Evidence-Based Dentistry Lecture Series

Sources Of Scientific Literature – PUBMED, COCHRANE & EMBASE

Dr Amy Chou & Sukanya Naidu
NUS Medical Library

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Where do you look for Evidence?

1. Evidence-Based Dentistry Databases and Critically Appraised Resources
   - ADA Center for Evidence-Based Dentistry
     - Clinical practice guidelines
     - Critical/plain language summaries
     - Systematic reviews
   - Cochrane Oral Health Group
     - Systematic reviews of randomised controlled trials in oral health
Where do you look for Evidence?

2. Practice Guidelines

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

- The Community Guide
  - Evidence-based guides on community-based health promotion and disease prevention interventions
Where do you look for Evidence?

3. Biomedical & Systematic Review Databases
   - Cochrane Database of Systematic Reviews
     - Systematic reviews
   - PubMed
     - 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
Where do you look for Evidence?

4. Other Databases of Interest

Please see: http://libguides.nus.edu.sg/dentistry
Reflection

- How do you begin your search?
- How do you filter through the results to zoom in on the relevant ones?
Clinical Scenario: Demo

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 topical fluoride treatment or a fissure sealant would be helpful since Jerry is quite careless when it comes to brushing his teeth. She wants to know if topical fluoride treatment or fissure sealant is more effective in preventing tooth decay. What advice would you provide her?
Clinical Scenario to PICO

Population: Teenagers

Intervention: Topical fluoride treatment

Comparison: Fissure sealants

Outcome: Tooth decay prevention
How would you formulate a search statement?

“Is topical fluoride treatment or fissure sealants more effective in tooth decay prevention in teenagers?”
Basics: Search Strategy

1. Boolean Operators
2. Keywords
3. Subject Headings (MeSH/Emtree)
**Boolean Operators**

**OR** either terms may be present
→ more results
E.g. adolescents **OR** teenagers

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

**NOT** → Use with caution
E.g. Humans **NOT** animals
Brackets (Nesting)

Used to combine concepts in a prescribed order in a search statement:

\[ \text{pit and} \]

Topical fluoride AND fissure sealants AND (teenagers OR adolescents)
Strategies for Finding Evidence

1. Clinical Queries
2. Advanced/Comprehensive Search
   - Subject Heading
   - Keywords
   - Filters
   - Types of Study Design
Clinical Queries

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
Subject Coverage: Biomedicine, life sciences

Size: ~28 million records

Content: MEDLINE, largest component of PubMed, has ~24 million records from >5600 journals.

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

Free access
PubMed Clinical Queries

PubMed Homepage

PubMed Advanced Search
Clinical study categories: Therapy, diagnosis, etiology, prognosis, or clinical prediction guides

Results of searches on this page are limited to specific clinical research areas. For comprehensive searches, use PubMed directly.

Topical fluoride AND pit and fissure sealants AND tooth decay AND prevention AND teenagers

Clinical Study Categories
- Category: Therapy
- Scope: Broad

Systematic Reviews
- Results: 5 of 10
- Evidence-based Clinical Practice Guideline for the Use of Pit-And-Fissure Sealants.
  [No authors listed]

Evidence-based Clinical Practice Guideline for the Use of Pit-And-Fissure Sealants.
- Results: 5 of 10
  Wright JT, Craik U, Fontana M, Gillette EJ, Novak BB, Dhar V
Strategies for Finding Evidence

1. Clinical Queries
2. Advanced/Comprehensive Search
   - Subject Heading
   - Keywords
   - Filters
   - Types of Study Design
“Dental caries” is the designated subject heading for the concept.
Comprehensive Search Strategy

- Keywords (added by author)
- OR
- MeSH / Emtree terms (added by indexer)

All articles on that concept
Comparing Keyword & MeSH Searches

Keyword

Less precise, but current

MeSH

Precise, but slightly dated
Finding Evidence in PubMed: MeSH

PubMed Homepage

PubMed Advanced Search
Medical Subject Headings (MeSH)

Dental Caries

Localized destruction of the tooth surface initiated by decalcification of the enamel followed by enzymatic lysis of organic structures and leading to cavity formation. If left unchecked, the cavity may penetrate the enamel and dentin and reach the pulp.

Year introduced: DENTAL CARIES CONTROL was heading 1965-1966

PubMed search builder options

- analysis
- anatomy and histology
- blood
- chemically induced
- chemistry
- classification
- complications
- congenital
- diagnosis
- diagnostic imaging
- diet therapy
- drug effects
- drug therapy
- economics
- embryology
- enzymology
- epidemiology
- ethnology
- etiology
- genetics
- history
- immunology
- instrumentation
- metabolism
- microbiology
- mortality
- nursing
- organization and administration
- parasitology
- pathology
- physiology
- physiopathology
- prevention and control
- psychology
- radiotherapy
- rehabilitation
- statistics and numerical data
- surgery
- therapy
- transmission
- urine
- veterinary
- virology

Related information

- PubMed
- PubMed - Major Topic
- Clinical Queries
- NLM MeSH Browser
- dbGaP Links
- MedGen

Recent Activity

- Turn Off
- Clear

Dental Caries
MeSH Hierarchy

By default, databases search for MeSH terms below in the hierarchy, i.e. “automatic explosion”.

PubMed may suggest related terms, including both broader & narrower terms.
MeSH Entry Terms: Synonyms/Keywords

Entry Terms:
- Dental Decay
- Caries, Dental
- Decay, Dental
- Carious Dentin
- Carious Dentins
- Dentin, Carious
- Dentins, Carious
- Dental White Spot
- White Spots, Dental
- White Spots
- Spot, White
- Spots, White
- White Spot
- Dental White Spots
- White Spot, Dental

Advanced/comprehensive search:
- Subject heading
- Keywords
- Filters
- Types of study design

Borrow your synonyms/keywords from Entry Terms.
See how PubMed executes your search
In Basic Search, PubMed maps out the MeSH terms. Keywords are searched in “All Fields”.

<table>
<thead>
<tr>
<th>Translations</th>
<th>Search Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 topical fluoride</td>
<td>&quot;fluorides, topical&quot;[MeSH Terms] OR (&quot;fluorides&quot;[All Fields] AND &quot;topical&quot;[All Fields]) OR &quot;topical fluorides&quot;[All Fields] OR (&quot;topical&quot;[All Fields] AND &quot;fluoride&quot;[All Fields]) OR &quot;topical fluoride&quot;[All Fields]</td>
</tr>
<tr>
<td>2 pit and fissure sealants</td>
<td>&quot;pit and fissure sealants&quot;[MeSH Terms] OR (&quot;pit&quot;[All Fields] AND &quot;fissure&quot;[All Fields] AND &quot;sealants&quot;[All Fields]) OR &quot;pit and fissure sealants&quot;[All Fields]</td>
</tr>
<tr>
<td>3 dental caries</td>
<td>&quot;dental caries&quot;[MeSH Terms] OR (&quot;dental&quot;[All Fields] AND &quot;caries&quot;[All Fields]) OR &quot;dental caries&quot;[All Fields]</td>
</tr>
<tr>
<td>4 prevention</td>
<td>&quot;prevention and control&quot;[Subheading] OR (&quot;prevention&quot;[All Fields] AND &quot;control&quot;[All Fields]) OR &quot;prevention and control&quot;[All Fields] OR &quot;prevention&quot;[All Fields]</td>
</tr>
<tr>
<td>5 teenagers</td>
<td>&quot;adolescent&quot;[MeSH Terms] OR &quot;adolescent&quot;[All Fields] OR &quot;teenagers&quot;[All Fields]</td>
</tr>
</tbody>
</table>
A. I can perform the most comprehensive search using MeSH terms alone.
B. I can find the latest articles using keywords alone.
C. I must use a combination of MeSH terms and keywords in every search.
Filters in PubMed

Search results
Items: 1 to 20 of 68

1. School-based dental sealant programmes may be effective in caries prevention.
   Himida T, Promise U.
   PMID: 28338038
   Similar articles

2. Evidence-based Clinical Practice Guideline for the Use of Pit-and-Fissure Sealants.
   [No authors listed]
   PMID: 28268888
   Similar articles

3. Pit and fissure sealants or fluoride varnishes?
   Paglia L.
   PMID: 27759403
   Similar articles

PubMed: Useful EBD Filters
Any Questions?
Next Lesson (23 July: hands-on)

- Advanced Searching in PubMed
- Scenario
- PICO
- Search strategy (Comprehensive search)
- Search results → How to apply to patient
Clinical Scenario (23 July: hands-on)

Mrs Tan, a mother of a 8-year-old girl walks into the dental clinic. Her daughter has dental caries on the occlusal surface of the lower right first molar. The dentist removes the caries from the tooth. After removing the caries, the cavity preparation extends slightly into dentine. The dentist plans to restore the caries with a tooth-coloured restoration (posterior composite resin). Mrs Tan feels that the “traditional silver fillings” are better as they are stronger and will last longer. She asks the dentist for his opinion. How can the dentist respond to Mrs Tan using the principles of Evidence-Based Dentistry?
Contact Us

Medical Library
Walk in: Level 5, MD6
Telephone: 65162046
Email: mdlib@nus.edu.sg
URL: www.lib.nus.edu.sg