

Periodontal Review Q&A

Second Edition





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Periodontal Review Q&A

Second Edition

Deborah A. Termeie, DDS

Clinical Instructor

Department of Periodontics

School of Dentistry

University of California, Los Angeles

Los Angeles, California



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About the Author

Deborah A. Termeie, DDS, is a clinical instructor in the Department of Periodontics at the University of California, Los Angeles. She is a diplomate of the American Board of Periodontology (ABP), and it was her experience preparing for the ABP qualifying exams that inspired her to write this book. Dr Termeie is also an editor and author of *Avoiding and Treating Dental Complications: Best Practices in Dentistry* (John Wiley & Sons, 2016) and has published on the topics of evidence-based dentistry and implantology. She is the recipient of several awards, including the Excellence in Implantology Research award from the California Society of Periodontics, and has been invited to participate in the American Academy of Periodontics Leadership, Engagement, Action, and Development (LEAD) Program. She maintains a private practice in Beverly Hills, California.

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Preface



The first edition of *Periodontal Review Q&A* was very well received, and I am grateful for the opportunity to author this second edition. The new edition contains many new figures, tables, and treatment planning cases as well as a comprehensive review of new classifications. I wrote this book because despite a plethora of study materials and information, there is no comprehensive single source study guide to help students prepare for their examinations. *Periodontal Review Q&A* was specifically written to address this void.

The material in this book is presented in a question and answer format for ease of study. The classic literature is cited as well as more recent and practical literature on topics such as diagnosis, nonsurgical therapy, surgical therapy, regeneration, and implants. Literature evidence for opposing viewpoints is also presented throughout the book. Additionally, each chapter contains clear and relevant tables, illustrations, and pictures. This comprehensive and yet concise approach to periodontics is aimed at preparing the candidate for periodontal examinations and clinical practice.

Periodontal Review Q&A is a useful resource for residents, practicing periodontists preparing for board certification, dental students, and dental hygiene students seeking a broader appreciation and in-depth understanding of periodontics. Topics chosen are those emphasized in periodontal residency graduation examinations as well as the oral examination of the American Board of Periodontology. Readers are urged to study all literature preceding their examination, including literature that may be made available subsequent to this textbook's publication.

Acknowledgments

I would like to acknowledge my mentors, Drs Philip R. Melnick, Thomas N. Sims, Paulo M. Camargo, Thomas Han, Henry H. Takei, and Perry R. Klokkevold, for their advice and guidance. Thank you to all the reviewers, Drs Dennis P. Tarnow, Russell Christensen, Jack G. Caton, Michael P. Rethman, Mary E. Neill, and Sejal R. Thacker.

I would like to thank my loving husband, David; my children, Gabriella and Elliot; and my parents. Without their love and support this book would not have been possible.

I appreciate Quintessence and the editorial staff, especially Zachary Kocanda and Bryn Grisham, whose knowledge and dedicated care to every word and idea made this book what it is.

Evidence-Based Dentistry



Background

Q: What is the evidence-based approach?

Evidence-based dentistry is the merging of clinically pertinent scientific evidence to the patient's oral and medical condition and history as well as the dentist's experience (Fig 1-1). The dentist uses the evidence to make sound decisions about diagnosis, prognosis, and treatment. Evidence-based decision making consists of formulating patient-centered questions (Population-Intervention-Comparison-Outcome [PICO]); examining and critically evaluating the evidence; and relating the evidence to practice.¹

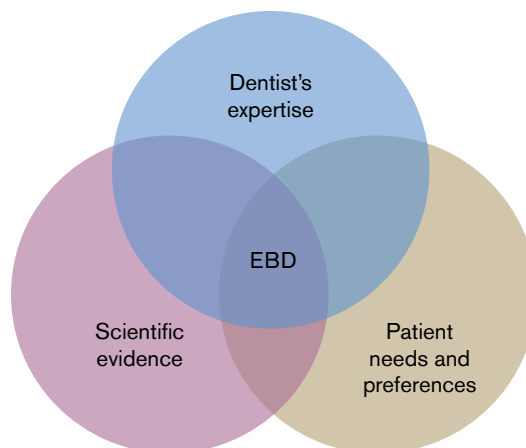


Fig 1-1 Three parts of the decision-making process. (Redrawn from the American Dental Association¹ with permission.)

Q: What is the PICO question?

The *PICO question* is a question that includes a population to be examined, the nature of the *intervention* to be inspected, a comparison statement, and the type of *outcome* to be evaluated. It should be problem-focused and concise.

Example: In patients with horizontal alveolar ridge deficiencies (population), what is the effect of horizontal bone augmentation procedures (intervention) compared with controls (comparison) on peri-implant health (outcome)?

Q: What is the step-by-step process for making an evidence-based decision in a dental practice?

The steps involved in evidence-based decision making in a dental practice are shown in Fig 1-2.



Fig 1-2 Evidence-based decision making. (Based on data in Chiappelli et al.²)

Studies

Q: What are the different study types (ranked from highest level of evidence to lowest)?

The different types of studies are shown, ranked in order of highest to lowest level of evidence, in Fig 1-3.

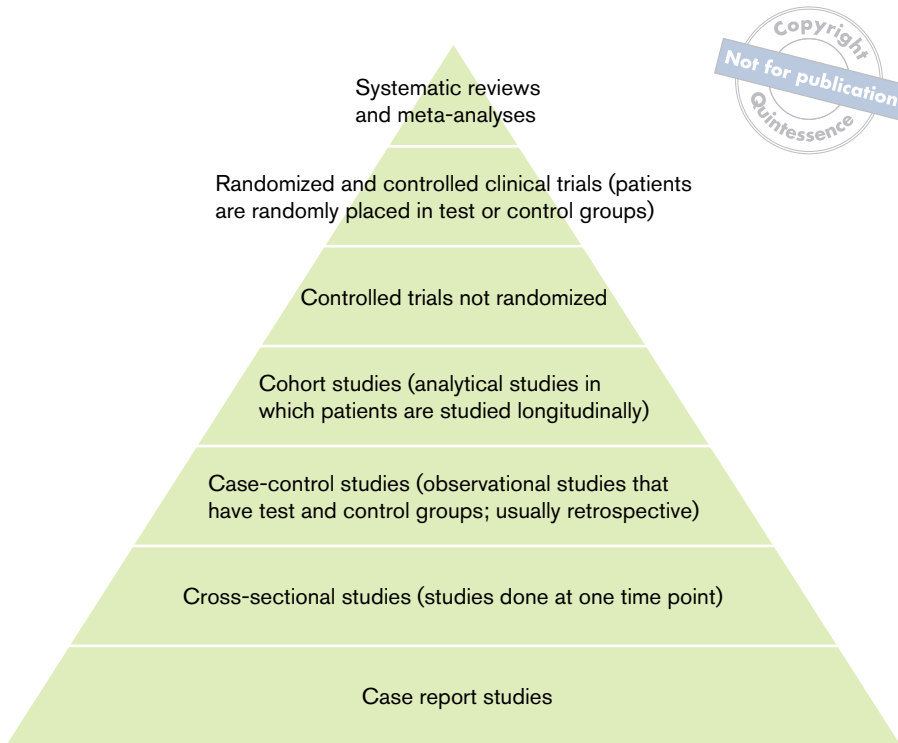


Fig 1-3 Different studies ranked from highest level of evidence to lowest. (Based on Nocini et al.³)

Q: Describe the difference between a cross-sectional study and a longitudinal study.

A cross-sectional study is done at one time point, whereas a longitudinal study ranges over a period, allowing temporal relationships to be investigated.

Q: What is the *P* value?

The *P* value is the probability of obtaining a test statistic at least as extreme as the one observed, assuming that the null hypothesis is true. The smaller the *P* value, the less likely the effect was due to chance. A *P* value less than or equal to .05 usually indicates statistical significance.

Q: What is the difference between sensitivity and specificity?

Sensitivity is the ability of a test to correctly identify diseased individuals.

Specificity is the ability of a test to correctly identify a healthy individual.

For instance, the diagnostic sensitivity of a clinical parameter (suppuration, gingival plaque) in predicting disease was expressed as the proportion of sites showing attachment loss that also exhibited the given parameter. Diagnostic specificity was expressed as the proportion of sites not exhibiting the clinical parameter and not showing attachment loss.⁴

Q: What is the difference between internal and external validity?

The difference between internal and external validity is shown in Fig 1-4.

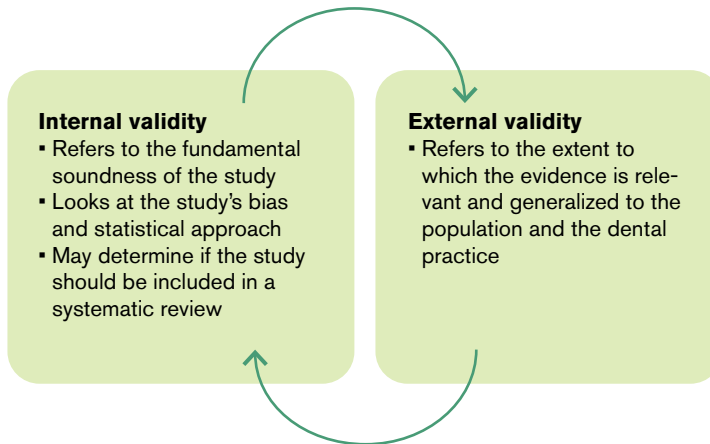


Fig 1-4 Internal and external validity.

Q: Why practice evidence-based dentistry?⁵

1. There are thousands of articles published monthly in dental magazines. It would take hundreds of hours to read the dental literature. Using evidence-based review databases eases the necessary time spent evaluating dental literature.
2. Practicing evidence-based dentistry keeps dentists current on recent evidence and practice standards.
3. A thorough and analytical literature review should be carried out before proceeding in clinical research.

References

1. American Dental Association. About EBD. <https://ebd.ada.org/en/about>. Accessed 10 October 2019.
2. Chiappelli F, Brant XMC, Oluwadara OO, Neagos N, Ramchandani MH. Introduction: Research synthesis in evidence-based clinical decision-making. In: Chiappelli F, Brant XMC, Neagos N, Oluwadara OO, Ramchandani MH (eds). *Evidence-Based Practice: Toward Optimizing Clinical Outcomes*. London: Springer, 2010:5.
3. Nocini PF, Verlato G, De Santis D, et al. Strengths and limitations of the evidence-based movement aimed to improve clinical outcomes in dentistry and oral surgery. In: Chiappelli F, Brant XMC, Neagos N, Oluwadara OO, Ramchandani MH (eds). *Evidence-Based Practice: Toward Optimizing Clinical Outcomes*. London: Springer, 2010:151.
4. Haffajee AD, Socransky SS, Goodson JM. Clinical parameters as predictors of destructive periodontal disease activity. *J Clin Periodontol* 1983;10:257–265.
5. Boston University Alumni Medical Library website. Why practice EBM? www.bumc.bu.edu/medlib/resources/tutorials/introduction-to-evidence-based-medicine/ebm-intro-p10/. Accessed 12 Nov 2019.



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