

Principles of Evidence-Based Dental Practice (EBDP)

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Introduction

To some the phrase “evidence-based dentistry” appears odd insofar as the juxtapositioning of the words “evidence-based” and “dentistry” implies that not all dental care is based upon evidence. Those bothered by the phrase include dental practitioners who believe that the training they’ve received in dental school was based upon current evidence and that that evidence will remain sufficiently current throughout their professional careers. Those bothered by the phrase also include dental patients who believe that their dental care provider, by virtue of his credentials in the field of health care — well-recognized to be scholarly challenging — delivers the best possible care known to the field today.



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Abstract

In an effort to improve patient care, there has been a growing trend across the nation and the world to embed the principles of evidence-based dentistry into mainstream care delivery by private practicing dentists. Evidence-based dentistry is an essential tool that is used to improve the quality of care and to reduce the gap between what we know, what is possible, and what we do. An evidence-based health care practice is one that includes the decision maker’s ability to find, assess, and incorporate high-quality, valid information in diagnosis and treatment. The evidence is considered in conjunction with the clinician’s experience and judgment, and the patient’s preferences, values, and circumstances. This article introduces the basic skills of evidence-based dentistry. Their practice requires a discipline of lifelong learning in which recent and relevant scientific evidence are translated into practical clinical applications.

KEY WORDS: Evidence-based dentistry, evidence-based practice, hierarchy of evidence, steps in evidence-based dentistry.

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Three PubMed Skills to Support Evidence-Based Dentistry

S. Thomas Deahl II, D.M.D., Ph.D.

Introduction

PubMed at <http://www.ncbi.nlm.nih.gov/pubmed> can powerfully assist the clinician seeking the best evidence. Peer-reviewed journals contain the highest-quality evidence for decision-making in clinical practice, and PubMed indexes most of these journals and their contents. PubMed, a database of the U.S. National Library of Medicine, contains millions of citations of journal articles and other publications, many with abstracts, and is updated four times per week. PubMed is the electronic equivalent of the (now-discontinued) print publication Index Medicus, which clinicians may remember using during their university education.

Over 800 dental journals, including the *Texas Dental Journal*, are indexed in PubMed, along with many medical and pharmacy journals which may contain articles relevant to dentistry. Over 5,000 journals are currently indexed in this database. PubMed's principal component is Medline, which covers references in the biomedical literature back to 1947.

Although the dentist has many search options today, including databases such as Google and Bing, PubMed covers principally peer-reviewed clinical and scientific publications. Other search engines may return many other findings from less reliable sources as well, increasing the volume of material the clinician must scan. PubMed, therefore, offers the potential benefit of reducing the amount of extraneous information the clinician must scan.



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Abstract

The National Library of Medicine's PubMed database can powerfully assist dentists in evidence-based practice. Three useful PubMed skills can improve the efficiency of the clinician's search: (1) Use of MeSH terms; (2) Use of Limits; (3) Use of Clinical Queries.

KEY WORDS:
PubMed Medical Subject, Headings, Evidence-Based Dentistry

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How Effective is That Treatment? The Number Needed to Treat

S. Thomas Deahl II, D.M.D., Ph.D.

Introduction

As you consider adopting a new treatment (or a new preventive agent) in clinical practice, you should ask a series of questions. Among the most important questions you can ask are as follows:

- Is the evidence for this new treatment true (in other words, is the evidence valid)?
- Is this new treatment feasible for my practice as well as beneficial and affordable for my patients?
- Is this new treatment sufficiently effective that it is worth my efforts to adopt (in other words, how effective is this treatment)?

Applying these critical questions is especially important today as marketing of dental equipment, instruments, and materials increasingly complete, for the dentist's attention, with the results of long-term clinical studies.

At least these three questions should be answered before adopting a new treatment or preventive agent. This article aims to help you address the third question. Specifically we would like to know: How can we best describe the relative effectiveness of a new treatment (compared to some other treatment we are already using)? This article



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Abstract

The Number Needed to Treat (NNT) is a tool useful for comparing the relative effectiveness of two or more therapeutic or preventive interventions. The NNT may be presented by authors of a clinical research article, or, if not provided, may be calculated by the reader if the authors have reported outcomes as positive or negative per research subject. The NNT is simply calculated as the inverse of the absolute risk reduction. The NNT is most meaningful when reported within a confidence interval and when describing clinical trials of higher validity such as randomized controlled trials and meta-analyses of such trials. Several example NNTs from the dental and medical literature are reported.

KEY WORDS: Evidence-based dentistry, number needed to treat, effectiveness, clinical trials

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The American Dental Association's Center For Evidence-Based Dentistry: A Critical Resource For 21st Century Dental Practice

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Introduction

As health care professionals trained in a scientifically-structured educational model, dentists have a special responsibility to their patients to provide care that is evidence-based, and to be able to effectively communicate the evidence for dental treatments to their patients, so that patients can make informed decisions about their care. This principle is effectively enunciated by the American Dental Association's (ADA) definition of the term "evidence-based dentistry" (EBD) as follows: *Evidence-based dentistry (EBD) is 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.*



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Abstract

Through its website (<http://www.ada.org/prof/resources/ebd/index.asp>), the American Dental Association's Center for Evidence-Based Dentistry offers dental health professionals access to systematic reviews of oral health-related research findings, as well as Clinical Recommendations, which summarize large bodies of scientific evidence in the form of practice recommendations, e.g., the use of professionally-applied topical fluoride and pit-and-fissure sealants. Another feature of the site of great practical importance to the practicing dentist is the Critical Summary, which is a concise review of an individual systematic review's methodology and findings, as well as the importance and context of the outcomes, and the strengths and weaknesses of the systematic review and its implications for dental practice.

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The Challenges of Transferring Evidence-Based Dentistry Into Practice

Richard T. Kao, D.D.S., Ph.D.

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Introduction

The dental profession is committed to providing the best possible dental care for patients. This is proving to be more complex due to a virtual “information explosion” on new therapies, techniques, and materials; increased consumer understanding of treatment possibilities and therapeutic outcomes; and changing socio-demographic patterns. Though the profession advocates the importance of evidence-based dental disease prevention and treatment, practitioners have been slow to implement this concept.

In 2003, the California Dental Association (CDA) formulated an evidence-based dentistry action plan that included the formation of a task force to monitor evidence-based dentistry efforts and implement programs to educate CDA members on this methodology. The challenges of transferring evidence-based dentistry into clinical practice were key issues addressed by the task force, and much of their deliberations and perspectives are reflected in this paper. Possible solutions for eliminating barriers against evidence-based care will also be explored.



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Abstract

The goal of evidence-based dentistry is to help practitioners provide their patients with optimal care. This is achieved by integrating sound research evidence with personal clinical expertise and patient values to determine the best course of treatment. Though clinicians embrace this concept, its implementation in clinical practice has been slow. In this paper, barriers against the implementation of evidence-based care are examined and possible solutions are offered.

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Teaching Evidence-Based Practice at the University of Texas Health Science Center at San Antonio Dental School

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Introduction

One of the most serious challenges facing all health professionals is dealing with the explosion of new biomedical information and products. The exponential increase in new knowledge and the useful half-life of knowledge (7-10 years) are making it extremely difficult for clinicians to keep up-to-date. The number of articles published annually in peer-reviewed dental journals has grown from 6,212 in the year 1970 to 13,600 in 2009. Adding to the problem is the in-

Abstract

The overarching goal of the Evidence-Based Practice Program at San Antonio is to provide our graduates with life-long learning skills that will enable them to keep up-to-date and equip them with the best possible patient care skills during their 30-40 years of practice. Students are taught to (1) ask focused clinical questions, (2) search the biomedical research literature (PubMed) for the most recent and highest level of evidence, (3) critically evaluate the evidence, and (4) make clinical judgments about the applicability of the evidence for their patients. Students must demonstrate competency with these “just-in-time” learning skills through writing concise one-page Critically Appraised Topics (CATs) on focused clinical questions. The school has established an online searchable library of these Critically Appraised Topics. This library provides students and faculty with rapid, up-to-date evidence-based answers to clinical questions. The long-range plan is to make this online library available to practitioners and the public.

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Teaching Evidence-Based Practice at The University of Texas Dental Branch at Houston

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Introduction

In 2002, the American Dental Association (ADA) developed the following definition for the term “evidence-based dentistry,” or EBD: “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 (1).” More recently, in August of 2010, the ADA’s Commission on Dental Accreditation adopted new Accreditation Standards for Dental Education Programs (2). This change evolved over the past 3 years, with input from all constituents. Among the new standards is an emphasis on evidence-based practice. More specifically, there is a statement that “graduates must be competent in the use of critical thinking and



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Abstract

This brief report outlines the current curriculum for evidence-based practice at The University of Texas Dental Branch at Houston (UTDB). This curriculum is now based on the American Dental Association’s Commission on Dental Accreditation 2010 Accreditation Standards for Dental Education Programs. Evidence-based practice is introduced to students in the first-year curriculum. Students learn to be clinically effective through use of the components of evidence-based practice, information search and retrieval, critical thinking (appraisal), and through information resource evaluation and then application to the patient or population. Planned innovations in curriculum include further implementation of evidence-based decision-making in clinical courses, including development of the clinical prescription as a means of demonstrating competence in asking and answering clinical questions, and of the portfolio as a means of demonstrating overall competence.

KEY WORDS: evidence-based practice (EBP); education, dental

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The Evidence-Based Dentistry Initiative at Baylor College of Dentistry

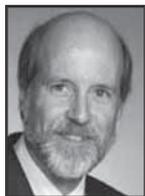
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Introduction

The NIH-NIDCR R25 Oral Health Research Education Grant initiative at the Texas A&M Health Science Center-Baylor College of Dentistry (BCD), designated "CUSPID", is based on the theme that "Clinicians Using Science Produce Inspired Dentists". CUSPID complements the recent advances



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Abstract

This report describes the impact of an R25 Oral Health Research Education Grant awarded to the Texas A&M Health Science Center-Baylor College of Dentistry (BCD) to promote the application of basic and clinical research findings to clinical training and encourage students to pursue careers in oral health research. At Baylor, the R25 grant supports a multi-pronged initiative that employs clinical research as a vehicle for acquainting both students and faculty with the tools of evidence-based dentistry (EBD). New coursework and experiences in all 4 years of the curriculum plus a variety of faculty development offerings are being used to achieve this goal. Progress on these fronts is reflected in a nascent "EBD culture" characterized by increasing participation and buy-in by students and faculty. The production of a new generation of dental graduates equipped with the EBD skill set as well as a growing nucleus of faculty who can model the importance of evidence-based practice is of paramount importance for the future of dentistry.

KEY WORDS: evidence-based dentistry, curriculum, clinical research, faculty development

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