

EVIDENCE BASED DENTISTRY - A REVIEW

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ABSTRACT

Objective: To provide awareness to the dental practitioners regarding Evidence Based Dentistry (EBD) which is a new paradigm shift in the field of medical science.

Study Design and Methodology: This paper is a review of literature written after thoroughly searching Pub Med for relevant articles as well as evidence based medicine and dentistry books.

Conclusion: EBD is practiced to validate our dental decision making in the best interest of patients.

Keywords: Evidence based, Dentistry, Guidelines, Validity, Clinical trials, Best evidence.

INTRODUCTION

The term 'evidence based dentistry (EBD), which evolved from evidence based medicine, is a new paradigm but the main principles of the subject already existed for many decades, as Claude Bernard established the use of scientific method in medicine¹. EBD is defined as an approach to integrate the best available evidence to guide our decision related to providing the best possible treatment to the patient. The methods of practice, initially established at McMaster University in Ontario, Canada by Gordan Guyatt, have been developing in medicine since 1992^{2,3}. Gordan Guyatt is known for his work on EBM, a term he first used in his paper "Evidence Based Medicine. A new approach to teaching the practice of medicine⁴. Then in 1996 David Sacket laid the foundation for evidence based practice by defining it as "The conscientious, explicit, and judicious use of best evidence in making decisions about care of individual patients^{3,6,7}". The American Dental Association had also defined evidence-based dentistry 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, together with the dentist's clinical expertise and the patient's treatment needs and preferences⁵" (fig-1). EBD is a patient centered

approach to practice and make clinical decisions, leading to the best treatment. EBD is about providing individualized dental care based on the most current scientific knowledge. Equipments, processes and outcomes are influenced by EBD.

DISCUSSION

Vast volume of literature and lectures has created some problems for dental practitioners such as the knowledge transfer gap, which has become a great concern because of inadequate access to electronic information at the point of care, inadequate training and lack of time as well^{1,8}. EBD has made it possible to resolve the often contradictory information and differentiates between useful and useless literature. When health care providers realize that knowledge deteriorates with time because of ongoing new researches, here EBD has allowed dentists to keep abreast of new developments in diagnosis, prevention and treatment of oral disease, and newly discovered causes of disease and to make decisions that should improve their clinical practice¹⁰. As society has become more arguable, if a dentist is sued some information is required to provide an adequate defense⁹. In such a case treatment should be up to the current standards of practice and evidence based practice provides documentation of these standards. Similarly, contemporary patients have become more demanding and they expect the best possible recommended treatment, hence there is a sound need of evidence based practice². In clinical decision making, evidence rather than just

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personal experience should influence treatment because traditional practice sacrifices patient's care and health as it only focuses on personal experiences and motives. There are many personal and institutional errors in traditional practice while in EBD there is best quality statistical based evidence with less errors. EBD does not mask the same old, inadequate research works but it also does not mean that the clinician need not to study basic dental sciences.

The concept of evidence based dentistry is based on best evidence research, and the transfer of this to use in practice. It involves four basic phases which are formulating a question, searching literature, appraising the articles, applying the results and the fifth phase as suggested by Carr and McGivney is assessing

asking whether or not she should give her 6 year old daughter fluoride supplements¹⁰. The arising well built clinical questions will be several. Firstly, what is the role of fluoride in the prevention of dental caries? Secondly, what are the techniques of applying fluoride to the teeth? Thirdly, what alternative would be effective and appropriate? Then, what are the side effects of using fluoride supplements? And lastly on which teeth fluoride should be applied for effectiveness?

The criteria of formulating a question is based on PICO which implies patient problem, intervention, comparison and outcome.

Acquire the literature

Clinicians who want to stay up to date about the significant changes in their areas of health

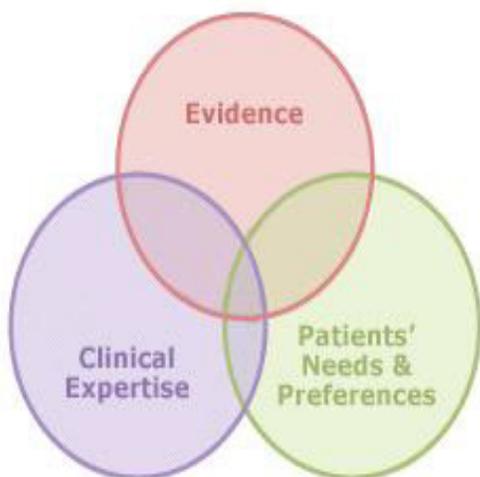


Figure-1: Pattern of elements of evidence base dentistry.

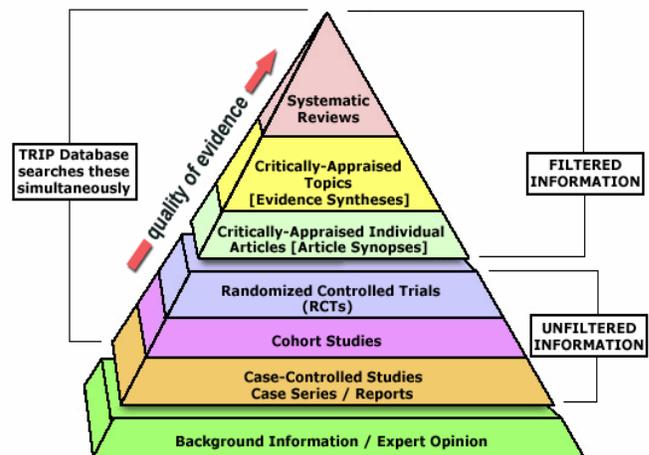


Figure-2: Ladder of evidence with its strength.

our performance⁹⁻¹². These phases are discussed briefly for further understanding.

Ask clinical questions

In practice every day dentists face a need to know some new information about the prognosis, treatment or management of a condition. Turning these clinical problems into an answerable, focused and relevant questions is a key skill of evidence-based practice⁶. Example: fluoride supplementation, a mother comes to the dentist

care need help in dealing with the massive volume of literature. Dentists are required to become efficient consumers of the literature. Computerized medical databases, such as Medline, have made it easier to disseminate and access information². Evidence can be found through different gateways like Medline, Embase, Pub Med, Medscape, HealthGate, IntelliHealth, MedPortal and The Cochrane Collaboration¹. Other strategies like books, audio and video tapes, and CDs, professional and

university continuing education meetings and study clubs also aid the dentist to be up to date with the current literature. But the Cochrane Collaboration is the most authentic resource as it contains meta analysis of systematic reviews. This site is named after Archie Cochrane, a pioneer in the field of evaluation of medical interventions¹.

Appraise the literature

Analyzing the validity, importance and usefulness of the evidence is called critical appraisal¹². Critical appraisal is a way of rapidly assessing published papers in order to sort out the relevant or valid papers from poor quality or irrelevant ones. This is the most time-consuming step and is often seen as the most difficult aspect.

The hierarchy^{2,13,14}: Understanding strength of evidence and the idea of hierarchy of evidence is the basis of evidence-based dentistry. Evidence-based practice involves tracking down the available evidence, assessing its validity and then using the “best” evidence to take decisions regarding treatment. All evidence is not equal. In the “ladder of evidence” systematic reviews, meta analysis and randomized controlled trials represent the highest levels of evidence, whereas case reports/series and expert opinion are the lowest¹¹ (fig-2). The systematic reviews of randomized controlled trials are considered as gold standard in evidence based practice¹³. In this way studies, synthesis, synopsis and system facilitate evidence based practice.

Apply the results

After gathering the information obtained from assessing the evidence, one should be able to take decision to act. However, the decision to act should be based on the evidence, the willingness of the patient to receive the treatment, and the practitioner’s ability to provide the treatment. Therefore, it is a careful decision and not a textbook approach which needs to be followed blindly as criticized by some opponents of EBD.

Assess our performance

The final step of the evidence-based approach is self-evaluation. It is the evaluation of oneself in following the steps of EBD.

Clinicians can incorporate evidence into practice into three modes¹⁵. First is the doing mode in which all steps are done including appraising evidence ourselves. It is used for diseases we come across every day. Next is the using mode in which search is based on the evidence resources that have already undergone critical appraisal by others e.g. evidence summaries. It is for conditions we encounter less often. Last is the replicating mode which involves the decisions and opinions of experts and most authentic opinion leader. It is for rare diseases.

CONCLUSION

In this modern age in which we are required to be up to the minute and very sure of our responsibilities as a dentist, EBD has become a vital part of dentistry. The main objective of EBD is to make ourselves lifelong self directed learners. This requires the dentist to think globally and act locally. It has generated an era of new studies, research and practices. It’s a challenge to bridge the evidence transfer gap^{16,17}. This purpose is fulfilled by establishing the fundamentals of EBD during undergraduate curriculum, organizing conferences and workshops and formulating evidence teams and journal clubs¹⁸. It is necessary to learn to use research, interpret statistics and understand that EBD is a real time patient care.

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