Evidence-Based Dentistry: A Paradigm Shift

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Participants will learn:

1. The **type of evidence** that should guide clinical decisions and treatment recommendations
2. How to **locate high quality dental evidence** to answer clinical questions
3. How to **conduct** an effective and efficient **search** for dental evidence **using on-line databases**
4. How to **communicate** scientific **evidence to patients**.
5. How to **transform** a dental **practice** into one that is **evidence-based.**

Resources for Scientific Information:

1. **Pub Med** comprises over 32 million citations for biomedical literature from MEDLINE, life science journals, and online books. Pub Med is a free resource that is maintained by the National Center for Biotechnology Information at the U.S. National Library of Medicine located at the National Institutes of Health and is available at http://www.ncbi.nlm.nih.gov/pubmed/
2. The **American Dental Association Evidence-Based Dentistry** website is an on-line data base for clinical scans and clinical practice guidelines and is available at www.ebd.ada.org
3. **Cochrane Library** is a database of systematic reviews and meta-analysis in medicine and healthcare specialties and makes the results of well-controlled trials readily available. Many of the reviews include a plain language summary which summarizes the evidence in understandable language for patients and are available at Cochrane Reviews | Cochrane Library

4. **Trip Database** is a clinical search engine to help clinicians identify the best available evidence to answer a specific clinical question. It provides access to systematic reviews, randomized clinical trials, and other content type including patient information leaflets and is available at http://www.tripdatabase.com/

How to search for evidence...

1. **Ask:** Construct a PICO question to guide search in evidence databases
   - **P=Population**
   - **I=Intervention**
   - **C=Comparison**
   - **O=Outcome**

   Example: Is charcoal toothpaste effective in whitening teeth?

   PICO Transformation: In dental patients (**P**), does the use of toothpaste containing charcoal (**I**) increase enamel whiteness (**O**) compared to the use of toothpaste that does not contain charcoal (**C**)?

2. **Access:** Go to online databases (PubMed, TRIP Database, Cochrane Library) and search by PICO format or keywords and filters (date, relevance, popularity) for systematic reviews.

3. **Appraise** the quality of the evidence

   - Author's appraisal
     - Were the number of studies in the review robust?
     - Were the studies of high quality?
     - Were there any biases (selective outcome reporting, industry influence) in the studies?
     - How did the author's grade their confidence that the intervention made a "real" difference in the outcome?

- Your appraisal
  - Are the results believable?
  - Did the intervention make a difference in the outcomes?
  - Do you think the intervention could make a difference for your patients?
  - Do you have the know-how to apply the evidence?

4. **Apply:** Apply the evidence into your clinical practice
   - Develop clinical standardized protocol for implementation
   - Develop evaluation methodology to measure results

5. **Assess:** Evaluate your clinical outcomes and compare them to the published results in systematic review.
   - Were your practice results similar to those in the systematic review?

What you can do in...

5 minutes- Develop a PICO question, go onto TRIP Database and search for systematic reviews that answer the question. Read the abstract and author's appraisal of the evidence. Use caution when applying evidence to patient care until you have more time to find additional evidence for comparison and decide if the evidence is valid, reliable and appropriate for your patient population.

30 minutes- Develop a PICO question, go onto Cochrane Library or Trip Database websites and search for systematic reviews and randomized clinical trials (RCT's) that answer question. Read abstracts and/or entire article and author's appraisal of the evidence. Use caution when applying evidence to patient care until you have more time to find additional evidence for comparison and decide if the evidence is valid, reliable and appropriate for your patient population.

When you have more time- Develop a PICO question, go onto multiple evidence-based websites and search for systematic reviews, RCT's and other high-quality clinical studies (cohorts, case-control) that answer question. Read entire articles and compare evidence. Read the author's appraisal of the evidence and develop your own appraisal of the evidence. Use the evidence that is the most valid, reliable and appropriate for your patient population. Develop clinical protocols to apply the evidence and then evaluate your clinical outcomes and compare to the published results.

Key Concluding Points:

1. Evidence-Based Dentistry is an **approach** to oral health care that integrates the best scientific evidence to guide clinical decision-making in dentistry.
2. Evidence-Based Dentistry allows you to find **reliable** information to your clinical questions quickly and efficiently.
3. Evidence-Based Dentistry will allow you to i**mprove** clinical outcomes.
4. Evidence-Based Dentistry will improve the profession and reputation of dentistry by replacing myths and opinions with **sound scientific information**.
5. Evidence-Based Dentistry helps to **close the "gap"** between clinical practice **behaviors** and evidence-based **recommendations**.

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