem to intrude on dentists' autonomy, the benefit of this practice model is that it protects dentists from legal liability by fully disclosing all information that has been critically reviewed by dentists and methodologists.

In the current information era, knowledge is both a tool and a commodity that can be used to improve the decisions made by dentists every day. Information summarized within systematic reviews should assist dentists in making appropriate treatment decisions with patients. EBD helps dentists by providing simple and validated scientific summaries. Personal experience, because of its potential for bias, should no longer be the sole source of lifelong learning in dentistry. Furthermore, the lack of consistency in treatment decisions among dental and medical practices is problematic. Shifting from a reliance on the experiential model of decision making to an evidence-based model would benefit all health care professions, as well as the general public.

A primary advantage of the evidence-based practice model is that it provides the least-biased, best-validated information on which to base decisions. However, the available scientific evidence for many aspects of clinical dentistry is either weak or nonexistent. This presents the dental profession with a major hurdle as it begins to implement an evidence-based model of clinical practice.

As the leading proponent of science-based oral health care, the American Dental Association is pursuing initiatives to promote clinical and translational research in dentistry. Through its activities, the ADA strives to provide appropriate information for dentists to use in daily practice, and to promote EBD as an approach to oral health care that aims to ensure that the ultimate applicability of a specific treatment modality is based on the best available scientific evidence and critical review of the literature.

### Conclusion

In the evidence-based approach to clinical decision making, dentists incorporate the best scientific evidence that is critically appraised in systematic reviews with clinical experience and their patients'

preferences for treatment outcomes. The dental profession should define clinically relevant questions, commission systematic reviews to answer those questions and, when evidence is not available, advocate for good-quality clinical research to be conducted to provide the answers.

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