

Editorial: Evidence-based Dentistry Article Series

In the first 6 issues of the year 2000, *The Journal of Prosthetic Dentistry* will present a series of articles offering the dental practitioner different paradigms for clinical decision making. This **will not** be an attempt to teach research methods or to do research. These articles are designed to help the reader determine whether information presented in the dental literature is valid and/or technically correct and whether it is applicable and usable for a specific treatment in question.

As described in the book, *Clinical Epidemiology: A Basic Science for Clinical Medicine*,¹ the principles of evidence-based patient care were developed and designed to help clinicians become better “users” of published research with the hope that this would reduce the uncertainty associated with clinical decision making. From this origin in 1967 at the McMaster University in Hamilton, Ontario, Canada, the evidence-based approach to patient care has spread worldwide and is now applied to all health disciplines.

In 1990 during the Proceedings: Prosthodontics 21 Symposium in Rochester, Minn., consensus was reached that fundamental improvements were needed in the quality of the prosthodontic and general dental literature. It was thought that needed changes could best be produced through the directors and teachers of Advanced Education Programs in Prosthodontics, and the editors and reviewers of the journals devoted to prosthodontics and restorative dentistry. This consensus led to the selection of 10 individuals to be trained in the evidence-based process,* critical appraisal, and methodology of clinical research at McMaster University. The individuals selected to participate in this program were as follows: Drs James D. Anderson, Alan B. Carr, David A. Felton, Gary R. Goldstein, Rhonda F. Jacob, Patrick M. Lloyd, Brien R. Lang, Glen P. McGivney, Jack D. Preston, and George A. Zarb.

The predominant clinical decision-making process in many dental practices seems to have evolved from tradition-based dental education, which in turn came from “principles, concepts and practices” (PCP) based on the training and experience of educators and “clinical experts.” Many of these PCPs have been promoted as the “standard of practice.” However, variations in the opinions of these “clinical experts,” their clinical practices, and their evaluation of outcomes has not pro-

vided adequate scientific information for consistent and reliable clinical decision making.

Technological innovation over the last 20 years has forced dentists to acquire new knowledge and to learn new techniques and practices just to keep up with the changes in the profession. Keeping up-to-date and determining the validity and usefulness of new products, practices, and techniques has been and will be increasingly more difficult, if not impossible. The usual approach to staying current is by taking continuing education (CE) courses and/or reading the dental literature. Both approaches require the process of evaluation to determine whether the information is valid, technically correct, and usable. These sources of information, CE courses, and published literature are sometimes misleading, because of errors in the experimental design or are biased by manufacturer controls or advertising influence. Considering the volume, scientific content, variables, bias, and time required for in-depth review of the published literature, the logical solution would be for the scientific community at large to assume the burden of establishing and generalizing evidence-based information for the practicing community. Because this is not practical at this time, the purpose of this series of articles has been designed to provide the reader with a systematic method for evaluating pertinent dental literature to determine whether the contents are valid, technically correct, and usable. The content of the series will be presented as separate articles designed to help clinicians learn how to determine what research is worth reading. The first 2 articles will provide information regarding study design and measurement issues that are helpful for determining the strength of evidence and the quality of the outcomes. These will be followed by core evidence-based articles designed to help readers determine how valid and useful articles on Diagnosis, Prognosis (probable course and outcome), Harm (whether treatment will do more harm than good), and Therapy (whether one treatment is better than another course of action) will be to their specific problem. Also presented will be the increasingly important area of Overview, which is a structured review format that uses explicit rules for conducting methodologically and rigorous reviews of the literature.

Glen P. McGivney, DDS
Editor

*The evidence-based process includes a 5-part sequence that includes the translation of clinical problems into answerable questions, conducting an efficient search for the best evidence, critical appraisal of the evidence for its *validity* and *clinical applicability*, application of the results of the critical appraisal in clinical practice, and evaluation of one's performance.

REFERENCE

1. Sackett DL, Haynes RB, Guyatt GH, Tugwell P, editors. *Clinical epidemiology: a basic science for clinical medicine*. 2nd ed. Boston: Little, Brown and Company; 1991. p. ix-xv.

SCHEDULE:

January issue: I. Users guide to dental literature (Carr AB, McGivney GP)

- Why is this necessary
- Introduction and terminology
- How to get started
- Clinical scenario which brings to light the question
- Evidence-based 5-step process with an explanation of where critical appraisal fits in

February issue: II. Design (Jacob RF, Carr AB)

- Design architecture
- Types and objectives of dental research
- Common designs in dentistry
- Examples

March issue: III. Measurement (Carr AB, McGivney GP)

- Review of terminology
- Scenario
- Clinical measurement (methods/disagreement/error/bias)
- Examiner calibration/reliability
- Clinical Outcomes to measure in Dentistry

April issue: IV. Diagnosis (Eckert SE, Koka S, Goldstein GR, Carr AB)

- Scenario
- Guidelines
- The search
- Results
- Validity
- How does this help me in treating my patients
- **V. Prognosis** (Anderson JD, Zarb GA)
- Scenario
- Guidelines

- The search
- Outcomes (instead of results?)
- Validity
- How does this help me in treating my patient

May Issue: VI. Therapy (Goldstein GR, Preston JD)

- Scenario
- Guidelines
- The search
- Results
- Validity
- How does this help me in treating my patients
- **VII. Harm** (Jacob RF, Lloyd PM)
- Scenario
- Guidelines
- The search
- Results
- Validity
- How does this help me in treating my patients

June Issue: VIII. Overview (Felton DA, Lang BR)

- Scenario
- How to search the literature
- Assessment of the publications
- Results
- Validity
- How does this help me treat patients?

Internal reviewers for this evidence-based dentistry series were Drs Alan B. Carr, The Ohio State University, Columbus, Ohio, and Rhonda F. Jacob, MD Anderson Cancer Center, Houston, Texas.

The external reviewer was Raymond Gilbert, Professor Emeritus, McMaster University, Hamilton, Ontario, Canada.