2012 MSDA National Medicaid and CHIP Oral Health Symposium
June 24th – 26th, 2012
Session 3
Evidence Based Dentistry
Julie Frantsve-Hawley, RDH, PhD
Director, Research Institute and Center for Evidence-Based Dentistry
American Dental Association

Then....
Now....

Information
Information Overload

The Hunger Games

The World Will Be Watching
Evidence-Based Dentistry

- 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**.
controlled study without randomization

quasi-experimental study

(i.e. comparative, correlation, cohort and case-control studies)

expert committee reports or opinions or clinical experience of respected authorities

What is an RCT?

Root Canal Treatment

Randomized Controlled
Will using a parachute save lives?

- People in Airplane
  - Jump with parachute
    - Survival
  - Jump w/o parachute
    - Survival
• **Periodontal disease in pregnancy is a risk factor for preeclampsia.**

• **Maternal periodontal disease and risk of preeclampsia: a case-control study.**

• **CONCLUSIONS:** This study provides no convincing evidence that periodontal disease is associated with preeclampsia risk among Thai women.
Data Analysis

• Qualitative Analysis
  – Discussion of individual designs and outcomes
  – If study designs are so different that data cannot be combined

• Quantitative Analysis
  – Preferred
  – Meta-Analysis (Forest Plot)
  – Publication bias (Funnel Plot)
  – Heterogeneity

Egger at al., 2001
**Meta-analysis** is a quantitative approach to evaluate multiple studies

- Increase sample size
  - Evaluating multiple small studies
- When studies disagree
  - Magnitude
  - Direction
- Enhance scientific credibility
- Using statistical methods to combine the results of different studies

**Thrombolytic Therapy**
### Comparative Study

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Case</th>
<th>Control</th>
<th>OR</th>
<th>CI 95%</th>
<th>CI 97.5%</th>
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<td>Carpentor 1965</td>
<td>26 / 110</td>
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<td>Fonggall 1970</td>
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<td>Tonkin 1986</td>
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<td>Somes 1987</td>
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<td>Boel 1986a</td>
<td>95 / 100</td>
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<td>Michel 1986</td>
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<td>Les 1989</td>
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<td>2.53</td>
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<td>McNeish 1989</td>
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<td>de Jonge 1989</td>
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<td>Fleming 1986</td>
<td>62 / 176</td>
<td>76 / 134</td>
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<td>5.39 (4.07, 7.16)</td>
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<td>Fosher-Coffin 1990</td>
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<td>Dyer 1991</td>
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<td>837 / 2692</td>
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<td>Engelbert 1991</td>
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<td>Mitchell 1991</td>
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<td>Pemberton 1992</td>
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<td>Jurch 1994</td>
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<td>Irving 1995</td>
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<td>135 / 745</td>
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<td>Oyen 1997</td>
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<td>170 / 856</td>
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<td>2.71 (1.41, 5.21)</td>
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<tr>
<td>Haack 2003</td>
<td>149 / 260</td>
<td>81 / 260</td>
<td>2.71 (1.41, 5.21)</td>
<td>2.71 (1.41, 5.21)</td>
<td></td>
</tr>
</tbody>
</table>

Total: 29,910

Estimate of overall effect: \( \hat{R} = 2.71 \) (95% CI: 1.41, 5.21)
• Sealants are an effective primary preventive measure for children, adolescents, and young adults who are at risk for developing caries

• Sealants are currently underutilized particularly among those at high risk for caries, including children in lower income and certain racial and ethnic groups
# Sealants and dental caries

Dentists’ perspectives on evidence-based recommendations

Mariol Tellez, BDS, MPH, PhD; S. Lauren Gray, BSc; Sarah Gray, DDS, MSc; Sungwoo Lim, BS, MSc; Amid I. Ismail, BDS, MPH, MBA, DrPH

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>GENERAL AND PEDIATRIC DENTISTS (N = 771)</th>
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<tbody>
<tr>
<td></td>
<td>$H_0^{1*}$</td>
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<tr>
<td>What is your opinion regarding the American Dental Association’s use of evidence-based dentistry to develop clinical recommendations?</td>
<td></td>
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<tr>
<td>Completely agree</td>
<td>33.7</td>
</tr>
<tr>
<td>Generally agree</td>
<td>50.8</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>10.3</td>
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<tr>
<td>Generally disagree</td>
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<tr>
<td>What is your opinion regarding dental insurers’ use of evidence-based dentistry to determine which dental procedures are covered?</td>
<td></td>
</tr>
<tr>
<td>Completely agree</td>
<td>12.5</td>
</tr>
<tr>
<td>Generally agree</td>
<td>26.2</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>19.5</td>
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<tr>
<td>Generally disagree</td>
<td>22.4</td>
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<td>18.6</td>
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<tr>
<td>Response missing</td>
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</table>
Dissemination and Implementation Research

- Bridge the gap between public health, clinical research, and everyday practice

- How health information, interventions, and new clinical practices are translated for health care service
Dissemination and Implementation Research

- **Dissemination** - targeted distribution of information to a specific audience

- **Implementation** - strategies to adopt and integrate evidence-based health interventions and change practice patterns
Sources of Pre-appraised Evidence

- Summaries of Systematic Reviews
- Guidelines/recommendations

Summaries of Systematic Reviews

- A short (1-2 page) summary of a systematic review
- Critical appraisal
- Clinical Applications (some)
- Time saving
- Usually a single author, but peer reviewed
Guidelines/Recommendations

- Recommendation by an expert panel
- Based on the best evidence available
- Multiple systematic reviews and/or clinical studies
- Critical appraisal
- Implications for practice

Benefits of Using Pre-Appraised Evidence

- Fast, simple, efficient
- Combines the search and appraisal processes
- Utilizes appraisals completed by “experts”
• Where can I find summaries?
  – EBD.ADA.org
  – JADA
  – Database of Abstracts of Reviews of Effects (DARE)
  – Bandolier
  – Evidence-based Dentistry (Nature Publishing Group)
  – The Journal of Evidence-based Dental Practice (Elsevier)

• Where can I find Guidelines?
  – EBD.ADA.org
  – Guidelines.gov
  – National Institute for Health and Clinical Excellence (NICE)
  – Scottish Intercollegiate Guidelines Network (SIGN)
• Over 1700 systematic reviews
• Each is 6-200 pages long

Critical Summaries
• 600-800 words
• Summarizes a systematic reviews
• Clinical implications
A Critical Summary of:
Noninferior favorable survival rate for implant-supported single crowns


Critical Questions:
What is the 5-year survival rate of implant-supported single crowns? Is it the evidence or the technology that contributes to this outcome?

Review Methods:
The authors conducted a comprehensive search of electronic databases (1981 to 2009), and the specific outcomes were based on a systematic review of 15 articles (6). Two independent reviewers assessed the titles and abstracts of each article, and three were selected for inclusion. The review was then performed in accordance with the methodological standards of the Cochrane Collaboration. A total of 15 articles were included in the review.

Main Results:
Survival of implant-supported single crowns was defined as the number of implants remaining in function without any significant loss of function or prosthetic complication. The survival rate was calculated for different time periods, ranging from 1 to 10 years. The mean survival rate was 95.2% (95% confidence interval: 94.5% to 96.0%). The highest survival rate was observed in the first 5 years, with a gradual decline thereafter. The survival rate was independent of the type of prosthesis, the number of implants, and the presence or absence of complications.

Evidence Quality Rating:
Limited

RELATED RESOURCES:
- Trials
- Data
- Tables
- Figures

Critical Summaries in JADA

Evidence-based dentistry finds a new forum

Guest Editorial

Research Critical Summaries

Subgingival débridement appears as effective as more complex and expensive therapies for peri-implantitis


Editor's Note: The key finding is that a new approach and a different type of outcome analysis show that subgingival débridement is as effective as more complex and expensive therapies for peri-implantitis. This approach, performed by surgeons working with the American Dental Association Center for Evidence-based Dentistry on the Implant Section, demonstrates that simple, cost-effective treatment can be as effective as more complex, expensive procedures. Additional critical summaries are available online at <http://bjs.com.au/summary>.
Motivational interviewing may help smokers stop

A Plain Language Summary of


Background

Motivational interviewing, a way to help people change their habits. It has helped people quit drinking, stop using drugs and eat more healthy foods. It is abbreviated below as MI.

Cigarettes are the number one reason in the world that otherwise healthy people become sick. Smokers have many excuses when trying to quit. They can use medications or try programs that don’t use medications. Recently, Motivational Interviewing (MI) has been looked at as a way to help people kick the habit. Motivational Interviewing has helped people quit drinking and taking drugs. It has also been used to help people make changes in their weight, diet and exercise habits.

The authors of this review wondered if MI could help people stop smoking.

They reviewed 14 studies that used MI to help people stop smoking. They defined MI as one to four sessions during which the therapist helped a smoker about quitting. For example, they could have talked about having mixed feelings about quitting or wanting to quit but knowing that they would miss smoking. Or they might have looked at how sure the smoker was that they could quit. The sessions lasted from 15 to 45 minutes.

The authors wanted to answer several questions. They wanted to know how many people helped by MI would still be off cigarettes six months after the program ended. They also wanted to know how many people, who had stopped smoking after the program, picked up the habit again. Finally, they tried to determine whether MI was harmful in any way, compared to usual care or brief advice to quit smoking.

Key terms

Motivational interviewing, smoking

Author's Notes

The authors found that the 14 studies they looked at were very different. The studies used different approaches. For
EBD Educational Tutorials

Below you will find a number of tutorials developed by the ADA Center for Evidence-Based Dentistry. The first module consists of a number of video tutorials that run 5 to 6 minutes each. The modules are designed for dental or healthcare professionals or students, and are intended to help you understand the basics of EBD.

For more advanced training in EBD, consider attending the ADA-hosted EBD Champion Conference or the ADA/AFDC Course on Evidence-Based Dentistry.

For a smooth playback experience, you need a broadband internet connection. If your broadband connection isn’t fast enough, video may stutter. If you are experiencing stuttering or choppy playback, try pausing the video until the buffer is full and then play the video.

This page works best with Internet Explorer 5 and above, as well as Firefox and Safari. Please upgrade to the latest version of your browser.

Module 1: Series on Statistics

This module consists of three tutorials and is designed to provide a basic understanding of the statistics-related concepts you will encounter in evidence-based research and systematic reviews.

In “Why Do We Need Statistics?” you will describe three situations that can be quantified using statistics and identify what the authors of a systematic review are trying to quantify.

In “What Are the Different Types of Data?” you will distinguish between normal, ordinal and quantitative data as well as identify the type of data being presented in a systematic reviews.

In “What Is a Null Hypothesis?” you will develop a null hypothesis and recognize the null hypothesis in systematic reviews.

<table>
<thead>
<tr>
<th>Title</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson 1: Why Do We Need Statistics?</td>
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<tr>
<td>Lesson 2: What Are the Different Types of Data?</td>
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RSS Feeds

EzySpot
Faceboook
Farkindia
Fashion BURNER
Faves
Favoriten
Favoritus
Floss.pro
FollowTags
Forsmash
Fresqui
Friendster
Fabulously4D
Fark
Fashikista
FAVable
favlog
Favorites
Flaker
Folkd
forceindya
FreeDictionary
FriendFeed
funP
Promote EBD on your own website

You can help support and promote the use of Evidence-Based Dentistry by adding an EBD link button to your website. Choose the size of the button that you would like to display on your own site by using the menu below to generate the HTML code that you need.

1. Choose a size for your button
   - 24 x 24

2. Review how your button will look

   ADA Center for Evidence-Based Dentistry
   ebd.ada.org

3. Copy and paste the code below into your site
Influenced by peers

To recruit practitioners to be local community leaders helping their peers implement EBD
“Thank you for the privilege and honor to participate in this meeting, one of the best I've attended and one that I believe will produce a lot of fruit in academia, education, research, and practice.”

“I really enjoyed this experience and initiation into being a champion for EBD. There are high expectations for me to disseminate this information in my dental school, component societies and study clubs. I feel this has been a good preparation for me to go home and start working on this.”

“Excellent program. The passion in the presenters has to be contagious!”

“Perhaps the best course of my dental career."

"Highly recommend the program . . . a great means of extending the practice of EBD."
Here's what previous students say about the course:

“Perhaps the best course of my dental career.”

“Highly recommend this program . . . a great means of extending the practice of EBD.”

“Well worth the time away from usual work responsibilities.”

“Liked the robust discussion in the working groups.”
Thank you

ebd.ada.org
mobile.ebd.ada.org