

Evidence-based Dentistry: Beware!

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Evidence-based Medicine?

- Parachutes save lives
BMJ 2003;327:1459-1461 (20 December)
- **Conclusions:**
 - We think that everyone might benefit if the most radical protagonists of evidence-based medicine organized and participated in a double blind, randomized, placebo controlled, crossover trial of the parachute.



Evidence-based Standard of Care???

States are using EBM to cut costs;
redesign programs ...

THE EVIDENCE

- BILL NUMBER: SB 899
- California Governor signed the bill April 19, 2004
- Guidelines became standards
- What is the quality of evidence?

California

- "Today, I am delivering my promise," an exuberant Schwarzenegger told the crowd of workers, business leaders and government officials.
- "This workers' compensation reform will reduce the high costs that have driven jobs out of California."
- "No longer will workers' compensation be the poison of our economy."
- "California is open for business."

California

- "We are cleaning up the system," Schwarzenegger continued. "We will terminate the fraud and abuse that was going on in the system."
- Those who were gaming the system, we're saying, 'Hasta la vista,' because the game is over."

California Law

- Existing law provides that ... the American College of Occupational and Environmental Medicine's Occupational Medicine Practice Guidelines shall be presumptively correct on the issue of extent and scope of medical treatment.



- About ACOEM ■
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Announcing....

The American College of Occupational and Environmental Medicine's

OCCUPATIONAL
Evaluation and Man
and Functional



Develop
book is
practic
informa
aids to
fact, th
review
ACOEM
edition
diagno
diagno
treatment in relieving symptoms and achieving a cure.

No systematic reviews

No references for statements

No description of process how the guidelines were developed

No definition of outcomes

ACOEM Members Receive Substantial Discounts on All Guidelines Products!

ACOEM's Clinical Practice Guidelines

- Are the California guidelines scientifically valid?
- ACOEM
 - A = Strong research-based evidence
 - B = Moderate research-based evidence
 - C = Limited research-based evidence
 - D = Panel interpretation of the information not meeting inclusion criteria for research-based evidence

ACEOM's Clinical Practice Guidelines

- The ACOEM expert panel rated its recommendation for “rest and immobilization after an acute injury” with level “C”.
- For functional bracing as part of a rehabilitation program, the recommendation was rated a “D”.

ACEOM's Clinical Practice Guideline

- The guidelines state that a brace is necessary only if the patient is going to be stressing the knee under load, such as **climbing ladders or carrying boxes** and, for the average patient, using a brace is usually unnecessary. In all cases, braces need to be **properly fitted** and combined with a rehabilitation program.

Benefits of Bracing

- Evidence from quasi-experimental studies
 - Patients wearing braces after ACL surgery experience **less pain and fewer complications** during the early post-operative period than patients who were rehabilitated without the use of a brace, even though the **functional outcomes are not different between the braced and non-braced patient.**

Brandsson S, Faxen E, Kartus J, Eriksson BI, Karlsson J. *Scandinavian Journal of Medicine & Science in Sports* 2001;11:110-4

Moller E, Forssblad M, Hanoson I, Wange P, Weidenhielm. *Knee Surg Sports Traumatol Arthrosc.* 2001; 9(2):102-8.

U.S. Newswire, Feb. 2005

- The American Academy of Esthetic **Dentistry** (AAED) is holding the second annual Esthetic & Restorative Update (ERU) April 8-9, at the Hilton in the Walt Disney World Resort.

The meeting offers **evidence-based** continuing education seminars and features speakers that are highly recognized and experienced professionals, whose participation is voluntary and without honorarium.

Cochrane Collaboration

- Focus on intervention and randomized controlled trials.
- “No conclusions can be made as to the optimum treatment or techniques for pulpally involved primary molars... due to the scarcity of reliable scientific research. High quality RCTs, with appropriate unit of randomization and analysis are needed.”

Cochrane Collaboration

- Not enough evidence
- Weak evidence
- Need for more research

Water Fluoridation Systematic Review

- CRD Systematic Review
 - “Any further research into the safety and efficacy of water fluoridation should be carried out with appropriate methodology.”
 - Design
 - Measurement and quality assurance
 - Analysis

EBD for Public Health Programs

- Define
 - Type of evidence
 - Quality criteria
 - Ethics
 - Outcomes

Definition of Evidence-Based Dentistry



*“...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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ADA Policy on EBD

- Elements of the EBD Process
 - Defining clinically relevant questions
 - Systematic reviews
 - Recommendations
 - Evaluation of outcomes
- Role of the ADA in the EBD Process
- The focus of the ADA EBD is on availability, quality, and dissemination of scientific evidence and not on developing practice guidelines.

ADA Policy

- "Best evidence" is a term that refers to information obtained from randomized controlled clinical trials, non-randomized controlled clinical trials, cohort studies, case-control studies, crossover studies, cross-sectional studies, case studies, or the consensus opinion of experts in appropriate fields of research or clinical practice.

What is “Best” Evidence?

- Depends on the question
 - Therapy (RCT)
 - Randomizable
 - Non-randomizable
 - Diagnosis
 - Cohort study with good reference standard and a population with sufficient numbers of different grades of a disease (sound to cavitated)
 - Prognosis (cohort studies)
 - Program evaluation: pre-post-treatment evaluation data

**ADA EBD POLICY
CONSIDERS ALL
EVIDENCE AND NOT ONE
TYPE OF EVIDENCE
(Hierarchy of Evidence is
Important)**

What is Evidence?

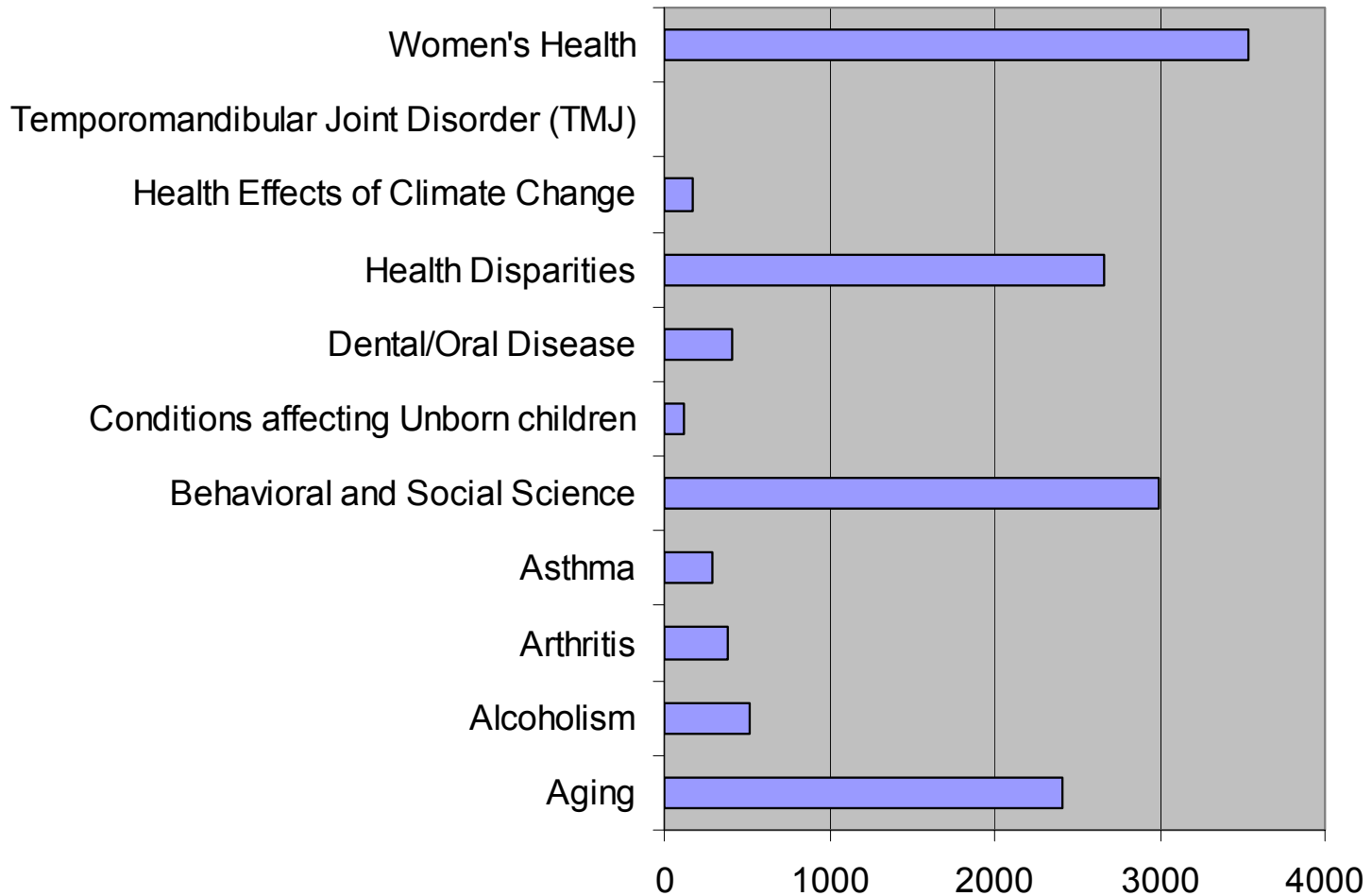
1.	A	Systematic reviews/ meta-analyses
	B	RCTs
	C	Experimental designs
2	A	Cohort control studies
	B	Case-control studies
3	A	Consensus conference
	B	Expert opinion
	C	Observational study
	D	Other types of study eg. Interview based, local audit
	E	Quasi-experimental, qualitative design
4		Personal communication

Bias towards therapy?

Where is the Evidence?

RE-FRAME Research on “Dental/Oral Disease”

FY 2006 Spending by NIH



**Without evidence,
there is no EBD?**

Pre-cautionary Principle

We must act on facts, and on the most accurate interpretation of them, using the best scientific information. That does not mean that we must sit back until we have 100% evidence about everything. Where the state of the health of the people is at stake, the risks can be so high and the costs of corrective action so great, that prevention is better than cure. We must analyse the possible benefits and costs of action and inaction. Where there are significant risks of damage to the public health, we should be prepared to take action to diminish those risks, even when the scientific knowledge is not conclusive, if the balance of likely costs and benefits justifies it.

Horton R. Lancet 1998;352:251-2.

Survey of ADA Members

- The data collection process for the 2004 Survey of Clinical Practice Issues Requiring Scientific Assessment began on March 13, 2004.
- First mailing: 5,090 dentists.
- Second mailing: 3,774 dentists on April 19, 2004.
- Third mailing: 3,068 dentists on May 14, 2004.

Survey of ADA Members

Data collection ended on June 18, 2004 with 2,525 respondents, for an adjusted response rate (excluding dentists who had unclaimed or foreign addresses or were deceased) of 50.1%.

List of questions

- At what frequency is dental prophylaxis effective in preventing periodontitis?
- Are sealants effective for managing or arresting carious lesions in permanent teeth?

List of questions

- Does correcting malocclusion in children and adults reduce the risk of periodontal diseases?
- What is the effectiveness of non-surgical treatments of incipient caries?
- Should impacted third molars be extracted in adults over the age of 25?
- What are the clinical, biological, psychological and economic outcomes of treating a pulpally involved single tooth through: endodontic care, extraction and implant placement, fixed partial denture, or extraction without implant placement?

EBD and DPH

- Define what is EBD from the perspective of DPH.
- Develop protocols for using EBD in DPH.
 - Define DPH relevant questions.
 - Commission systematic reviews.
 - Disseminate information to the DPH community and the public.
- Advocate for DPH focused research.