Evidence-Based Dentistry Lecture Series

Evidence-based Searching Skills
Part 1: Searching For Evidence-based Sources

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What Will You Learn?

1. Evidence-based dentistry resources
2. Formulate a focused question
3. The search syntax
4. PubMed Clinical Queries
Hierarchy Of Evidence

Why start here?

- It uses evidence-based algorithms when doing searches/pre-determined search filters
- Helps you find the highest level of evidence for a clinical question

Ref: Greenhalgh T. How to Read a Paper, the basics of evidence-based medicine. 4th ed. John Wiley & Sons Ltd.: Chichester; 2012.
Where Do You Look For Evidence?

1. Evidence-Based Dentistry Resources

- **ADA Center for Evidence-Based Dentistry**
  - Clinical practice guidelines
  - Critical summaries
  - Plain language summaries
  - Systematic reviews

- **Cochrane Oral Health Group**
  - Systematic reviews of randomised controlled trials in oral health

- **CEBM(Centre for Evidence Based dentistry)**
  - Promoting the teaching, learning, practice and evaluation of evidence-based dentistry world-wide
2. Evidence-based Guidelines

- **ADA Center for Evidence-Based Dentistry Guidelines**
  - Clinical practice guidelines

- **The Community Guide**
  - Evidence-based findings of the Community Preventive Services Task Force (CPSTF)
  - Evidence-based guides on community-based health promotion and disease prevention interventions

- **PubMed** (Article type - Limit to Practice Guideline)
  - dental caries[ti] AND "Practice Guideline"[publication type]

- **MOH Dentistry Guidelines**
  - Dental Practice Guidelines (31 Jul 2012)
  - Dental Implants in Edentulism (31 Jul 2012)
Where Do You Look For Evidence?

3. Biomedical & Systematic Review Databases
   - **Cochrane Database of Systematic Reviews**
     - Systematic reviews
   - **PubMed** (under Article type, select Systematic Review filter)
     - Clinical biomedicine literature from MEDLINE, life science journals & online books
   - **Embase**
     - Biomedical & pharmacological literature from Embase.com & MEDLINE
     - Full-text indexing of drug, disease & medical device data
   - **Turning Research Into practice (Trip)**
     - Biomedical literature, ongoing systematic reviews & controlled trials, medical images and videos, & more
Subject coverage (>32 million records)
• Biomedical science, clinical research, pharmacology, pharmaceutical science, medical devices, life sciences & allied health

Content:
• Published and peer-reviewed literature, in-press publications
• >2.4 million conference abstracts from about 7000+ biomedical, drug and medical device conferences since 2009

Strengths:
• Deep full-text indexing with Emtree Thesaurus (>75,000 terms), includes all MESH terms, particularly strong in drug, disease and medical device terms
• >2,900 journals are unique to Embase, i.e. not available from MEDLINE esp. from countries outside North America
Demo title search in Embase to find systematic review on ‘dental caries’
Click on EBM filter to select systematic review on ‘dental caries’
4. Other Databases of Interest

- Refer to list of Databases listed on Dentistry subject guide at [http://libguides.nus.edu.sg/dentistry](http://libguides.nus.edu.sg/dentistry)
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## Formulate A Focused Question

### P I C O Framework

<table>
<thead>
<tr>
<th><strong>Population</strong></th>
<th>Who is your patient or the problem of interest?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intervention</strong></td>
<td>What is the main intervention or exposure?</td>
</tr>
<tr>
<td><strong>Comparison</strong></td>
<td>What is the comparison intervention?</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>What do you want to achieve?</td>
</tr>
</tbody>
</table>
Jerry is a 13-year-old boy who does not brush his teeth at bedtime. He likes sticky foods and candy. During routine dental screening at school, the dental therapist rated his oral hygiene as “poor”. He already has 2 fillings on his permanent teeth. Jerry’s mother is concerned and brings him to your clinic. She heard from her colleague that a fissure sealant or topical fluoride treatment would be helpful since Jerry is quite careless when it comes to brushing his teeth.

She wants to know which is more effective in preventing tooth decay. What advice would you provide her?
Formulate A Focused Question

**PIC O Framework**

**Population**
Teenagers

**Intervention**
Fissure sealants

**Comparison**
Topical fluoride treatment

**Outcome**
Tooth decay prevention
“Is fissure sealants or topical fluoride treatment more effective in tooth decay prevention in teenagers?”

OR

“Is fissure sealants more effective than topical fluoride treatment in preventing tooth decay in teenagers?”

OR

“What is the effectiveness of fissure sealants compared to topical fluoride in preventing tooth decay in teenagers?”
Hands-on Activity

- What is the clinical question?
- How do I begin the search?
- How to quickly find the relevant ones?
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Boolean Operators

**OR** either terms may be present
→ more results
E.g. dental decay **OR** tooth decay

**AND** both terms must be present
→ fewer results
E.g. topical fluoride **AND** fissure sealants

**NOT** → Use with caution
E.g. Humans **NOT** animals
More Search Syntax

PHRASE SEARCHING (using “ ”)
“pit and fissures”

TRUNCATION
Therap* → find therapy, therapies, therapeutic, therapeutics, etc.
(Note: PubMed used only the first 600 variations.)

Brackets (Nesting)
Used to combine concepts in a prescribed order in a search statement:

```
topical fluoride AND (dental sealants OR fissure sealants)
```
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4. PubMed Clinical Queries
**Subject Coverage:** Biomedicine, life sciences

**Size:** ~29 million records

**Content:** MEDLINE, largest component of PubMed, has ~25 million records from >5600 journals.

**Strengths:** MEDLINE indexed using MeSH
Updated daily – in press, ahead of print
Coverage: US & 80 other countries

*Free access*
Searching PubMed

Where to find Clinical Queries?

1. Search with PubMed Clinical Queries

2. PubMed Advanced Search
fissure sealants AND topical fluoride AND tooth decay

The acceptability of fluoride varnish and fissure sealant treatments in children aged 6-9 delivered in a school setting.

Economic evaluation of an expanded caries-preventive program targeting toddlers in high-risk areas in Sweden.
Anderson M, Davidson T, Dahllof G, Grindefjord M.

White Spot Lesion Remineralisation Agents in Primary Teeth: A Systematic Review.
Ancira-González L, Esparza-Villalpando V, Garrocho-Rangel A, Pozos-Guillén A.


Pit and fissure sealants versus fluoride varnishes for preventing dental decay in the permanent teeth of children and adolescents.
Ahovuo-Saloranta A, Forss H, Hiiri A, Nordblad A, Mäkelä M.

Effect of silver diamine fluoride on adhesion and microleakage of a pit and fissure sealant to tooth enamel: in vitro trial.
Pérez-Hernández J, Aguilar-Díaz FC, Venegas-Lançon RD, Gavosso A.

Click ‘See all’ to Display the Results in PubMed

**Clinical Study Categories**

**Category:** Therapy  
**Scope:** Narrow

**Results: 5 of 52**

The acceptability of fluoride varnish and fissure sealant treatments in children aged 6-9 delivered in a school setting.  

Economic evaluation of an expanded caries-preventive program targeting toddlers in high-risk areas in Sweden.  
Anderson M, Davidson T, Dahlfors G, Grindestjord M.  

Silver diamine fluoride versus therapeutic sealants for the arrest and prevention of dental caries in low-income minority children: study protocol for a cluster randomized controlled trial.  
Ruff RR, Niederman R.  

Application of the Nexø method in a general dental practice in the Netherlands: 6-year results of a RCT.  
Vermaire JH.  

**Systematic Reviews**

**Results: 5 of 8**

White Spot Lesion Remineralisation Agents in Primary Teeth: A Systematic Review.  
Ancira-González L, Esparza-Villalpando V, Garrocho-Rangel A, Pozos-Guillén A.  


Pit and fissure sealants versus fluoride varnishes for preventing decay in the permanent teeth of children and adolescents.  
Ahovuo-Saloranta A, Forss H, Hirv A, Nordblad A, Mäkelä M.  

Non-surgical treatment of dentin caries in preschool children---systematic review.  
Duangthip D, Jiang M, Chu CH, Lo EC.  

The caries-preventive effect of chlorhexidine varnish in children and adolescents: a systematic review.  
James P, Parnell C, Whelton H.  
1. Economic evaluation of an expanded caries-preventive program targeting toddlers in high-risk areas in Sweden.
   Anderson M, Davidson T, Dahllöf G, Grindefjord M.

2. [Additional article details]
Thank you

See you next week

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