Evidence-based Dental Practice

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University of Oslo, Norway

Today's agenda

1. The wisdom tooth controversy

   Why do you remove/retain "wisdom teeth"?

2. Implantology

   What is the scientific proof that one system is better than another?

3. Management of the dentition in the elderly

   How do you prevent and manage root caries?

Today's agenda

Why use of the term "Evidence-based Dental Practice"?

What's the big deal?

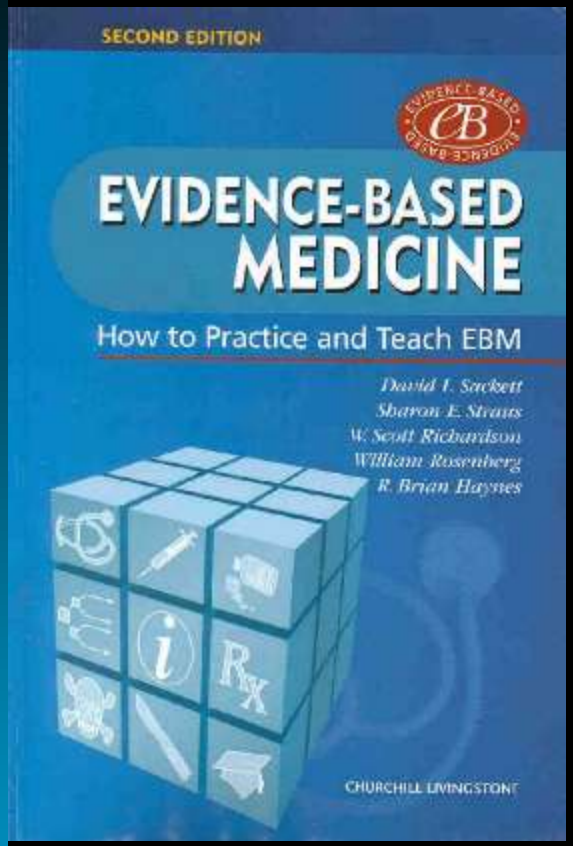
Professional Practice

1. We want to do

<u>More Good than Harm</u>

2. Our practice should be

<u>Science Based</u>



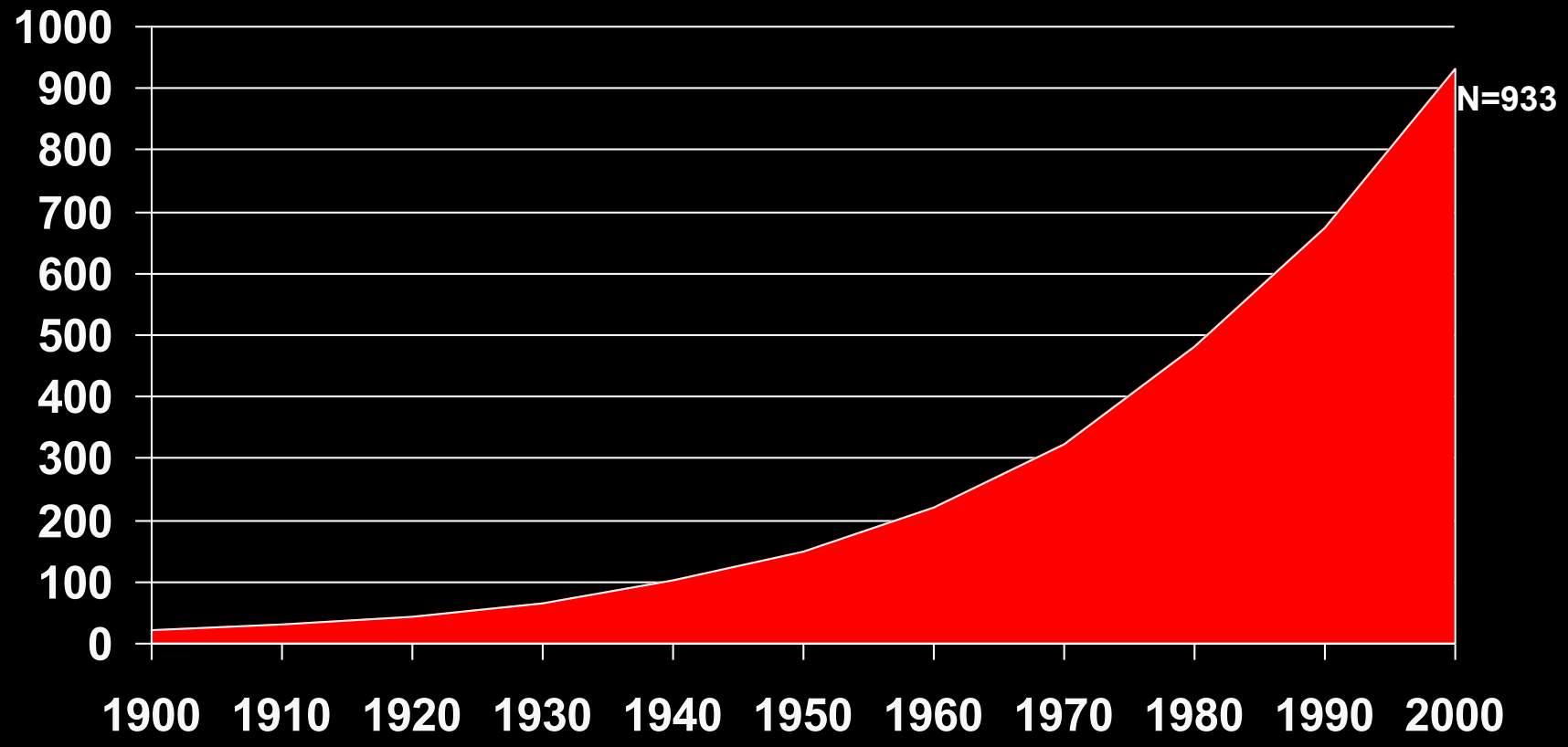
Scientific evidence of doing more good than harm depends on adequate study design

Sackett DL, Strauss SE, Richardson WS, Rosenberg W, Haynes RB. Evidence-based Medicine. 2nd. edit. Churchill Livingstone, 2000.

A rapidly changing society

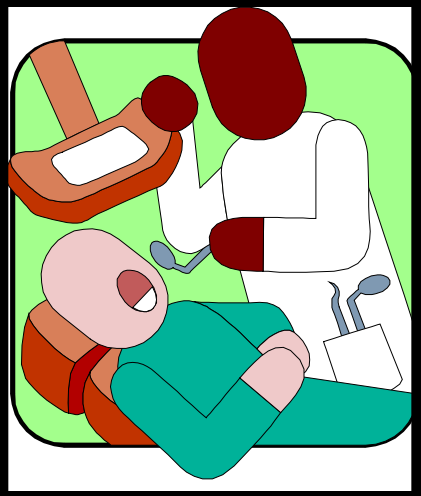
1. The production of new knowledge is at maximum in historical context

Dental journals in circulation



Source: Ulrich's International Periodicals Directory

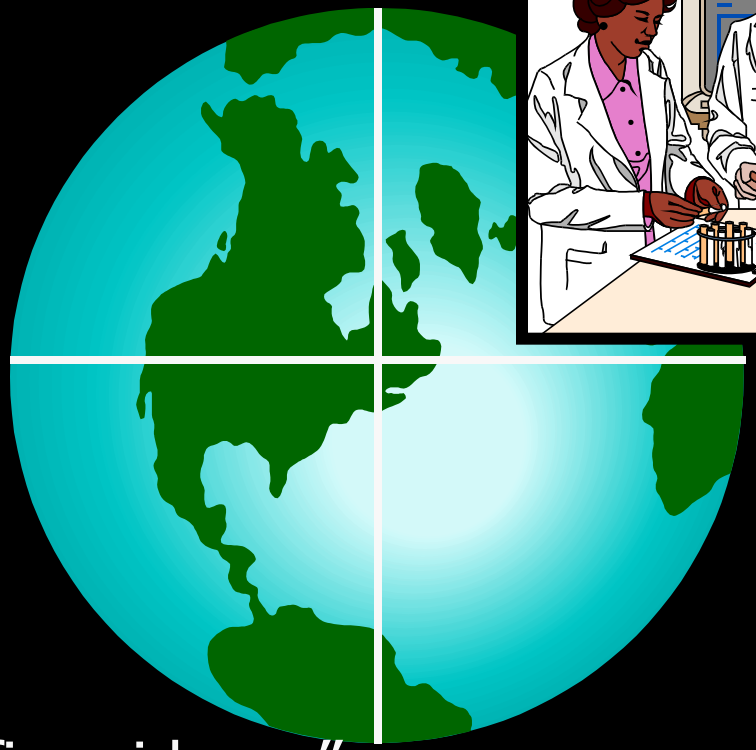
Where and by who is new knowledge in oral sciences developed?



The clinical practitioners

- Single handed GPs/ specialists in teams; secondary/tertiary care
- Great diversity of experience, interest and capacity
- Draw on a panoply of experience
- Pragmatism: what works - what creates problems

The researchers

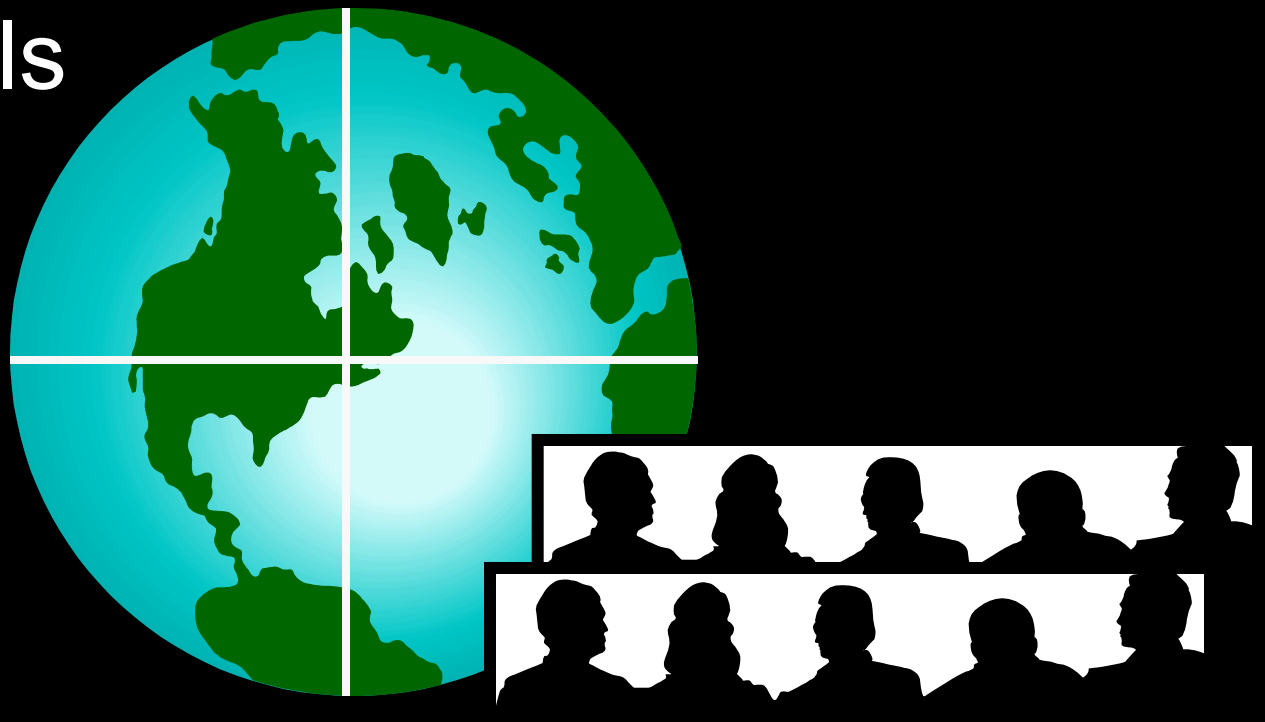


- Creates "scientific evidence"
- Formulation of ideas, hypotheses, study design, data collection
- Peer review, internal/external validity, debates within paradigms
- Report findings in probabilities, not absolutes

The appraisers of evidence for clinical practice

- Epidemiologists, health economists, statisticians, social scientists, and clinicians
- Collect, abstract and appraise practice related knowledge
- Debates about value and balance between consensus and evidence, rigour of data and application of statistics

Developers of local guidelines and protocols

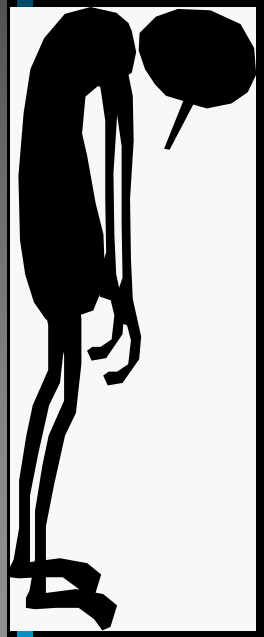


- Local consensus, sometimes on national guidelines
- Clinical specialists seeking ways to influence peers

A rapidly changing society

1. The production of new knowledge is at maximum in historical context
2. Incessant replacements of established ideas and concepts

Dentists' daily situation: An information overload



Advertising
- producers
- colleagues

Meetings/ courses

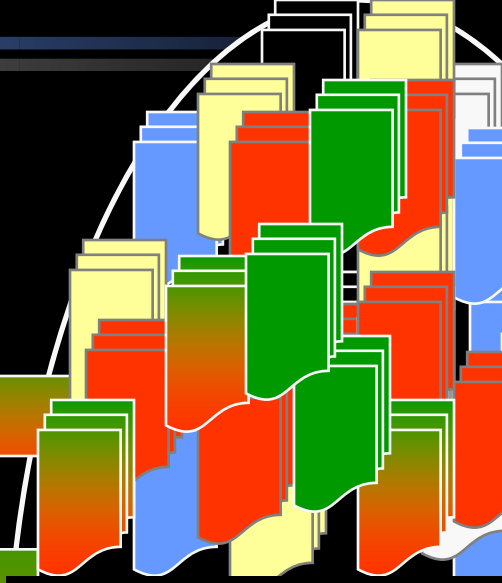
Dental literature

Colleagues

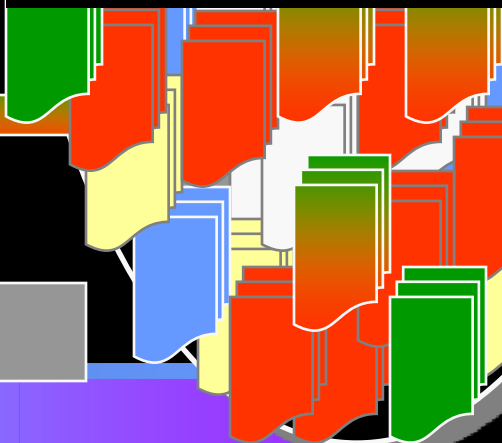
WWW

Patients & (-groups)

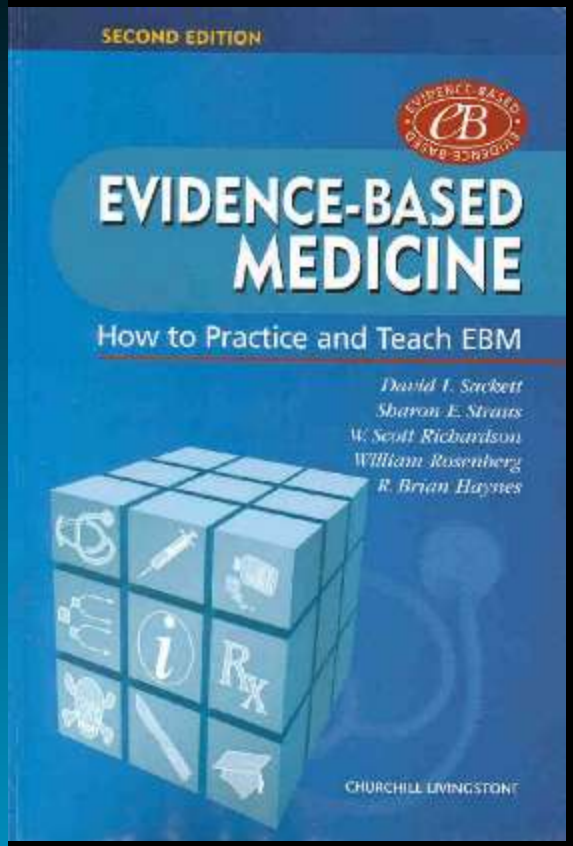
Popular magazines & Media



Dental „science
700 journals:
25 000 articles/y



We need to consider not only the
amount
of information, but also the
quality
of this information



Scientific evidence of doing more good than harm depends on adequate study design

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A rapidly changing society

1. The production of new knowledge is at maximum in historical context
2. Incessant replacements of established ideas and concepts
3. Information technology has improved the potential for information transfer to everybody

New patients?

Document: Done

Realistic white shades for special cosmetic needs

SYNERGY® Super White shades are ideal for restoring whitened teeth and deciduous teeth.

Only SYNERGY® offers three different bright white shades – selected by dentists.

- Super White N (neutral)
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shades, tooth
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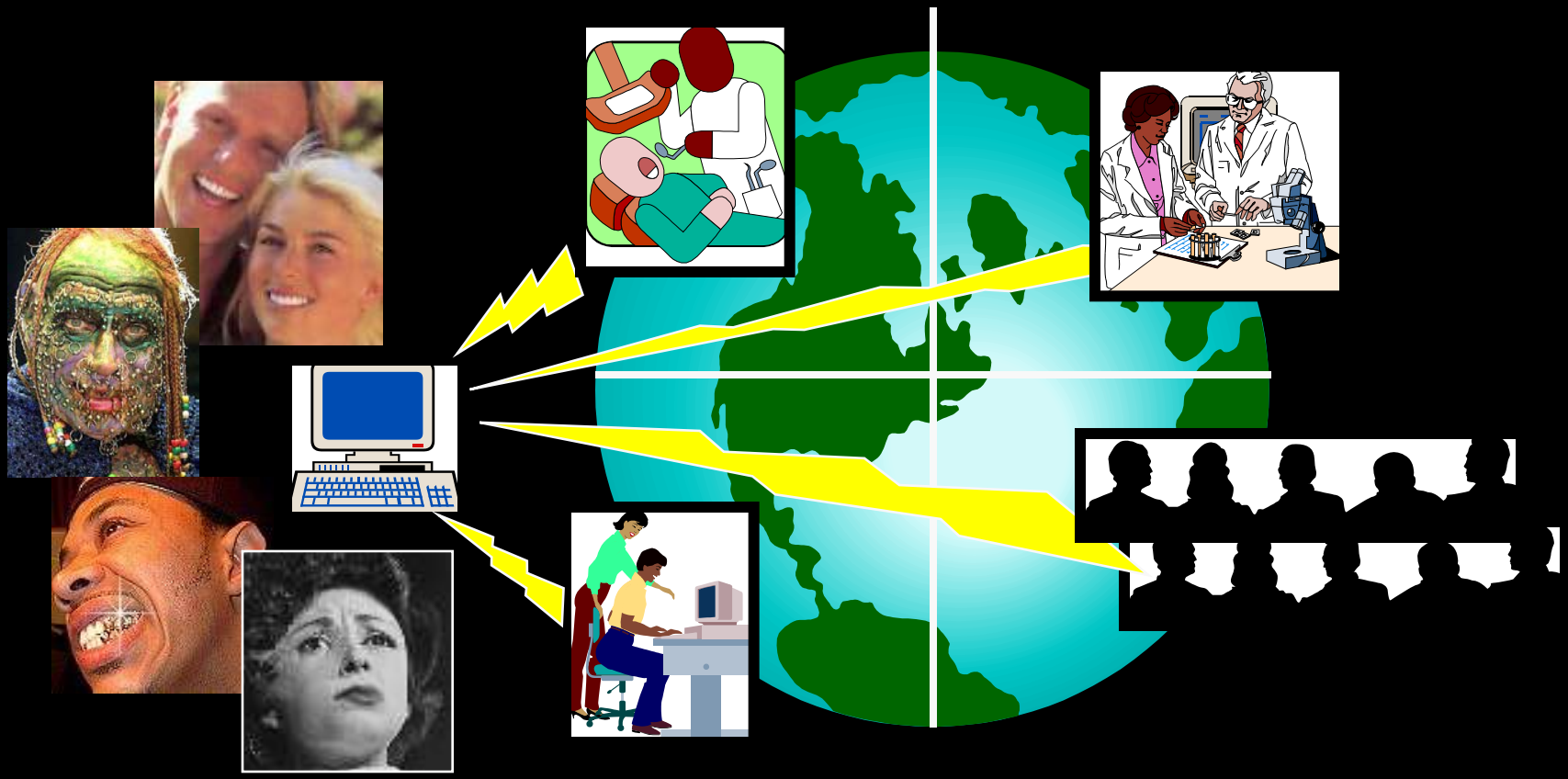
uced veneers

Let SYNERGY® Super White assist you with your cosmetic needs.

Before veneer

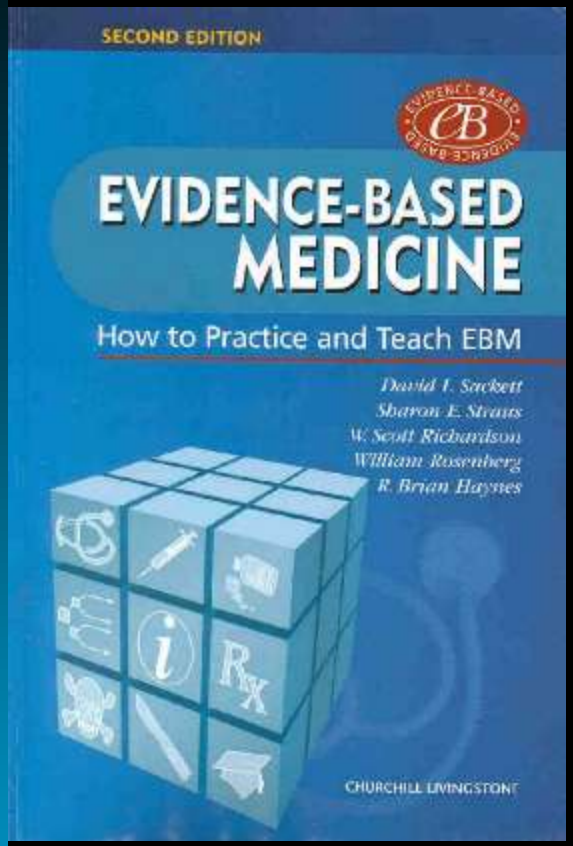
After SYNERGY® Super White veneer

Information transfer to patients



Competitive health providers and information sources
Patient information and communication

Information
is not
synonymous to
knowledge



Scientific evidence of doing more good than harm depends on adequate study design

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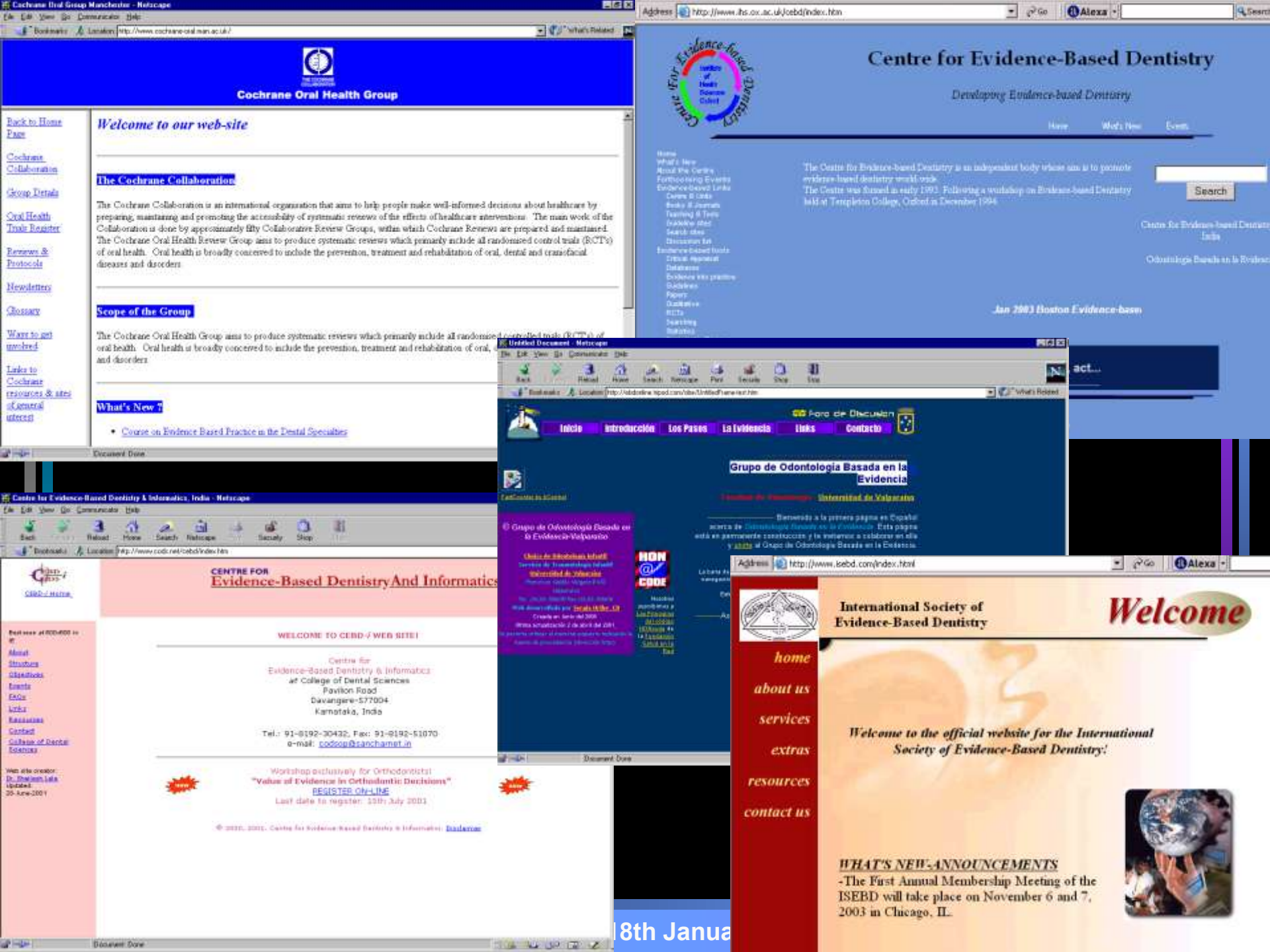
Solution: Integrate evidence-based principles in clinical practice

- A practical aspect
  - A strategy for solving clinical problems on a daily basis
- An ethical aspect
  - A strategy for being reasonably certain that my advises and treatments are the best available to my patients

1. Information is not knowledge
2. General practitioners need guidance on professional issues in the information age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WHAT'S NEW-ANNOUNCEMENTS
-The First Annual Membership Meeting of the ISEBD will take place on November 6 and 7, 2003 in Chicago, IL.

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Evidence-Based Dentistry

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View tables of contents

A central resource for the most cutting-edge and relevant issues concerning the evidence-based approach in dentistry today. A *British Dental Journal* and Nature Publishing Group publication.

Audience

Evidence-Based Dentistry is aimed at general dental practitioners to help them keep abreast of the best available evidence on the latest developments in various aspects of clinical dentistry. In addition, it is an invaluable tool for the specialist practitioners needing to maintain an awareness of new approaches outside their branch of dentistry.

**Please click here for the appendix tables for the following paper - these tables did not appear in the printed version of EBD*

Vol 3:1

Benchmarking the dental randomized controlled literature on MEDLINE

Niederman R., Chen L., Murzyn L., Conway S.

Journal of Evidence-Based Dental Practice TOC, July 2001 - Netscape

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THE JOURNAL OF EVIDENCE-BASED DENTAL PRACTICE

Table of Contents for
July 2001 • Volume 1 • Number 1

Free Items Paid Items

Document: Done

Today's agenda

1. Evidence-based practice

Apply a Problem-Based Learning – PBL - approach

2. The wisdom tooth controversy
3. Implantology
4. Management of the dentition in the elderly

A Problem-Based learning approach

1. What type of everyday clinical problem is described?
2. Which study designs can best answer this specific clinical problem?

Problem-based learning approach

1. What type of everyday clinical problem is described?

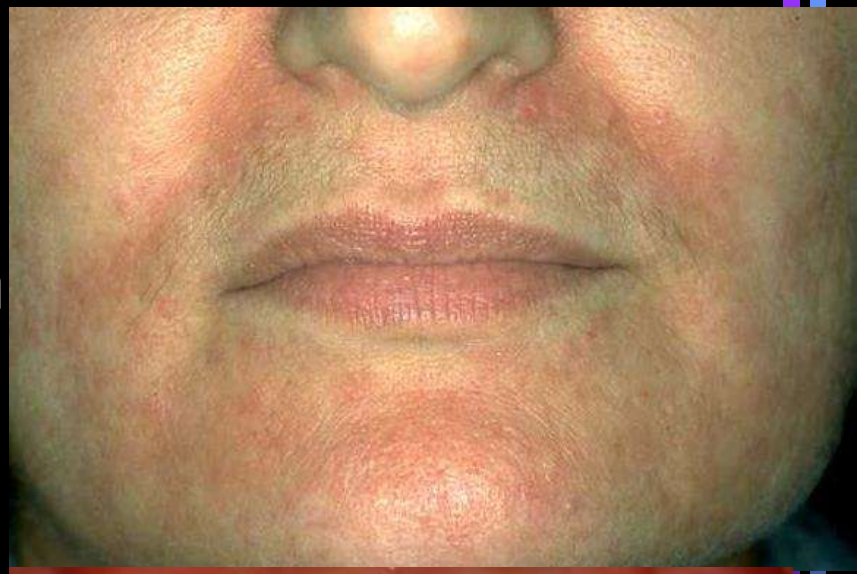
   8 categories

A Problem-Based learning approach

1. What type of everyday clinical problem is described?

8 categories

Type of everyday clinical problem?



1. Clinical findings:

How to properly gather the most relevant findings from the history and physical examination, and interpret these correctly?

2. Etiology:

How to identify causes for disease (including its iatrogenic forms) ?

A Problem-Based learning approach

1. What type of everyday clinical problem is described?

8 categories

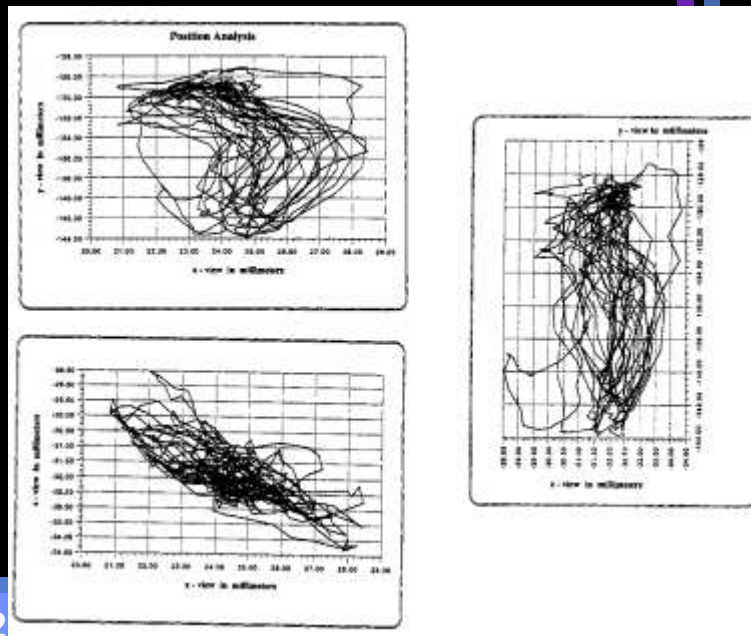
Type of everyday clinical problem?

3. Differential diagnosis:

When considering the possible causes of a patient's clinical problem, how to rank them by likelihood, seriousness and treatability ?

4. Diagnostic tests

How to select and interpret diagnostic tests, to confirm or exclude a diagnosis, based on considering precision, accuracy, acceptability, expense, safety, etc?



A Problem-Based learning approach

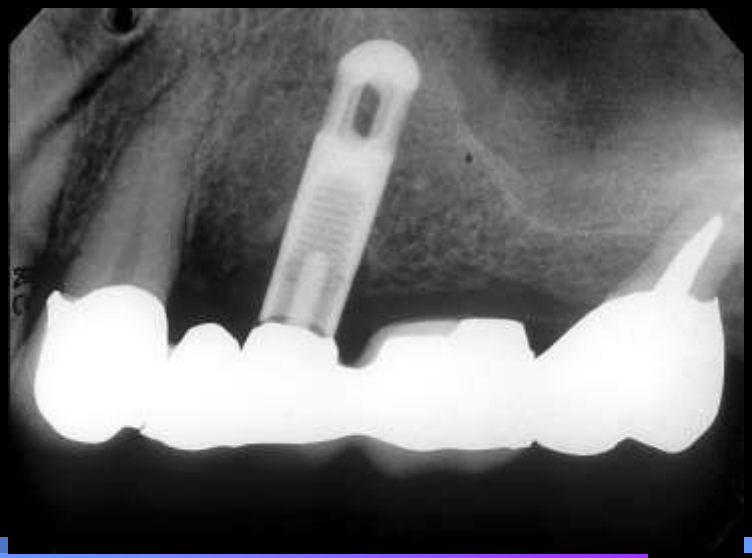
1. What type of everyday clinical problem is described?

8 categories

Type of everyday clinical problem?

5. Prognosis:

How to estimate the patient's likely clinical course over time and anticipate likely complications?



6. Therapy:

How to select treatments to offer patients that do more good than harm and that are worth the efforts and costs of using them?

A Problem-Based learning approach

1. What type of everyday clinical problem is described?

8 categories

Type of everyday clinical problem?

7. Prevention:

How to reduce the chance of disease by identifying and modifying risk factors & How do we diagnose disease early by screening?

8. Self-improvement:

How to keep up to date, improve our clinical skills and run a better, more efficient clinical practice?

What type of everyday clinical problem is described?

Why do you remove/retain "wisdom teeth"?

A question about prognosis

What is the scientific proof that one system is better than another?

A question about therapy

How do you prevent and manage root caries?

A question about prevention

A Problem-Based learning approach

1. What type of everyday clinical problem is described?
2. Which study designs can best answer this specific clinical problem?

Clinical trial terminology - tower of Bable?

analytical study

case control study (89)

case serie

case study, case report

cause-effect study

clinical trial (79)

cohort study (89)

cohort study with historical controls

controlled clinical trial (95)

cross-sectional study (89)

descriptive study

diagnostic meta-analysis

diagnostic study

double blind randomized therapeutical trial with cross-over design

ecological study

etiological study

experimental study

explorative study

feasibility study (79)

follow-up study (67)

historical cohort study

incidence study

intervention study

longitudinal study (79)

N=1 trial

non-randomized trial with contemporaneous controls

non-randomized trial with historical controls

observational study

prospective cohort study

prospective follow-up study, observational or experimental

prospective study (67)

quasi-experimental study

randomized clinical trial, RTC

randomized controlled trial, RCT (89)

retrospective cohort study

retrospective follow-up study

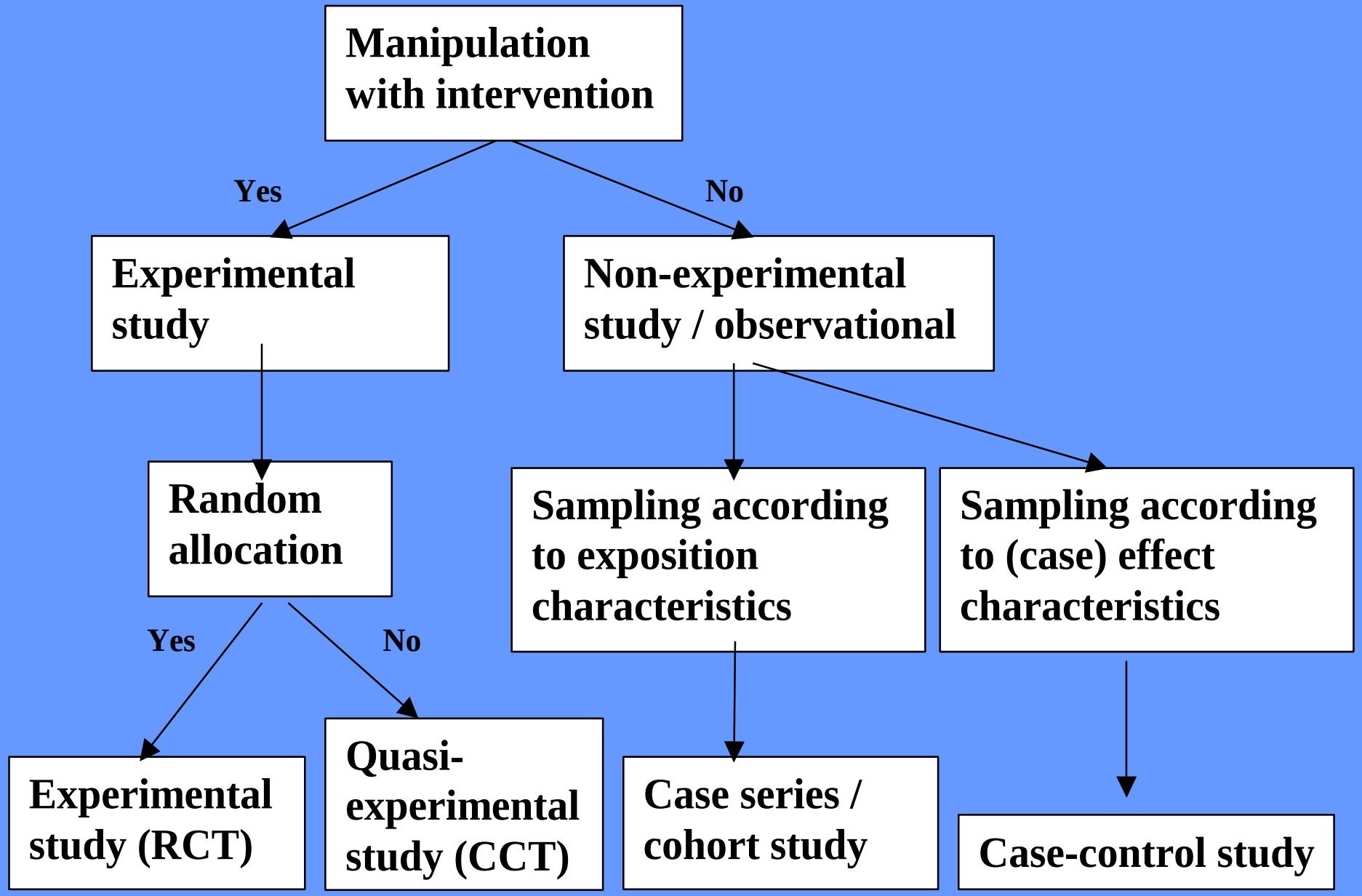
retrospective study (67)

surveillance study

survey, descriptive survey

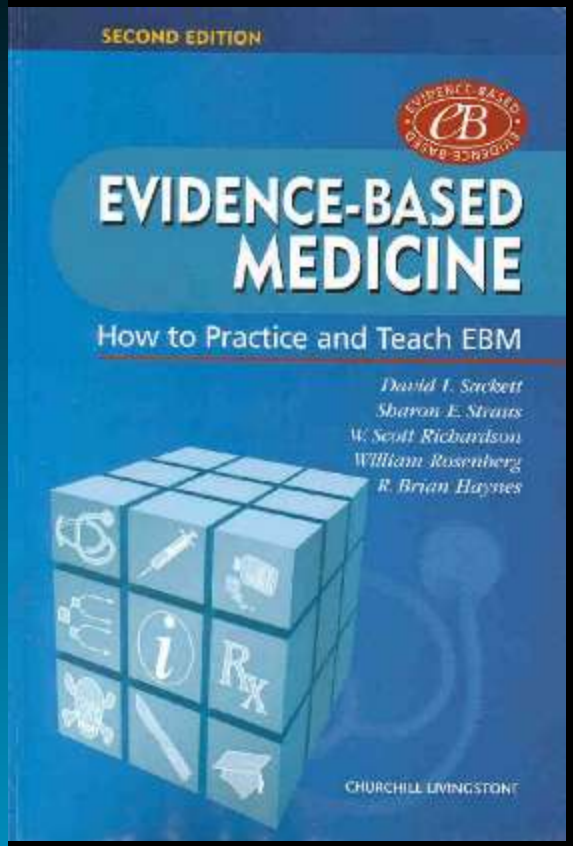
therapeutic meta-analysis

trohoc study


Manipulation with intervention
Yes
No
Experimental study
Non-experimental study / observational
Random allocation
Sampling according to exposition characteristics
Sampling according to (case) effect characteristics
Yes
No
Experimental study (RCT)
Quasi-experimental study (CCT)
Case series / cohort study
Case-control study

Clinical study designs (MESH terms):

- (Case study/series)
- Case-Control Study
- Cohort Study
- Cross-Sectional Survey
- Randomised Controlled Trial



Scientific evidence of doing more good than harm depends on adequate study design

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Scientific studies can be graded according to the theoretical possibility of an incorrect conclusion.

This is reflected by the design of the study.

…we will never know exact answers in science….

Oxford Centre for Evidence-based Medicine Levels of Evidence (May 2001)

Level	Therapy/Prevention, Aetiology/Harm	Prognosis	Diagnosis	Differential diagnosis/symptom prevalence study	Economic and decision analyses
1a	SR (with homogeneity*) of RCTs	SR (with homogeneity*) of inception cohort studies; CDR† validated in different populations	SR (with homogeneity*) of Level 1 diagnostic studies; CDR† with 1b studies from different clinical centres	SR (with homogeneity*) of prospective cohort studies	SR (with homogeneity*) of Level 1 economic studies
1b	Individual RCT (with narrow Confidence Interval‡)	Individual inception cohort study with ≥ 80% follow-up; CDR† validated in a single population	Validating** cohort study with good††† reference standards; or CDR† tested within one clinical centre	Prospective cohort study with good follow-up****	Analysis based on clinically sensible costs or alternatives; systematic review(s) of the evidence; and including multi-way sensitivity analyses
1c	All or none§	All or none case-series	Absolute SpPins and SnNouts††	All or none case-series	Absolute better-value or worse-value analyses ††††
2a	SR (with homogeneity*) of cohort studies	SR (with homogeneity*) of either retrospective cohort studies or untreated control groups in RCTs	SR (with homogeneity*) of Level >2 diagnostic studies	SR (with homogeneity*) of 2b and better studies	SR (with homogeneity*) of Level >2 economic studies
2b	Individual cohort study (including low quality RCT; e.g., <80% follow-up)	Retrospective cohort study or follow-up of untreated control patients in an RCT; Derivation of CDR† or validated on split-sample§§§ only	Exploratory** cohort study with good†††reference standards; CDR† after derivation, or validated only on split-sample§§§ or databases	Retrospective cohort study, or poor follow-up	Analysis based on clinically sensible costs or alternatives; limited review(s) of the evidence, or single studies; and including multi-way sensitivity analyses
2c	"Outcomes" Research; Ecological studies	"Outcomes" Research		Ecological studies	Audit or outcomes research
3a	SR (with homogeneity*) of case-control studies		SR (with homogeneity*) of 3b and better studies	SR (with homogeneity*) of 3b and better studies	SR (with homogeneity*) of 3b and better studies
3b	Individual Case-Control Study		Non-consecutive study; or without consistently applied reference standards	Non-consecutive cohort study, or very limited population	Analysis based on limited alternatives or costs, poor quality estimates of data, but including sensitivity analyses incorporating clinically sensible variations.
4	Case-series (and poor quality cohort and case-control studies§§)	Case-series (and poor quality prognostic cohort studies***)	Case-control study, poor or non-independent reference standard	Case-series or superseded reference standards	Analysis with no sensitivity analysis
5	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on economic theory or "first principles"

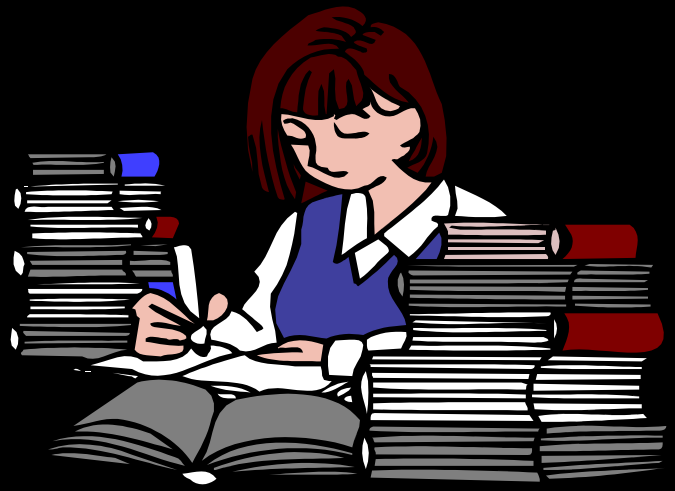
Appropriate Study Designs

	Qualitative	Cross-Sectional	Case Control	Cohort	RCT
Diagnosis				☆	☆☆
Therapy				☆	☆☆
Prognosis				☆☆☆	
Screening			☆	☆	☆☆
Views/beliefs perceptions	☆☆☆				
Prevalence/ hypothesis generation	☆☆☆	☆☆☆			

One Intention of this Lecture is to Demonstrate the Strength of the Scientific Evidence relative to the Three Selected Topics

An evidence-based critical apraisal approach

1. How many reports related to the topic can be identified?



An evidence-based critical apraisal approach

1. How many reports related to the topic can be identified?
2. How are these reports characterized on the basis of their study design?

An evidence-based critical apraisal approach

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2. How are these reports characterized on the basis of their study design?

How many reports are included within each category?

An evidence-based critical apraisal approach

1. How many reports related to the topic can be identified?
2. How can these reports be characterized on the basis of study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?

An evidence-based critical apraisal approach

1. How many reports related to the topic can be identified?
2. How can these reports be characterized on the basis of study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?
4. How can the reports be described in terms of participants- Interventions- Outcome measures

An evidence-based critical apraisal approach

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2. How can these reports be characterized on the basis of study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?
4. How can the reports be described?
5. Which conclusions and implications can be drawn from the present science foundation?

An evidence-based critical apraisal approach

1. How many reports related to the topic can be identified?
2. How can these reports be characterized on the basis of study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?
4. How can the reports be described?
5. Which conclusions and implications can be drawn from the present science foundation?
6. Which questions have not been answered by these studies?

   Which problems remain unsolved?

Wisdom tooth extractions

Why do you remove/retain "wisdom teeth"?

A question of prognosis

Prognosis

	Qualitative	Cross-Sectional	Case Control	Cohort	RCT
Diagnosis				☆	☆☆
Therapy				☆	☆☆
Prognosis				☆☆☆	
Screening			☆	☆	☆☆
Views/beliefs perceptions	☆☆☆				
Prevalence/ hypothesis generation	☆☆☆	☆☆☆			

- An inception cohort of persons, all initially free of the outcome of interest
- Follow-up of at least 80 per cent of patients until the occurrence of either a major study criteria or the end of the study
- A statistical analysis consistent with the study design.

Oxford Centre for Evidence-based Medicine Levels of Evidence (May 2001)

Level	Therapy/Prevention, Aetiology/Harm	Prognosis	Diagnosis	Differential diagnosis/symptom prevalence study	Economic and decision analyses
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1b	Individual RCT (with	Individual inception cohort study	Validating** cohort study with good††† reference standards; or CDR† tested within one clinical centre	Prospective cohort study with good follow-up****	Analysis based on clinically sensible costs or alternatives;
1c			Absolute SpPins and SnNouts††	All or none case-series	
2a	cohort studies	untreated control groups in RCTs	SR (with homogeneity*) of Level >2 diagnostic studies	SR (with homogeneity*) of 2b and better studies	SR (with homogeneity*) of Level >2 economic studies
2b	Individual cohort study (including low quality RCT; e.g., <80% follow-up)	Retrospective cohort study or	Exploratory** cohort study with		clinically ternatives; the evidence, or including multi-way sensitivity analyses
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SR (with homogeneity*) of RCTs
SR (with homogeneity*) of Level 1 economic studies
SR (with homogeneity*) of prospective cohort studies
SR (with homogeneity*) of inception cohort studies; CDR† validated in different populations
SR (with homogeneity*) of Level 1 diagnostic studies; CDR† with 1b studies from different clinical centres

Problem-Based Learning What is a SR- a Systematic Review?

The review article: An attempt to synthesise the results and conclusions of two or more publications on a given topic

Reviews

Usually:

- written by a single topic expert
- based on their understanding of the literature
- no methodology is given
- a broad based subject is addressed

Problems with reviews

- Personal Bias
- Selection Bias
- Cannot be reproduced independently
- Cannot easily check assumptions

"*Systematic review*"

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6	3 or 4 or 5	Details	225	Display
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9	limit 6 to yr=1986-1990	Details	24	Display
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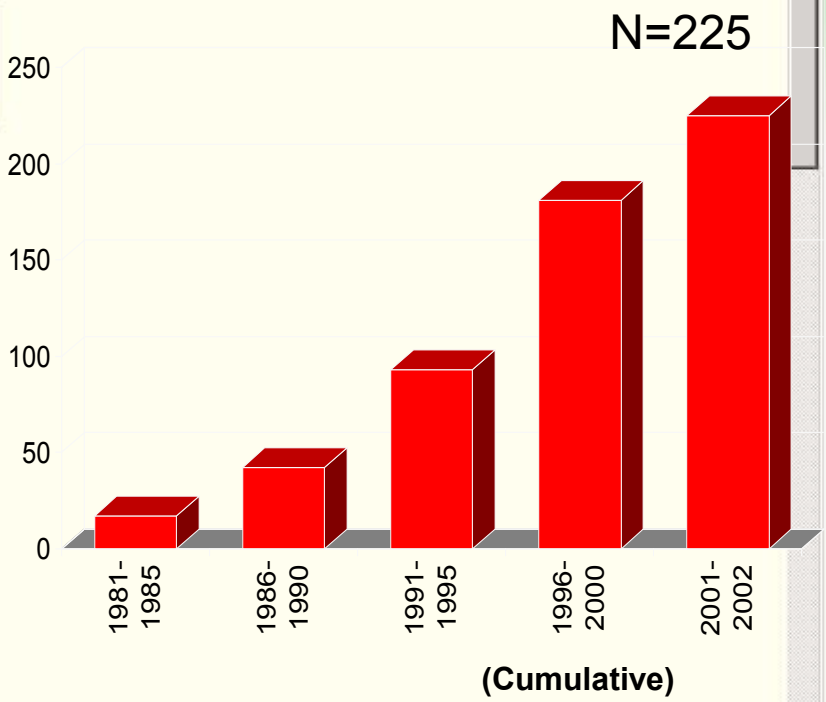
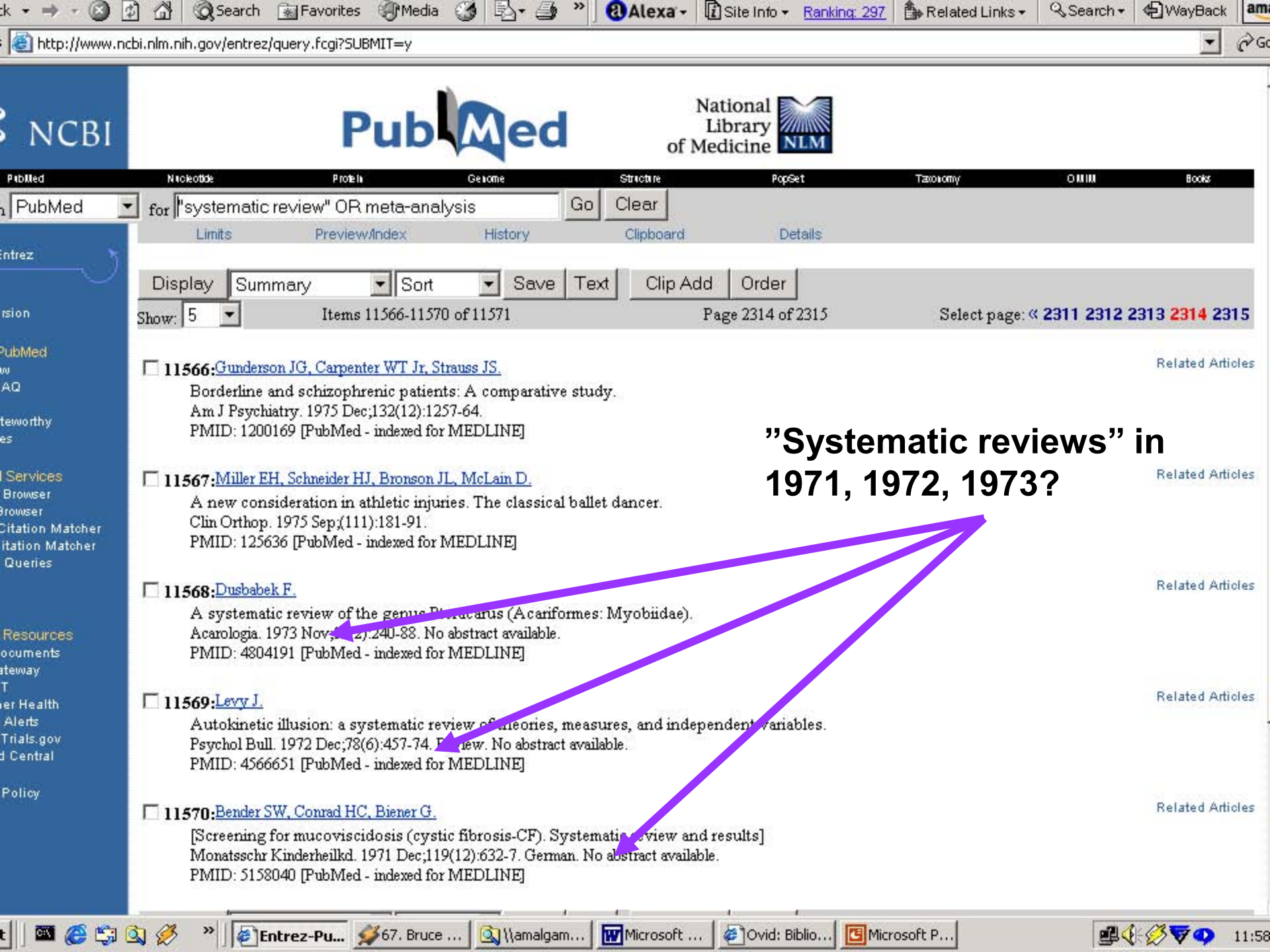


Topics (n=236)

- Pain & pharmacotherapy (n=51)
- Periodontology (n=31)
- Restorative dentistry (n=28)
- Caries (n=23)
- Fluoride issues (n=17)
- Orthodontics (n=16)
- Implant-related (n=11)
- Antibiotics, acupuncture, apnea, infection control, oral medicine, sealants, sedation, treatment decisions, toxicology,TMD...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Items 11566-11570 of 11571
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11566: Gunderson JG, Carpenter WT Jr, Strauss JS.
Borderline and schizophrenic patients: A comparative study.
Am J Psychiatry. 1975 Dec;132(12):1257-64.
PMID: 1200169 [PubMed - indexed for MEDLINE]
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11567: Miller EH, Schneider HJ, Bronson JL, McLain D.
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Clin Orthop. 1975 Sep;(111):181-91.
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Autokinetic illusion: a systematic review
Psychol Bull. 1972 Dec;78(6):457-74.
PMID: 4566651 [PubMed - indexed for MEDLINE]
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[Screening for mucoviscidosis (cystic fibrosis-CF). Systematic review and results]
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11:58

"*Systematic review*"

It's just a word!

What if one...

1. Pose one or more questions or hypotheses a priori

What if one...

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2. Appraise all publications/study results in the subject area

- perhaps limited to a particular type (e.g RTCs)

- from all relevant specific sources (e.g. databases)

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4. Combine and compare extracted relevant data

   and if the data cannot be combined, assess the strength of the evidence and use these to evaluate results

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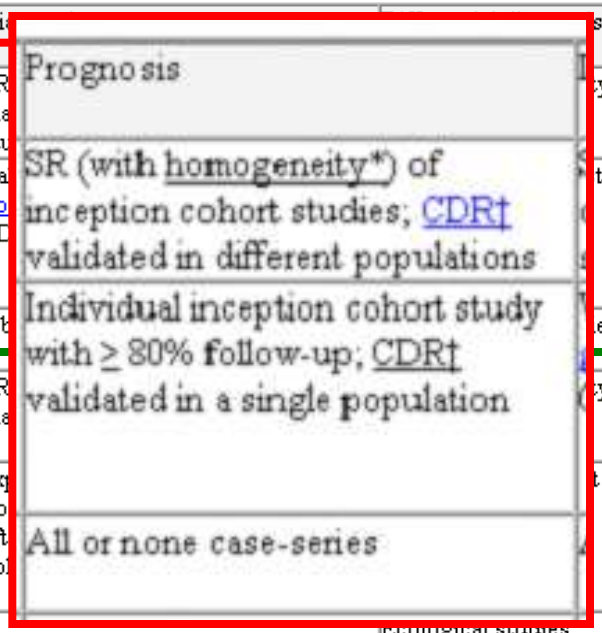
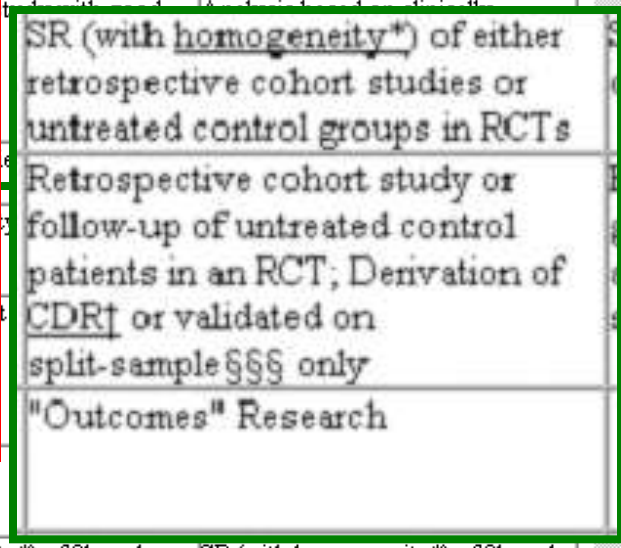
4. Combine and compare extracted relevant data
   - and if the data cannot be combined, assess the strength of the evidence and use these to evaluate results
5. Make conclusions based on results and/or the presence or absence of supporting evidence

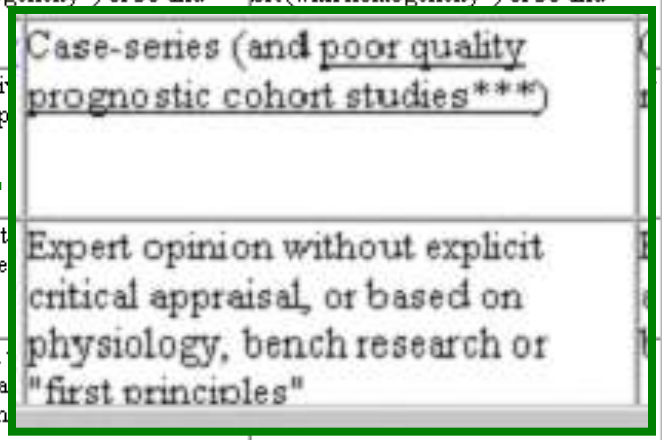
= <u>Systematic review</u>

Oxford Centre for Evidence-based Medicine Levels of Evidence (May 2001)

Level	Therapy/Prevention, Aetiology/Harm	Prognosis	Di	s/symptom	Economic and decision analyses
1a	SR (with homogeneity*) of RCTs	SR (with homogeneity*) of inception cohort studies; CDR† validated in different populations	SR	y*) of prospective	SR (with homogeneity*) of Level 1 economic studies
1b	Individual RCT (with narrow Confidence Interval‡)	Individual inception cohort study with ≥ 80% follow-up; CDR† validated in a single population	Va		
1c	All or none§	All or none case-series	At		
2a	SR (with homogeneity*) of cohort studies	SR (with homogeneity*) of either retrospective cohort studies or untreated control groups in RCTs	SR		
2b	Individual cohort study (including low quality RCT; e.g., <80% follow-up)	Retrospective cohort study or follow-up of untreated control patients in an RCT; Derivation of CDR† or validated on split-sample§§§ only	Ex		
2c	"Outcomes" Research; Ecologic l studies	"Outcomes" Research		Ecological studies	
3a	SR (with homogeneity*) of case-control studies		SR (with homogeneity*) of 3b and better studies	SR (with homogeneity*) of 3b and	SR (with homogeneity*) of 3b and better studies
3b	Individual Case-Control Study		Non-consecuti consistently ap standards		Analysis based on limited alternatives or costs, poor quality estimates of data, but including sensitivity analyses incorporating clinically sensible variations.
4	Case-series (and poo quality cohort and case-control studies§§)	Case-series (and poor quality prognostic cohort studies***)	Case-control st non-independe		Analysis with no sensitivity analysis
5	Expert opinion without explicit critical appraisal, or based on physiology	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion appraisal, or ba bench research		Expert opinion without explicit critical appraisal, or based on economic theory or "first principles"







An evidence-based critical appraisal process 1/5

1. How many reports related to wisdom tooth extraction and prognosis can be identified?

Problem-based learning - Where search for scientific information on therapy/prognosis?

1. FDI Guidelines Database
2. Cochrane Library
3. ISI Web of Knowledge
4. Medline
    1. Pubmed
    2. Ovid
5. Other databases

FDI World Dental Federation - Dental resources index page. - Microsoft Internet Explorer

File Edit View Favorites Tools Help | Google | Search Web | Search Site | PageRank | Page Info | Up | Highlight

Back | Search | Favorites | Media | Alexa | Site Info | Ranking: 97,980 | Related Links | Search

Address http://www.fdiworldental.org/resources/index.htm

The FDI Organisation | FDI World Dental Press | Global Dental Aid & Aid Organization | The Dental Industry

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FDI World Dental Federation

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Dental journals on WWW

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Inquiries - Dental Science

Emerging technologies

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Precautions in the dental office
Materials, techniques & procedures
Specialised procedures
Education & Scientific issues
Dentists' world

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Patient issues			
Endocarditis	[World]	[FDI]	
Dental erosion	[World]	[FDI]	[FDI statement]
Disabled patients	[World]	[FDI]	
Emergency treatment	[World]	[FDI]	
Neuralgia	[World]		
Sport	[World]		
Odontophobia, psychology, fear	[World]	[FDI]	
Oral mucosal problems	[World]	[FDI]	
Saliva and oral health	[World]	[FDI]	
Temporomandibular dysfunction	[World]	[FDI]	
Public health issues [Top]			

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dent* - 9779 hits

- The Cochrane Database of Systematic Reviews (187 out of 2655)
- Database of Abstracts of Reviews of Effectiveness (79 out of 3740)
- The Cochrane Central Register of Controlled Trials (CENTRAL) (9311 out of 345378)
- The Cochrane Database of Methodology Reviews (2 out of 15)
- The Cochrane Methodology Register (CMR) (46 out of 4002)
- About the Cochrane Collaboration (15 out of 86)
- Health technology assessment database (HTA) (33 out of 2838)
- NHS Economic evaluation database (NHS EED) (106 out of 10255)

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((impacted and (tooth or teeth)) or (wisdom and (tooth or teeth))) - 408 hits

- **The Cochrane Database of Systematic Reviews (10 out of 2655)**
  - **Complete reviews (7 out of 1519)**
    - ☐ Anaesthesia for treating distal radial fracture in adults.
    - ☐ Single dose dextropropoxyphene, alone and with paracetamol (acetaminophen), for postoperative pain.
    - ☐ Single dose dihydrocodeine for acute postoperative pain.
    - ☐ Single dose oral aspirin for acute pain.
    - ☐ Single dose oral ibuprofen and diclofenac for postoperative pain.
    - ☐ Single dose paracetamol (acetaminophen), with and without codeine, for postoperative pain.
    - ☐ Single dose piroxicam for acute postoperative pain.
  - **Protocols (3 out of 1136)**
    - ☐ Antibiotics to prevent complications following tooth extractions.
    - ☐ Fluoride rinses for preventing dental caries in children and adolescents.
    - ☐ New Interventions for treating trouble-free impacted wisdom teeth in adults.
- **Database of Abstracts of Reviews of Effectiveness (4 out of 3740)**
- **The Cochrane Central Register of Controlled Trials (CENTRAL) (389 out of 345378)**
- The Cochrane Database of Methodology Reviews (0 out of 15)
- The Cochrane Methodology Register (CMR) (0 out of 4002)

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INTERVENTIONS FOR TREATING TROUBLE-FREE IMPACTED WISDOM TEETH IN ADULTS

(Protocol)

van der Sanden WJM, Mettes TG, Verdonschot EH, van't Hof MA, Nienhuijs M, Plasschaert AJM

Date of most recent substantive update: 24 April 2002

This protocol should be cited as: van der Sanden WJM, Mettes TG, Verdonschot EH, van't Hof MA, Nienhuijs M, Plasschaert AJM. Interventions for treating trouble-free impacted wisdom teeth in adults (Protocol for a Cochrane Review). In: The Cochrane Library, Issue 4, 2002. Oxford: Update Software

BACKGROUND

Wisdom teeth or third molars generally erupt into the mouth between the ages of 17 to 24 years (Garcia 1989; Hugoson 1988). More than other teeth, wisdom teeth often fail to erupt or erupt only partially (Hugoson 1988). Impaction occurs where complete eruption into a normal functional position of a tooth is prevented and completion of the root growth is fully established. This can be due to lack of space (in the mouth), obstruction by another tooth, or development in an abnormal position (Venta 1999). A tooth that is completely impacted is entirely covered by soft tissue or covered partially by bone and soft tissue or completely covered by bone. Partial eruption occurs when the tooth is visible in the mouth but has not erupted into a normal functional position (Royal College 1997). An impacted wisdom tooth is called trouble-free, if the patient does not experience any symptoms of pain or discomfort associated with it (Song 1997). The recent literature also refers to descriptions like "disease-free" and "asymptomatic" (Shepherd 1993). Whenever impacted wisdom teeth cause symptoms of pain or pathological changes such as swelling or ulceration of the gums, the tooth is no longer trouble-free. General agreement still exists that removal is then an appropriate treatment decision (Guralnick 1980).

The prophylactic removal of trouble-free impacted wisdom teeth is defined as the (surgical) removal of wisdom teeth in the absence of local disease. Impacted wisdom teeth have been associated with pathological changes, such as inflammation of the

SEARCH PHRASE:

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((impacted and (tooth or teeth)) or (wisdom and (tooth or teeth))) - 408 hits

- **The Cochrane Database of Systematic Reviews (10 out of 2655)**
- **Database of Abstracts of Reviews of Effectiveness (4 out of 3740)**
  - **Abstracts of quality assessed systematic reviews (4 out of 2940)**
    - ☐ Prophylactic Removal of Impacted Third Molars: is it Justified? (Provisional record).
    - ☐ The effectiveness and cost-effectiveness of prophylactic removal of wisdom teeth (Provisional record).
    - ☐ The effectiveness of acupuncture in treating acute dental pain: a systematic review (Structured abstract).
    - ☐ The use of acupuncture in dentistry: a systematic review (Structured abstract).
  - Other reviews: bibliographic details only (0 out of 800)
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- The Cochrane Database of Methodology Reviews (0 out of 15)
- The Cochrane Methodology Register (CMR) (0 out of 4002)
- **About the Cochrane Collaboration (2 out of 86)**
- **Health technology assessment database (HTA) (3 out of 2838)**
  - ☐ Guidance on the removal of wisdom teeth.
  - ☐ Prophylactic removal of impacted third molars: is it justified?.
  - ☐ The effectiveness and cost-effectiveness of prophylactic removal of wisdom teeth.
- NHS Economic evaluation database (NHS EED) (0 out of 10255)

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- New Remifentanil for use during conscious sedation in outpatient oral surgery. 2002
- A subjective assessment of pain and swelling following the surgical removal of impacted third molar teeth using different surgical techniques. 2001
- ADL 8-2698, a trans-3,4-dimethyl-4-(3-hydroxyphenyl) piperidine, prevents gastrointestinal effects of intravenous morphine without affecting analgesia. 2001
- Analgesic effects of peripherally administered opioids in clinical models of acute and chronic inflammation. 2001
- New Assessment of anti-inflammatory effect of 830nm laser light using C-reactive protein levels. 2001
- Comparing efficacy and safety of four intravenous sedation regimens in dental outpatients. 2001
- New Nerve morbidity following wisdom tooth removal under local and general anaesthesia. 2001
- New Pain control with paracetamol from a sustained release formulation and a standard release formulation after third molar surgery: a randomised controlled trial. 2001
- Pregabalin in patients with postoperative dental pain. 2001
- Role of antimicrobials in third molar surgery: prospective, double blind,randomized, placebo-controlled clinical study. 2001
- New Salivary cortisol determinations and self-rating scales in the assessment of stress in patients undergoing the extraction of wisdom teeth. 2001
- The value of routine antibiotic prophylaxis in mandibular third molar surgery: acute-phase protein levels as indicators of infection. 2001
- Thermographic imaging of postoperative inflammation modified by anti-inflammatory pretreatment. 2001
- New Use of remifentanil in combination with desflurane or propofol for ambulatory oral surgery. 2001
- New [Should the lingual nerve be protected during germectomy? A prospective study apropos of 300 procedures]. [French]. 2001
- New Alterations in monitored vital constants induced by various local anesthetics in combination with different vasoconstrictors in the surgical removal of lower third molars. 2000
- Alveolar osteitis prevention by immediate placement of medicated packing. 2000

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PMID: 10319823; UI: 99251541.

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Evaluation of a new radiographic technique: outcome following removal of mandibular third molars.
Dentomaxillofac Radiol. 1998 Sep;27(5):264-9.
PMID: 9879214; UI: 99095287.

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Comparative study of pain control by cryotherapy of exposed bone following extraction of wisdom teeth.

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This specialized search is intended for clinicians and has built-in search "filters" based largely upon Haynes RB et al.. Four study categories--therapy, diagnosis, etiology, prognosis--are provided, and you may indicate whether you wish your search to be more sensitive (i.e., include most relevant articles but probably including some less relevant ones) or more specific (i.e. including mostly relevant articles but probably omit a few). See this table for details regarding filtering.

Indicate the category and emphasis below:

Category: ◉ therapy ○ diagnosis ○ etiology ○ prognosis
Emphasis: ○ sensitivity ◉ specificity

Enter subject search (do not repeat any of the words above):

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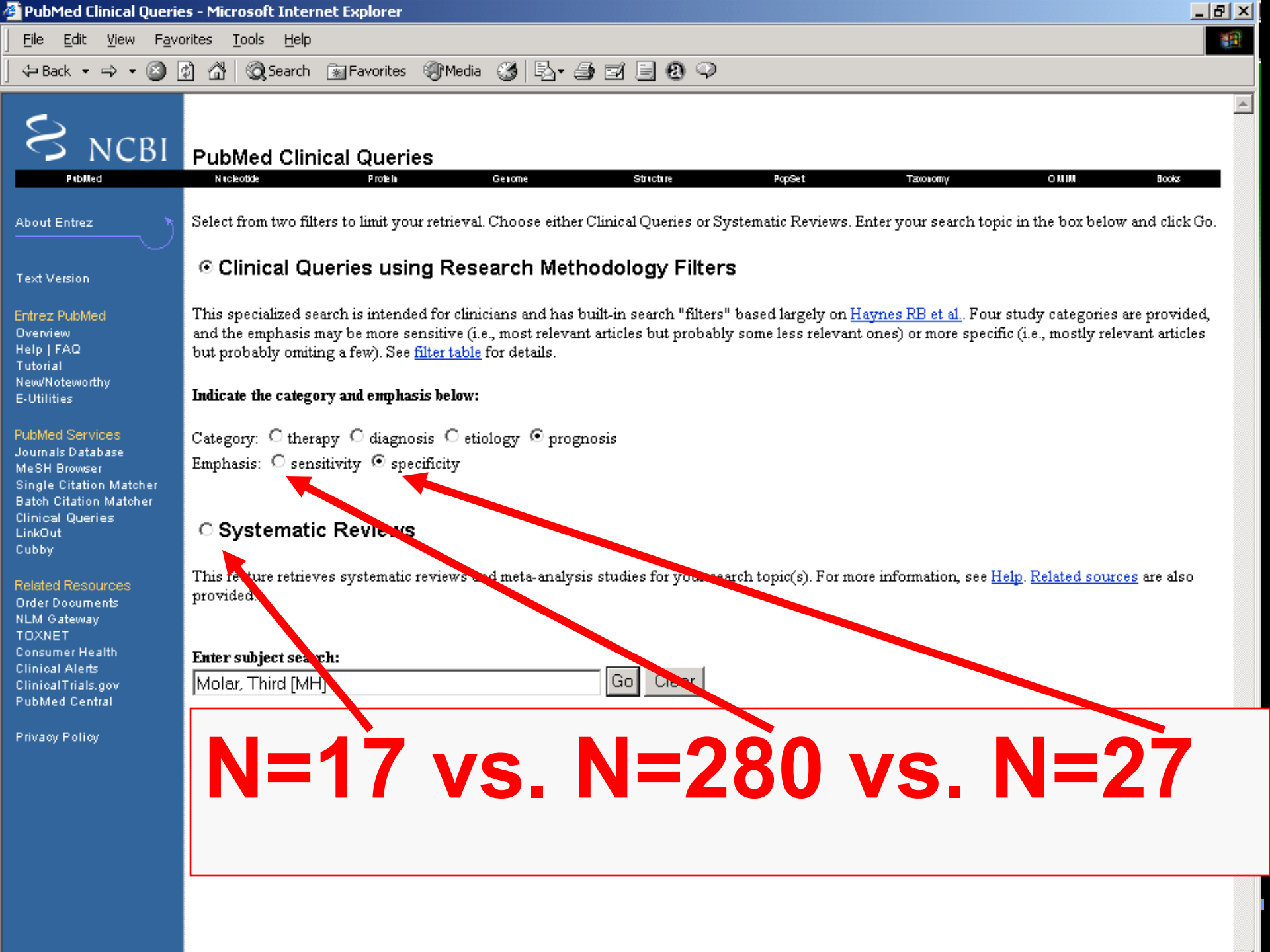
NOTE: If you want to retrieve everything on a subject area, you should not use this page. The objective of filtering is to reduce the retrieval to articles that report research conducted with specific methodologies, and retrieval will be greatly reduced.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Indicate the category and emphasis below:
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- **Journals@Ovid Full Text** November 22, 2002
- **EBM Reviews - ACP Journal Club** 1991 to September/October 2002
- **EBM Reviews - Cochrane Central Register of Controlled Trials** 4th Quarter 2002
- **EBM Reviews - Cochrane Database of Systematic Reviews** 4th Quarter 2002
- **EBM Reviews - Database of Abstracts of Reviews of Effectiveness** 4th Quarter 2002
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2	molar third/	172	Display
3	tooth impacted/	105	Display
4	(third adj molar$).ti,ab,sh.	213	Display
5	(wisdom adj (teeth or tooth)).ti,ab,sh.	17	Display
6	(itm or itms).tw.	25	Display
7	or/2-6	343	Display
8	animal/	123970	Display
9	human/	355486	Display
10	8 not (8 and 9)	82468	Display
11	7 not 10	332	Display
12	limit 11 to ebm reviews	0	-

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molar, third"[MeSH Terms] AND (((((("incidence"[MeSH Terms] OR "mortality"[MeSH Terms]) OR "follow-up studies"[MeSH Terms]) OR "mortality"[MeSH Subheading]) OR ((prognos[WORD] OR prognose[WORD]) OR prognosed[WORD]) OR prognoses[WORD]) OR prognosic[WORD]) OR prognosing[WORD]) OR prognosis[WORD]) OR prognosis/outcome[WORD]) OR prognosis/prevention[WORD]) OR prognosis/prognostic[WORD]) OR prognosis/survival[WORD]) OR prognosisa[WORD]) OR prognosisand[WORD]) OR prognosised[WORD]) OR prognositc[WORD]) OR prognositcally[WORD]) OR prognosite[WORD]) OR prognositic[WORD]) OR prognosonis[WORD]) OR prognosprognosis[WORD]) OR prognossis[WORD]) OR prognostc[WORD]) OR prognostic[WORD]) OR prognostic/diagnostic[WORD]) OR prognostic/experimental[WORD]) OR prognostic/metastatic[WORD]) OR prognostic/predicting[WORD]) OR prognostic/proliferative[WORD]) OR prognostic/severity[WORD]) OR prognostic/staging[WORD]) OR prognostica[WORD]) OR prognosticable[WORD]) OR prognosticably[WORD]) OR prognostical[WORD]) OR prognostically[WORD]) OR prognosticate[WORD]) OR prognosticated[WORD]) OR prognosticates[WORD]) OR prognosticating[WORD]) OR prognostication[WORD]) OR prognostications[WORD]) OR prognosticative[WORD]) OR prognosticator[WORD]) OR prognosticators[WORD]) OR prognosticatory[WORD]) OR prognostician[WORD]) OR prognosticians[WORD]) OR prognosticity[WORD]) OR prognosticks[WORD]) OR prognosticly[WORD]) OR prognostico[WORD]) OR prognosticon[WORD]) OR prognostics[WORD]) OR prognostification[WORD]) OR prognostigate[WORD]) OR prognostigram[WORD]) OR prognostikon[WORD]) OR prognostis[WORD]) OR prognostisity[WORD]) OR prognosys[WORD])) OR ((predict[WORD] OR predict/classify[WORD]) OR predict/interpret[WORD]) OR predict/rank[WORD]) OR predict/refine[WORD]) OR predict/rule[WORD]) OR predict7[WORD]) OR predicta[WORD]) OR predictab[WORD]) OR predictabe[WORD]) OR predictabilities[WORD]) OR predictability[WORD]) OR predictabilty[WORD]) OR predictable[WORD]) OR predictable/controlled[WORD]) OR predictable/unpredictable[WORD]) OR predictables[WORD]) OR predictablity[WORD]) OR predictably[WORD]) OR predictabuity[WORD]) OR predictalbe[WORD]) OR predictand[WORD]) OR predictands[WORD]) OR predictative[WORD]) OR predictd[WORD]) OR predicte[WORD]) OR predicted[WORD]) OR predicted/100[WORD]) OR predicted/assumed[WORD]) OR predicted/have[WORD]) OR predicted/observed[WORD]) OR predicted/se[WORD]) OR predicted/year[WORD]) OR predictedfrom[WORD]) OR predictedl[WORD]) OR predictedl/e[WORD]) OR predictee[WORD]) OR predicter[WORD]) OR predicters[WORD]) OR predictibility[WORD]) OR predictible[WORD]) OR predictically[WORD]) OR predictice[WORD]) OR predictie[WORD]) OR predictim[WORD]) OR predictin[WORD]) OR predictinf[WORD]) OR predicting[WORD]) OR predicting/assessing[WORD]) OR predicting/evaluating[WORD]) OR predicting/preventing[WORD]) OR predictinglung[WORD]) OR predictingthe[WORD]) OR predictintegral[WORD]) OR predictiom[WORD]) OR prediction[WORD]) OR prediction/analysis[WORD]) OR prediction/confirmation[WORD]) OR prediction/feedback[WORD]) OR prediction/prevention[WORD]) OR prediction/prognosis[WORD]) OR prediction/recognition[WORD]) OR prediction/singular[WORD]) OR prediction/verification[WORD]) OR predictional[WORD]) OR predictioncenter[WORD]) OR predictioning[WORD]) OR predictions[WORD]) OR predictions/number[WORD]) OR predictionst[WORD]) OR predictit[WORD]) OR predictition[WORD]) OR predictitive[WORD]) OR predictiv[WORD]) OR predictive[WORD]) OR predictive/data[WORD]) OR predictive/face/construct[WORD]) OR predictive/vector[WORD]) OR predictively[WORD]) OR predictiveness[WORD]) OR predictiveof[WORD]) OR predictives[WORD]) OR predictivites[WORD]) OR


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Quit Smoking
Surgery
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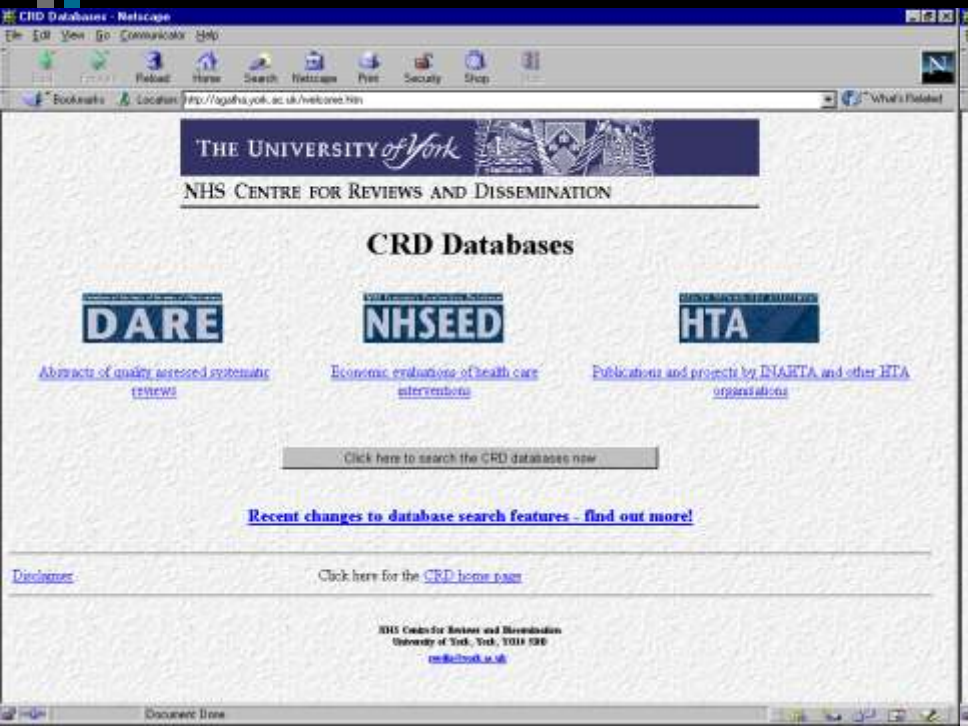
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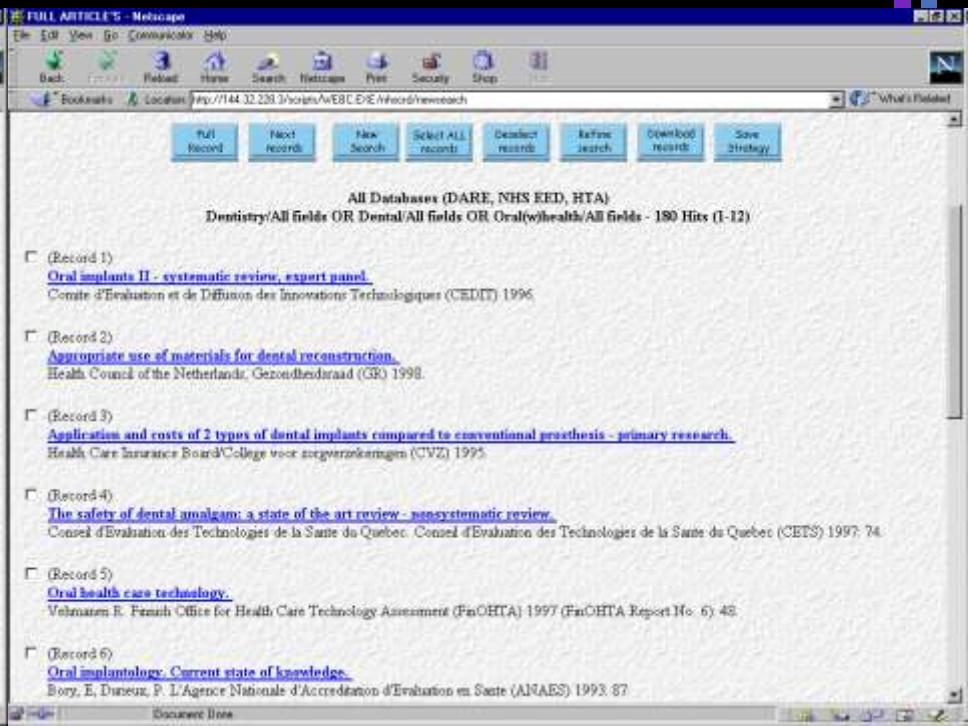
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Refine search
Download records
Save Strategy
All Databases (DARE, NHS EED, HTA)
Dentistry/All fields OR Dental/All fields OR Oral(w)health/All fields - 180 Hits (1-12)
(Record 1)
Oral implants II - systematic review, expert panel.
Comite d'Evaluation et de Diffusion des Innovations Technologiques (CEDIT) 1996.
(Record 2)
Appropriate use of materials for dental reconstruction.
Health Council of the Netherlands, Gezondheidsraad (GR) 1998.
(Record 3)
Application and costs of 2 types of dental implants compared to conventional prosthesis - primary research.
Health Care Insurance Board/College voor zorgverzekeringen (CVZ) 1995.
(Record 4)
The safety of dental amalgam: a state of the art review - nonsystematic review.
Conseil d'Evaluation des Technologies de la Sante du Quebec. Conseil d'Evaluation des Technologies de la Sante du Quebec (CETS) 1997: 74.
(Record 5)
Oral health care technology.
Vehmanen R. Finnish Office for Health Care Technology Assessment (FinOHTA) 1997 (FinOHTA Report No. 6): 48.
(Record 6)
Oral implantology. Current state of knowledge.
Bory, E, Dureux, P. L'Agence Nationale d'Accreditation d'Evaluation en Sante (ANAES) 1998: 87.

#	Search History	Results	Display
7	or/2-6 Details	662	Display
8	animal/ Details	3966	Display
9	human/ Details	212425	Display
10	8 not (8 and 9) Details	0	-
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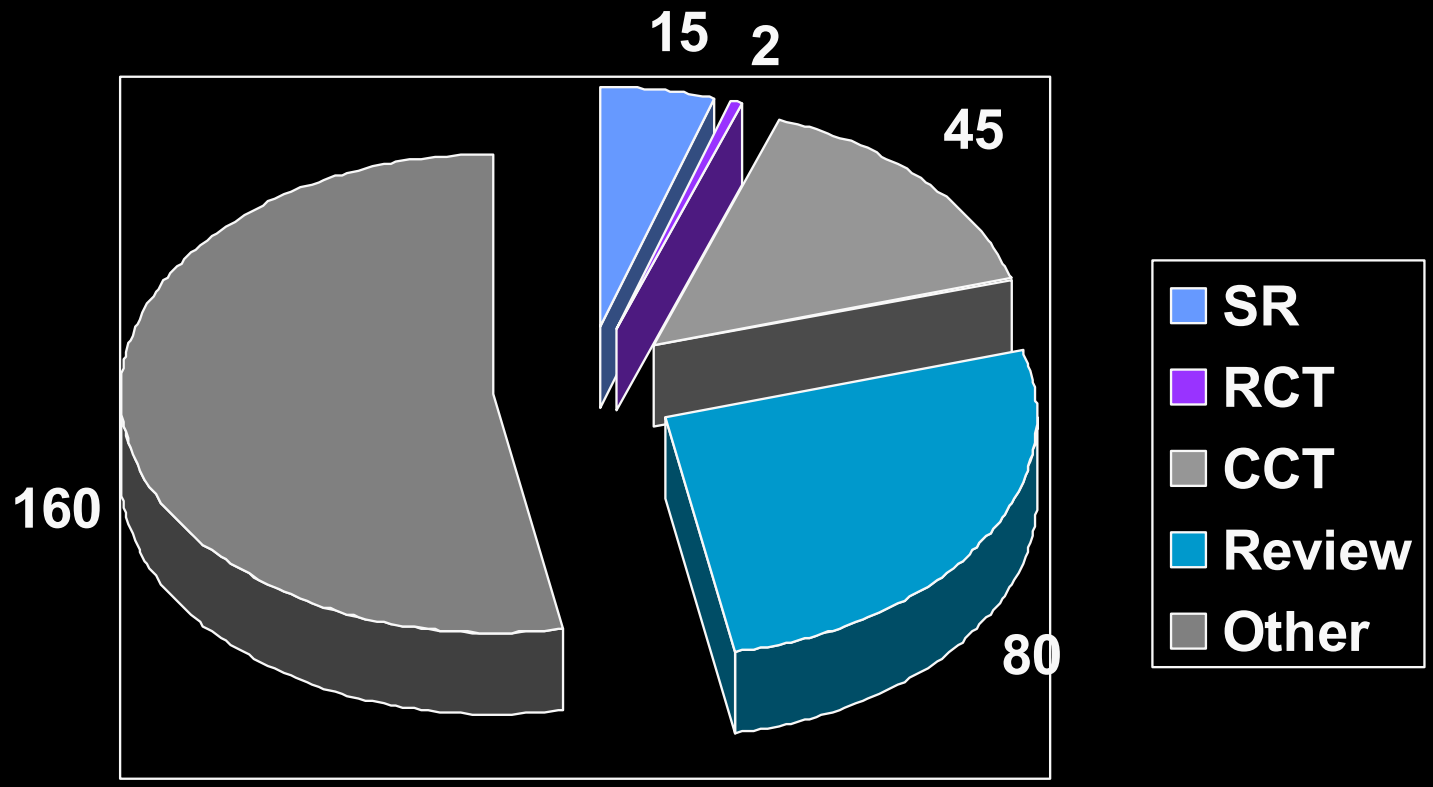
☐ Latest Update ☐ Ovid Full Text Available
Publication Year - -

EBM Reviews - Cochrane Database of Systematic Reviews <4th Quarter 2002> (0 records) • EBM Reviews - ACP Journal Club <1991 to September/October 2002> (0 records) • EBM Reviews - Database of Abstracts of Reviews of Effectiveness <4th Quarter 2002> (0 records) • EBM Reviews - Cochrane Central Register of Controlled Trials <4th Quarter 2002> (51 records)

An evidence-based critical appraisal process 2/5

1. How many reports related to the topic can be identified?
2. How are these approx. 300 reports characterized. Which study design?



An evidence-based critical appraisal process 3/5

1. How many reports related to the topic can be identified?
2. How can these reports be characterized. Which study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?

surgery

Year	Original title	Type	Country	Source	Publish	Authors	http	ISDN	topi
2001	Weisheitszahnextraktion [Wisdom tooth extractions]	Guidelines/Statement	Germany/Deutschland	DGZMK, Deutsche Gesellschaft für Zahn-, Mund- und Kieferheilkunde	Dtsch Zahnärztl Z 2001; 56 (8):	Strietzel FP, Neukam FW, Hirschfelder U, Reichart PA	DGZMK, Deutsche Gesellschaft für Zahn-, Mund- und Kieferheilkunde		surgery
2001	Guidelines in Oral and Maxillofacial Surgery	Guidelines	United Kingdom	BAOMS, The British Association of Oral and Maxillofacial Surgeons			BAOMS		surgery
2001	Position paper: Tissue Banking of Bone Allografts Used in Periodontal Regeneration	Review/Guidelines	USA	AAP, American Academy of Periodontology	J Periodontol 2001; 72: 834-838	Research, Science and Therapy Committee of the American Accademy of Periodontology	AAP		periodo surgery
2000	International Research Group on Reconstructive Preprosthetic Surgery. Consensus report	Review/Guidelines	USA	International Research Group on Reconstructive Preprosthetic Surgery	Int J Oral Maxillofac Surg 2000; 29(3): 159-62		OVID		surgery
2000	Management of Unerupted and Impacted Third Molar Teeth	Guidelines	Scotland	Scottish Intercollegiate Guidelines Network (SIGN)	SIGN Publication 43		SIGN		surgery
2000	Guidelines for anxiety control and pain management in oral and maxillofacial surgery	Guidelines	USA	American Association of Oral and Maxillofacial Surgery	J Oral Maxillofac Surg 2000; 58(10 Suppl 2): 4-7	Zuniga JR	J Oral Maxillofac Surg		psychol surgery
2000	Guidance on the removal of wisdom teeth	Guidelines	United Kingdom	NICE, National Institute for Clinical Excellence, UK	NICE 2000/003a Issued: 27 March 2000	Song F, O'Meara S, Wilson P, Kleijnen J,	NICE		surgery

WISSENSCHAFTLICHE STELLUNGNAHME

Deutsche Gesellschaft für Zahn- Mund- und Kieferheilkunde gegr. 1859

Indikationen zur operativen Weisheitszahnentfernung

Operative Weisheitszahnentfernungen gehören zu den häufigsten dentoalveolären operativen Eingriffen, die in der zahnärztlichen Praxis ambulant durchgeführt werden. Die Inzidenz retinierter unterer Weisheitszähne liegt bei etwa 84 % im Alter von 20 Jahren [23].

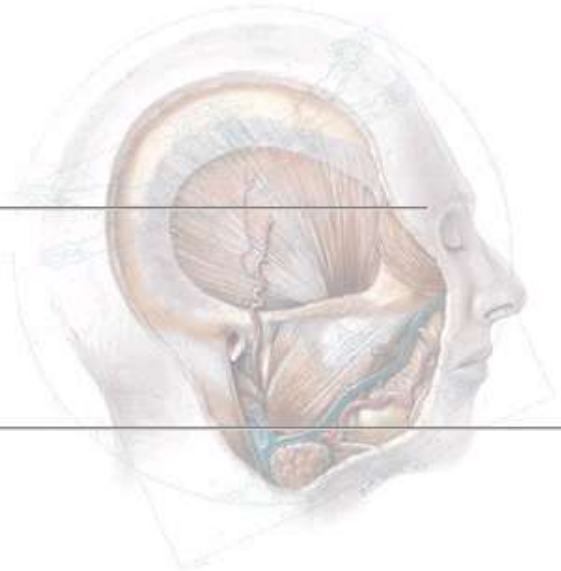
Als Retention eines Zahnes ist das Nicht-Erreichen der Okklusionsebene nach Abschluß seines Wurzelwachstums definiert. Partiell retinierte Zähne perforieren mit einem Kronenanteil die Schleimhaut. Komplett retinierte Zähne haben keinerlei Verbindung zur Mundhöhle. Impaktierte Zähne sind vollständig von Knochen umgeben. Unter einer Zahnverlagerung oder Aberration ist die Keimverlagerung oder das Abweichen eines Zahnes von seiner regelrechten Durchbruchsrichtung zu verstehen. Die Impaktion des unteren Weisheitszahnes ist meist verursacht durch Platzmangel, mangelhaftes Skelettwachstum, distalen Durchbruch der Bezahnung, vertikales Wachstum des Kondylus, eine große Kronendimension und die verspätete Reifung des unteren Weisheitszahnes. Platzmangel, Durchbruchshindernisse oder die verspätete Reifung sind meist ursächlich für Retentionen oberer Weisheitszähne, allerdings verursachen sie durch die Möglichkeit des Durchbruches nach bukkal oder distal, in seltenen Fällen auch in die Kieferhöhle, weniger häufig Beschwerden. Viele retinierte oder impaktierte Weisheitszähne werden zufällig anläßlich der Anfertigung von Panoramaschichtaufnahmen entdeckt.

Bei der Erhebung des Ausgangsbefundes sind neben den Ergebnissen der üblichen klinischen und röntgenologischen Untersuchungen insbesondere bereits vorhandene Sensibilitätsstörungen,

The British Association of Oral and Maxillofacial Surgeons

Guidelines

This area contains links to guidelines produced by BAOMS and other related specialties



Association of Dental Implantology

Implants

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British Association of Dermatologists

Basal Cell Carcinoma Guidelines PDF

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SIGN

SIGN Publication Number 43

Scottish Intercollegiate Guidelines Network

Management of Unerupted and Impacted Third Molar Teeth

A National Clinical Guideline

please note: 25.04.2000 14:53:06

This guideline was issued in 2000 and will be reviewed in 2002 or sooner if new evidence becomes available. Any updates to the guideline in the interim period will be noted on the SIGN website. Comments are invited to

NHS National Institute for Clinical Excellence

Welcome to NICE

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25 November 2002

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NICE issues Guidance to the NHS on the removal of Wisdom Teeth

Ref: NICE 2000/003a Issued: 27 March 2000

NICE have today issued to the NHS their guidance on the removal of wisdom teeth The guidance has been sent to all dentists in England and Wales and to NHS Management and concludes that:

- The routine practice of prophylactic removal of pathology-free impacted third molars should be discontinued in the NHS.
- The standard routine programme of dental care by dental practitioners and/or paraprofessional staff, need be no different, in general, for pathology free impacted third molars (those requiring no additional investigations or procedures).
- Surgical removal of impacted third molars should be limited to patients with evidence of pathology. Such pathology includes unrestorable caries, non-treatable pulpal and/or periapical pathology, cellulitis, abcess and osteomyelitis, internal/external resorption of the tooth or adjacent teeth, fracture of tooth, disease of follicle including cyst/tumour, tooth/teeth impeding surgery or reconstructive jaw surgery, and when a tooth is involved in or within the field of tumour resection.
- Specific attention is drawn to plaque formation and pericoronitis. Plaque formation is a risk factor but is not in itself an indication for surgery. The degree to which the severity or recurrence rate of pericoronitis should influence the decision for surgical removal of a third molar remains unclear. The evidence suggests that a first episode of pericoronitis, unless particularly severe, should not be considered an indication for surgery. Second or subsequent episodes should be considered the appropriate indication for surgery.

The guidance has been supported by the Chief Dental Officers for both England and Wales who have written to all NHS dentists asking them to revise their practice.

Related Topics:

- Wisdom teeth - removal (NO 1) (in: Technology Appraisals → Completed Appraisals)
- Press releases 2000 (in: Press Office → Press releases)

Welcome to NICE

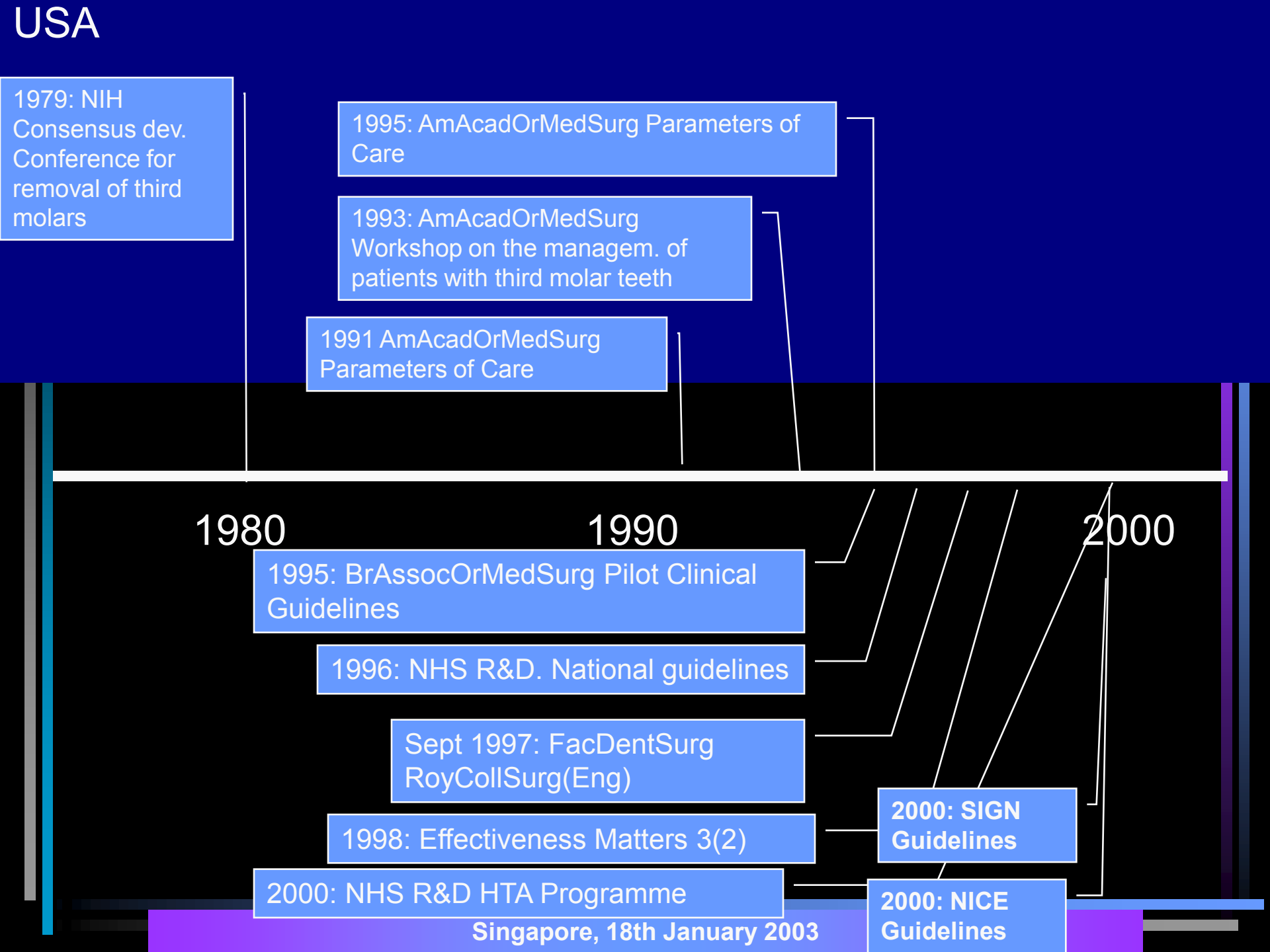
- NICE set to launch new e-newsletter
- Preferred ways to use electronic communications with NICE
- Principles of the Quality Assurance Process for Guidance Documents
- Appraisal Consultation Document: Review: The clinical effectiveness and cost effectiveness of glitazones for the treatment of type 2 diabetes
- 2002/061 First meeting of NICE Citizens Council will discuss clinical need
- Recruitment of Interventional Procedures Project Manager
- Compilation Issue 5
- First public report of NICE-funded Myocardial Infarction

Health Technology Assessment 2000; Vol. 4: No. 15

Rapid review

The effectiveness and cost-effectiveness of prophylactic removal of wisdom teeth

F Song
S O'Meara
P Wilson
S Golder
J Kleijnen


USA
1979: NIH Consensus dev. Conference for removal of third molars
1995: AmAcadOrMedSurg Parameters of Care
1993: AmAcadOrMedSurg Workshop on the managem. of patients with third molar teeth
1991 AmAcadOrMedSurg Parameters of Care
1980
1990
2000
1995: BrAssocOrMedSurg Pilot Clinical Guidelines
1996: NHS R&D. National guidelines
Sept 1997: FacDentSurg RoyCollSurg(Eng)
1998: Effectiveness Matters 3(2)
2000: NHS R&D HTA Programme
2000: SIGN Guidelines
2000: NICE Guidelines
Singapore, 18th January 2003

Agence Nationale
d'Accréditation et
d'Évaluation en Santé

1997

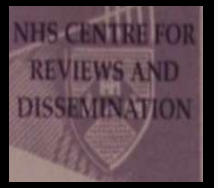
INDICATIONS ET NON-INDICATIONS DE L'AVULSION DES TROISIÈMES MOLAIRES MANDIBULAIRES

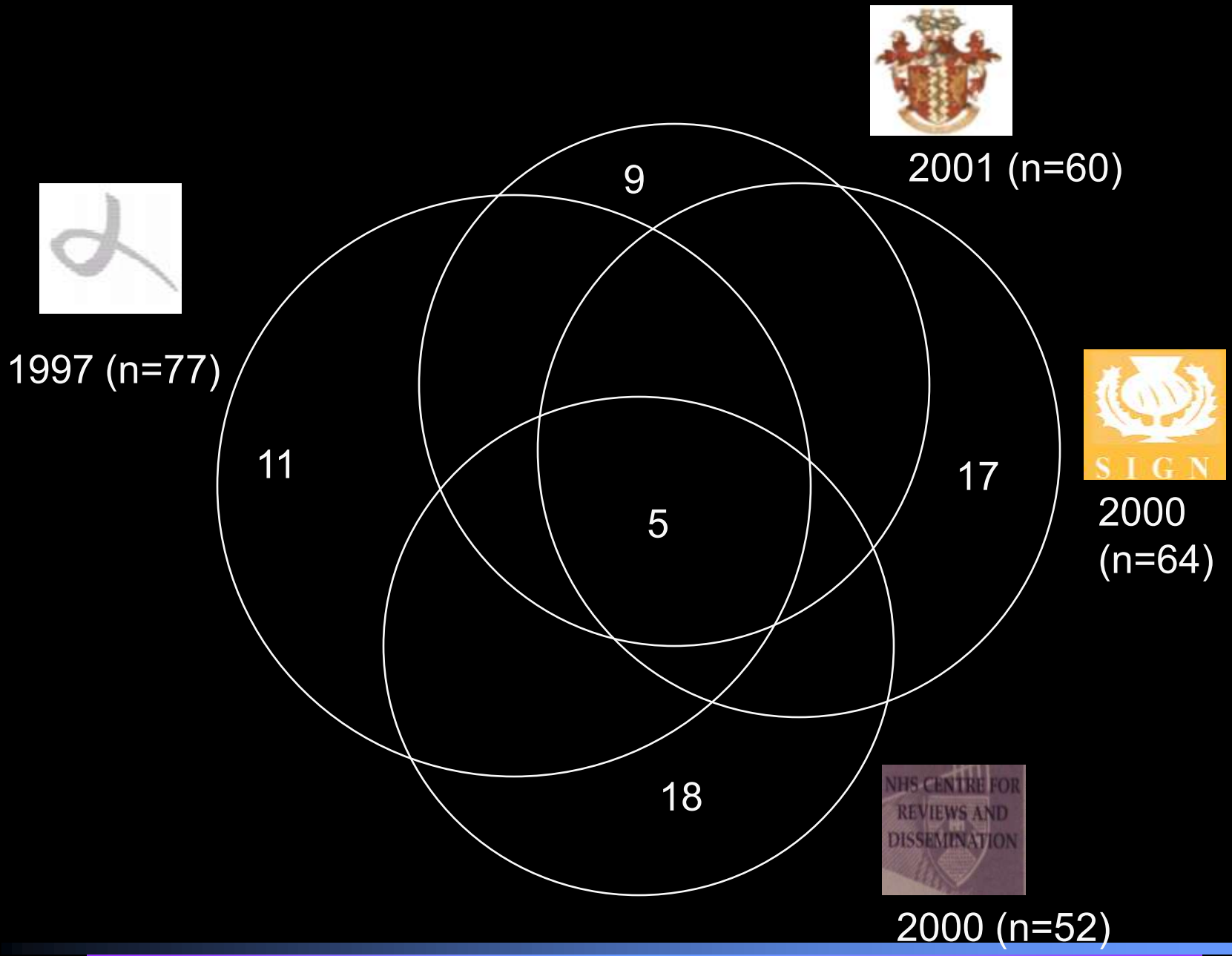
SOMMAIRE

Three general questions

1. Is the study valid?
2. What are the results ?
3. Are the results relevant to my question / problem?

Selection of papers (n = 171)

	DGZMK, Germany	23	SR, Clinic trials
	NHS R&D, UK	52	RCT & Reviews
	SIGN, Scotland	64	RCT & CCT
	BAOMS, UK	60	CCT, Clinic trials
	ANAES, France	77	CCT, Clinic trials


2001 (n=60)
9
1997 (n=77)
11
17
5
2000
(n=64)
18
NHS CENTRE FOR REVIEWS AND DISSEMINATION
2000 (n=52)

An evidence-based critical appraisal process 4/5

1. How many reports related to the topic can be identified?
2. How can these reports be characterized. Which study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?
4. How can the reports be described in terms of participants- Interventions- Outcome measures

An evidence-based critical appraisal process 5/5

1. How many reports related to the topic can be identified?
2. How can these reports be characterized. Which study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?
4. How can the reports be described?
5. Which conclusions and implications can be drawn from the present science foundation?

There is little disagreement about the appropriateness of removal when associated with pathological changes:

1. Pericoronitis (8-59%)
2. Unrestorable caries (7%, 43% in adjacent molar)
3. Non-treatable pulpal and/or periapical pathology
4. Cellulitis, abscess and osetomyelitis (4.5-5%)
5. Periodontal disease (1-4.5%)
6. Internal/external resorption of tooth/adjacent tooth (2-5%)
7. Disease of follicle including cyst/tumour (2-11% cyst, 0.0003-2% tumour)
8. Pain, specific to tooth and non-TMD related (5-53%)
9. Specific medical and surgical conditions
10. Other: Trauma management, Orthodontic treatment with distal retraction, tooth fracture, orthognathic surgery, transplantation

National Institute for Clinical Excellence

Observations

Impacted wisdom teeth that are free from disease (healthy) should not be operated on. There are two reasons for this

1. There is no reliable research to suggest that this practice benefits patients
2. Patients who do have healthy wisdom teeth removed are being exposed to the risks of surgery. These can include, nerve damage, damage to other teeth, infection, bleeding, and, rarely, death. Also, after surgery to remove wisdom teeth, patients may have swelling, pain and be unable to open their mouth fully.

Risk of complications

1. Inadequate clinical examination and diagnosis
2. Anatomical position of tooth
3. Root morphology
4. Local anatomical relationships
5. Status of adjacent teeth
6. Limited access to operation field
7. Patient cooperation/compliance
8. Bulk and density of supporting bone
9. Ankylosis
10. Presence of associated disease
11. Underlying systemic disease that may interfere with healing

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Conclusions/Suggestions

Surgical removal of impacted third molars should be limited to patients with evidence of pathology:

- unrestorable caries
- non-treatable pulpal and/or periapical pathology
- cellulitis, abcess and osteomyelitis
- internal/external resorption of the tooth or adjacent teeth
- fracture of tooth
- disease of follicle including cyst/tumour
- tooth/teeth impeding surgery or reconstructive jaw surgery
- when a tooth is involved in or within the field of tumour resection

When should impacted molars be removed prophylactically?

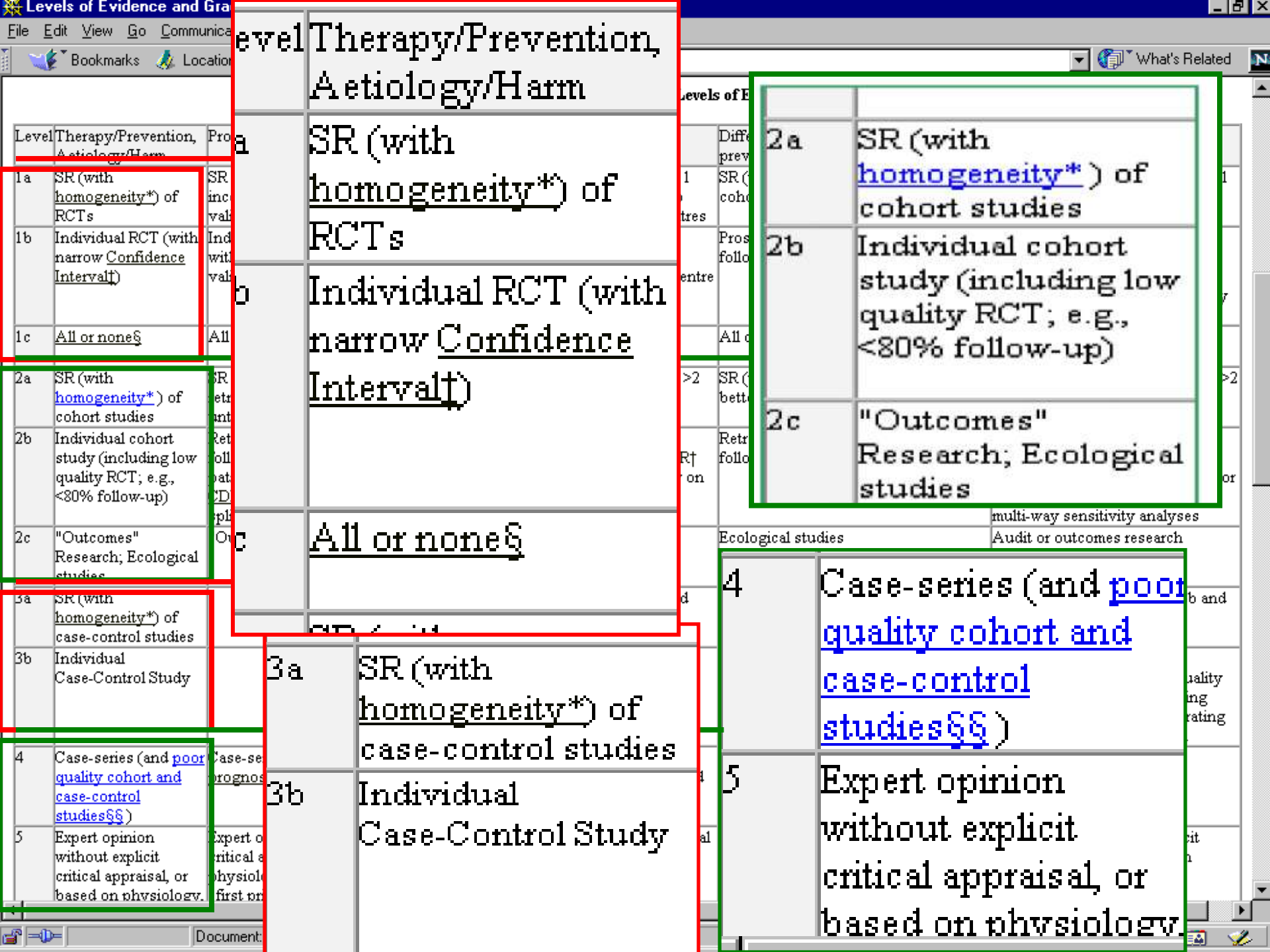
1. If access to care is difficult
2. When risk associated with early removal are less than the anticipated risks of later removal

We don't know which impacted molars are likely to become associated with disease from those unlikely to do so

Implantology

What is the scientific proof that one implant system is better than another?

A question of therapy


Levels of Evidence and Gra
File Edit View Go Communica
Bookmarks Locatio
What's Related
Level Therapy/Prevention, Aetiology/Harm
1a SR (with homogeneity*) of RCTs
1b Individual RCT (with narrow Confidence Interval†)
1c All or none§
2a SR (with homogeneity*) of cohort studies
2b Individual cohort study (including low quality RCT; e.g., <80% follow-up)
2c "Outcomes" Research; Ecological studies
3a SR (with homogeneity*) of case-control studies
3b Individual Case-Control Study
4 Case-series (and poor quality cohort and case-control studies§§)
5 Expert opinion without explicit critical appraisal, or based on physiology
multi-way sensitivity analyses
Ecological studies
Audit or outcomes research
Document:

An evidence-based critical appraisal process 1/5

How many reports related to documenting implant superiority can be identified?

implants

Year	Original title	Type	Country	Source	Publish	Authors	http	ISDN	topic
2001	Quality control of dental implants	ongoing project	International	FDI Science Commission project 98-05	Project in progress	Jokstad A, Reich E	Project details		implants
2001	Implant identification system	ongoing project	International	FDI Science Commission project 99-04	Project in progress	Parodi RJ	Project details		implants
2000	Lebenserwartung von Implantaten und Implantatlager [Survival of implants and implant components]	Guidelines/Statement	Germany/Deutschland	DGZMK, Deutsche Gesellschaft für Zahn-, Mund- und Kieferheilkunde		Neukam F	DGZMK, Deutsche Gesellschaft für Zahn-, Mund- und Kieferheilkunde		implants
2000	Position paper: Dental Implants in Periodontal Therapy	Review	USA	AAP, American Academy of Periodontology	J Periodontol 2000; 71: 1934-42	Research, Science and Therapy Committee of the American Accademy of Periodontology	AAP		periodontics implants
2000	Selection criteria for dental implant site imaging	Guide/Statement	USA	American Academy of Oral and Maxillofacial radiology	Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2000; 89 (5): 630-7	Tyndall AA, Brooks SL	OSOMOP		implant radiology
1999	Konsensus zu basal osseointegrierten Implantaten (BOI). Der Implantoral-Club Deutschland (ICD). [A consensus on basal osseointegrated implants (BOI). The Implantoral-	Statement	Germany/Deutschland	Der Implantoral-Club Deutschland (ICD)	Schweiz Monatsschr Zahnmed. 1999;109 (9):971-2	Besch KJ	Abstract Medline		implants

SEARCH PHRASE:

go

Refine your search

SELECTED: UNSELECT SAVE VIEW

((dent* next implant*) or (tooth next implant*)) - 302 hits

- **The Cochrane Database of Systematic Reviews (11 out of 2655)**
  - **Complete reviews (4 out of 1519)**
    - ☐ New Interventions for replacing missing teeth: different types of dental implants.
    - ☐ Interventions for replacing missing teeth: hyperbaric oxygen therapy for irradiated patients who require dental implants.
    - ☐ Interventions for replacing missing teeth: maintaining and re-establishing healthy tissues around dental implants.
    - ☐ New Interventions for replacing missing teeth: preprosthetic surgery versus dental implants.
  - **Protocols (7 out of 1136)**
- **Database of Abstracts of Reviews of Effectiveness (5 out of 3740)**
- **The Cochrane Central Register of Controlled Trials (CENTRAL) (276 out of 345378)**
- The Cochrane Database of Methodology Reviews (0 out of 15)
- The Cochrane Methodology Register (CMR) (0 out of 4002)
- **About the Cochrane Collaboration (2 out of 86)**
- **Health technology assessment database (HTA) (3 out of 2838)**
- **NHS Economic evaluation database (NHS EED) (5 out of 10255)**

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New!

INTERVENTIONS FOR REPLACING MISSING TEETH: DIFFERENT TYPES OF DENTAL IMPLANTS

Esposito M, Coulthard P, Worthington HV, Jokstad A, Wennerberg A

Date of most recent substantive update: 9 July 2002

This review should be cited as: Esposito M, Coulthard P, Worthington HV, Jokstad A, Wennerberg A. Interventions for replacing missing teeth: different types of dental implants (Cochrane Review). In: *The Cochrane Library*, Issue 4, 2002. Oxford: Update Software.

ABSTRACT

Background
Dental implants are available in different materials, shapes and with different surface characteristics. In particular, numerous implant surface modifications have been developed for enhancing clinical performances.

Objectives
To test the null hypothesis of no difference in clinical performance between various root-formed osseointegrated implant types.

Search Strategy
The Cochrane Oral Health Group Specialised Trials Register, The Cochrane Controlled Trials Register, MEDLINE and EMBASE were searched. Hand searching included several dental journals. Bibliographies of relevant clinical trials and review articles were checked for studies outside the handsearched journals. In addition, authors of all identified trials and fifty-five oral implant manufacturers were contacted to find unpublished or ongoing RCTs. Two extensive personal libraries (ME and AJ) were consulted. The last electronic search was conducted 8th May 2002.

Selection Criteria
All randomised controlled trials of oral implants comparing implants with different materials, shapes and surface properties having a follow-up of at least one year.

Data collection and analysis
Data were independently extracted, in duplicate, by two reviewers (ME & HW). Authors were contacted for details of randomisation and withdrawals and a quality assessment was carried out. The Cochrane Oral Health Group's statistical guidelines were followed.

Main Results
Thirty publications, representing 13 different RCTs, were identified. Five of these RCTs (seven publications), which reported results from a total of 326 patients, were suitable for inclusion in the review. Six implant systems were compared: Astra, Branemark, IMZ, ITI,

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CLEAR TOPICS RECORDS MeSH HISTORY HELP BACK FORWARD OUTLINE FEEDBACK PRINT FIND ABOUT EXIT

SEARCH PHRASE:

go

Refine your search

SELECTED: UNSELECT SAVE VIEW

((dent* next implant*) or (tooth next implant*)) - 302 hits

- **The Cochrane Database of Systematic Reviews (11 out of 2655)**
  - **Complete reviews (4 out of 1519)**
  - **Protocols (7 out of 1136)**
    - ☐ Interventions for replacing missing teeth: bone augmentation techniques for dental implant treatment.
    - ☐ New Interventions for replacing missing teeth: different times for loading dental implants.
    - ☐ Interventions for replacing missing teeth: partially absent dentition.
    - ☐ Interventions for replacing missing teeth: resin-bonded bridges and other restorations for the replacement of adult teeth.
    - ☐ Interventions for replacing missing teeth: surgical techniques for placing dental implants.
    - ☐ Interventions for replacing missing teeth: totally absent dentition.
    - ☐ Penicillins for the prophylaxis of bacterial endocarditis in dentistry.
- **Database of Abstracts of Reviews of Effectiveness (5 out of 3740)**
  - **Abstracts of quality assessed systematic reviews (5 out of 2940)**
    - ☐ A meta-analysis of implants in partial edentulism (Structured abstract).
    - ☐ A review of survival rates for implants placed in grafted maxillary sinuses using meta-analysis (Structured abstract).
    - ☐ A systematic review of single-tooth restorations supported by implants (Provisional record).
    - ☐ Meta-analysis of fixed partial denture survival: prostheses and abutments (Structured abstract).
    - ☐ Patient-based assessment of the outcomes of implant therapy: a review of the literature (Structured abstract).

SEARCH PHRASE:

go

Refine your search

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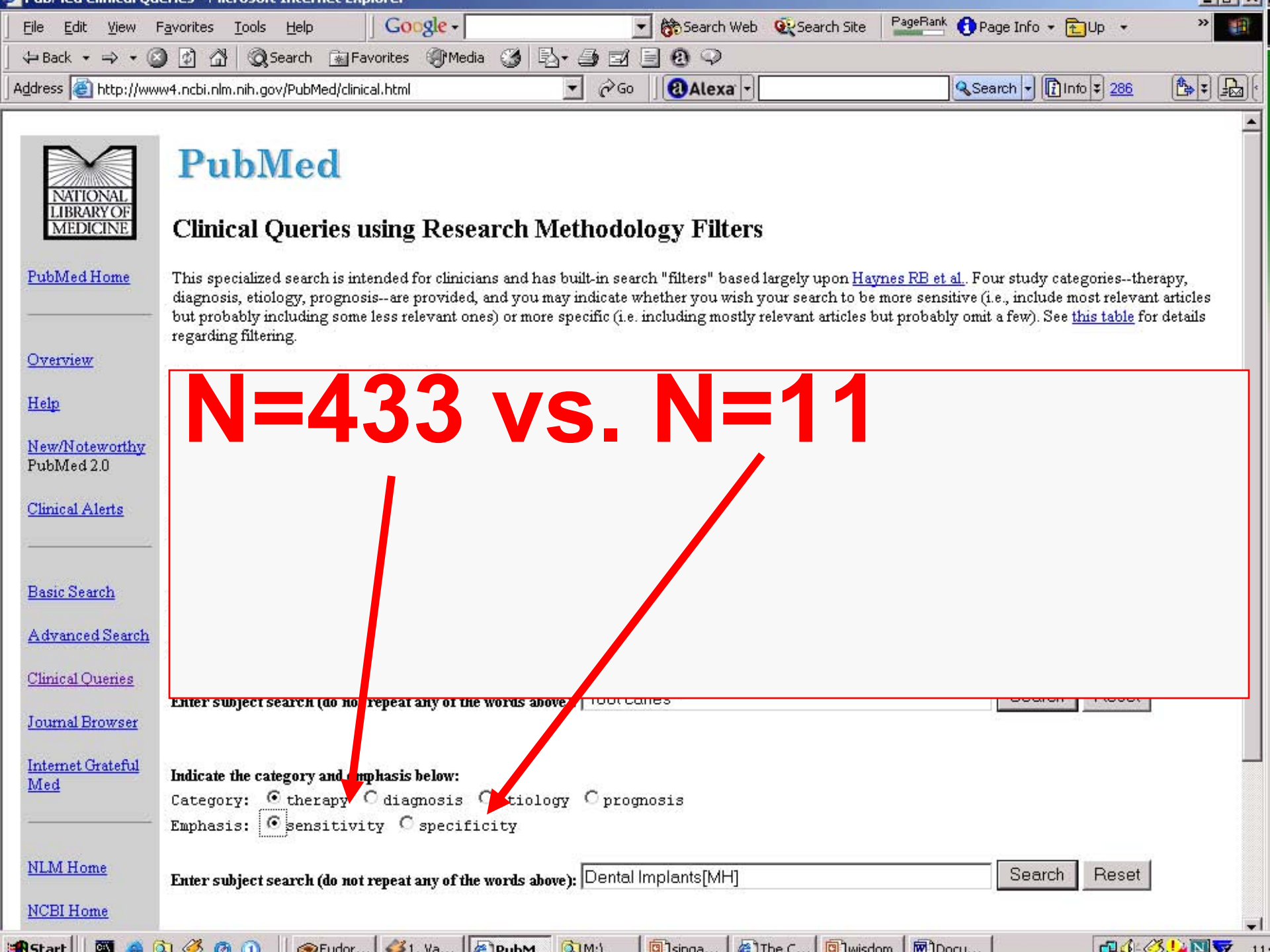
- **Database of Abstracts of Reviews of Effectiveness (5 out of 3740)**
  - **Abstracts of quality assessed systematic reviews (5 out of 2940)**
  - Other reviews: bibliographic details only (0 out of 800)
- **The Cochrane Central Register of Controlled Trials (CENTRAL) (276 out of 345378)**
- The Cochrane Database of Methodology Reviews (0 out of 15)
- The Cochrane Methodology Register (CMR) (0 out of 4002)
- **About the Cochrane Collaboration (2 out of 86)**
- **Health technology assessment database (HTA) (3 out of 2838)**

  - ☐ Application and costs of 2 types of dental implants compared to conventional prosthesis - primary research.
  - ☐ Bone and bone substitute materials to the parodontal regeneration or to the bone construction for implants - a systematic review (project).
  - ☐ Oral implantology. Current state of knowledge.
- **NHS Economic evaluation database (NHS EED) (5 out of 10255)**
  - Critically appraised economic evaluations (0 out of 3842)
  - **Other economic studies: bibliographic details (5 out of 6413)**

    - ☐ A conceptual framework for understanding outcomes of oral implant therapy.
    - ☐ A prospective study on the maintenance of implant prostheses in private practice.
    - ☐ Dosimetry and cost of imaging osseointegrated implants with film-based and computed tomography.
    - ☐ The cost of dental implants as compared to that of conventional strategies.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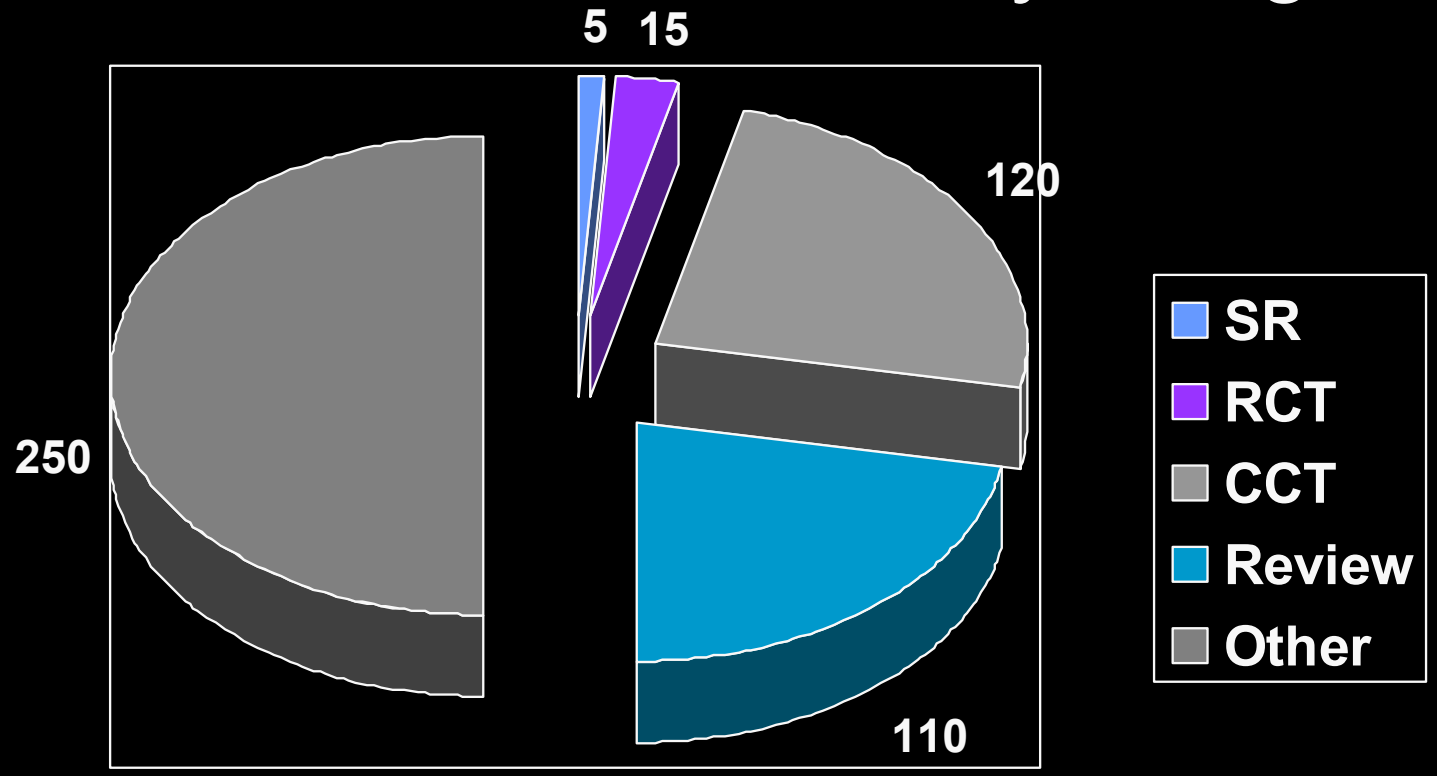
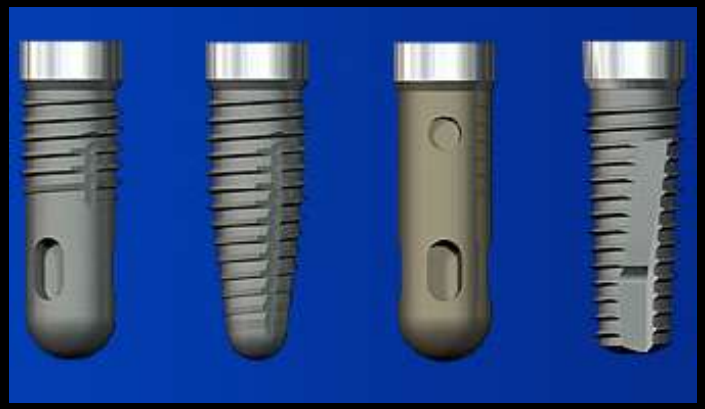
Clinical Alerts
Basic Search
Advanced Search
Clinical Queries
Journal Browser
Internet Grateful Med
NLM Home
NCBI Home
This specialized search is intended for clinicians and has built-in search "filters" based largely upon Haynes RB et al.. Four study categories--therapy, diagnosis, etiology, prognosis--are provided, and you may indicate whether you wish your search to be more sensitive (i.e., include most relevant articles but probably including some less relevant ones) or more specific (i.e. including mostly relevant articles but probably omit a few). See this table for details regarding filtering.
N=433 vs. N=11
Indicate the category and emphasis below:
Category: therapy diagnosis etiology prognosis
Emphasis: sensitivity specificity
Enter subject search (do not repeat any of the words above): Dental Implants[MH]
Search
Reset

An evidence-based critical appraisal process 2/5

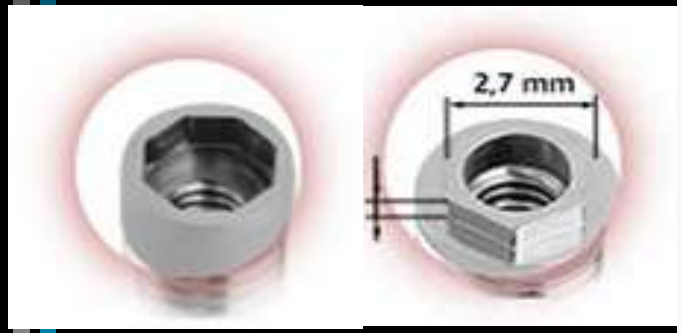
1. How many reports related to the topic can be identified?
2. How are these 500 reports characterized. Which study design?



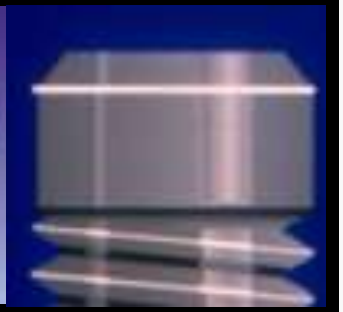


General Form	1. Straight 2. Tapered 3. Conical 4. Ovoid 5. Trapezoidal 6. Stepped

Machining process	Resulting surface topography	Example
Acid etched (Usually etched in a two-step procedure)	Isotropic surface with high frequency irregularities	HCl/ H_2SO_4 (Osseotite™, 3i Implant innovations, USA)
Blasted (The surface is blasted with hard particles.)	Creates an isotropic surface	TiO_2 particles (Tioblast™, Astra Tech AB, Sweden)
Blasted + acid etched (The surface is first blasted and then acid etched)	Creates an isotropic surface	1. Al_2O_3 particles & HCl & H_2SO_4 (SLA™, Institute Straumann AG, Switzerland); 2. Tricalcium phosphate & HF & NO_3 (MTX™, Centerpulse Dental, USA)
Hydroxyapatite coated	In general, a rather rough and isotropic surface	Sustain™ (Lifecore Biomedical Inc, USA)
Oxidized (Increased thickness of the oxidized layer)	Isotropic surface with the presence of craterous structures	TiUnite™ (Nobel Biocare AB, Sweden)
Titanium Plasma Sprayed (TPS)	A relatively rough isotropic surface	Bonefit™ (Institute Straumann AG, Switzerland)
Turned	Cutting marks produce an oriented, anisotropic surface	Brånemark MKIII™ (Nobel Biocare, Sweden)



General Form	1. Straight 2. Tapered 3. Conical 4. Ovoid 5. Trapezoidal 6. Stepped
Connection	1. External vs Internal connection 2. Hexagonal vs Octagonal vs cone 3. Morse taper 4. Rotational vs non-rotational 5. Added non-rotational features 6. Heights & widths 7. Butt vs bevel joints 8. Slip-fit vs friction-fit joints 9. Resilience vs nonresilience



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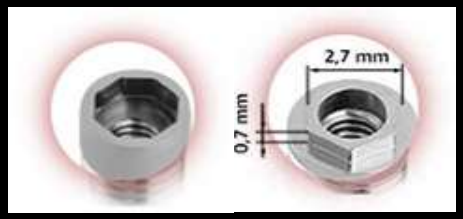
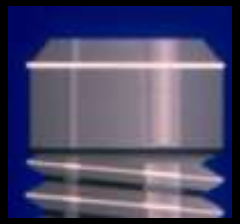
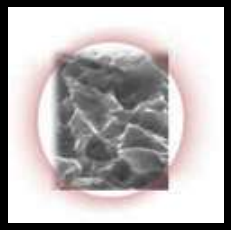
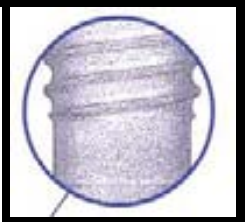
Upper Third	1. Flange vs no flange 2. Wider vs straight vs flared flange 3. Height of flange 4. Polished vs threads on flange 5. Added features on flange 6. Surface treatment









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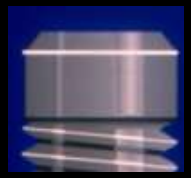
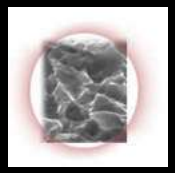
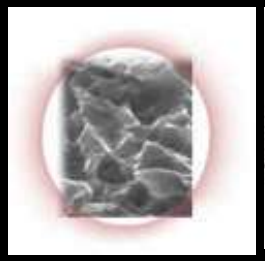
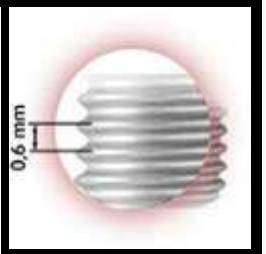
Upper third	Flange vs no flange /Wider vs straight vs flared flange /Height of flange /Polished vs threads on flange /Added features on flange /Surface treatment
Centre third	1. Threaded vs non-threaded 2. V-shaped vs square vs reverse buttress threads vs combinations 3. Grooves and groove size 4. Surface treatment









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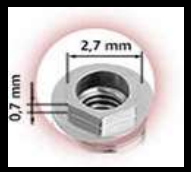
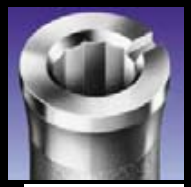
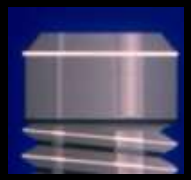
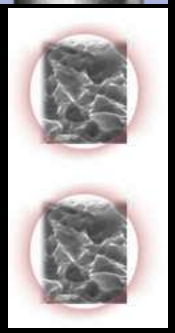
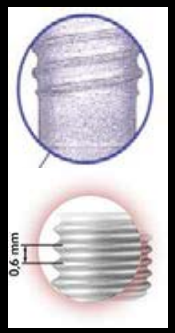
Centre third	Threaded vs non-threaded / V-shaped vs square vs reverse buttress threads vs combinations / Grooves and groove size / Surface treatment
Middle third	**1. Threaded vs non-threaded** **2. V-shaped vs square vs reverse buttress threads vs combinations** **3. Grooves and groove size** **4. Surface treatment**

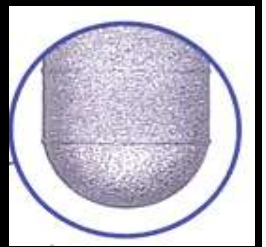












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Apical third	Threaded vs non-threaded / V-shaped vs square vs reverse buttress threads vs combinations / Grooves and groove size / Surface treatment
Apex	1. Threaded vs non-threaded 2. V-shape vs flat vs curved apex 3. Holes, round, oblong 4. Apical chamber 5. Grooves and groove size 6. Flared apex 7. Surface treatment

An evidence-based critical appraisal process 3/5

1. How many reports related to the topic can be identified?
2. How can these reports be characterized. Which study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?

Strength of evidence of treatment effects

US Agency of Health Care Policy & Research, 1992

Ia. Meta-analysis of randomized controlled trials (RCT)

Ib. At least one RCT

IIa. At least one well-designed controlled study without randomization

IIb. At least one other quasi-experimental study

III. Well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case-control studies

IV. Expert committee reports or opinions and/or clinical experience of respected authorities

Strength of evidence of treatment effects

EBM Working Group, McMaster University 1993

Systematic reviews and meta-analyses

RCT with definite results
RCT with non-definite results

Cohort studies
Case-control studies
Cross sectional studies

Case reports

Sackett et al., Editorial. EBM 1995;1:4

(I-1) 2 or more well designed randomised controlled trials (RCT), meta-analyses, or systematic reviews.
(I-2) a RCT

(II-1) a cohort study.
(II-2) a case controlled study.
(II-3) a dramatic uncontrolled experiment

(III) respected authorities, expert committees (consensus) etc

(IV) ...someone once told me

Strength of evidence of treatment effects

Richards & Lawrence, Br Dent J 1995;175:270

1. Systematic review of multiple well-designed randomised controlled trials
2. Properly designed randomised controlled trial of appropriate size and in an appropriate clinical setting
3. Well-designed trials without randomisation, single group pre, post, cohort, time series or matched case controlled studies
4. Well-designed experimental studies from more than one centre or research group
5. Opinions of respected authorities based on clinical evidence, descriptive studies or reports of expert consensus committees

Quality Assessment of Randomized Controlled Trials of Oral Implants

Marco Esposito, DDS, PhD[1]/Paul Coulthard, BDS, MFGDP, MDS, FDSRCS, PhD[2]/
Helen V. Worthington, BSc, MSc, PhD, FIS[3]/Asbjørn Jokstad, DDS, PhD[4]

The aim of this study was to assess the quality of randomized controlled trials (RCTs) concerned with the effectiveness of oral implants and to create a trial register. A multilayered search strategy was used to identify all RCTs published by the end of 1999 in any language. The Cochrane Oral Health Group specialist register, PubMed, and personal libraries were searched. Seventy-four RCTs were identified. Forty-three articles, not presenting the same patient material, were independently assessed by 3 researchers using a specially designed form. A statistician assessed all trials for the appropriateness of statistics. The quality of each study was assessed on 7 items, including 3 key domains. Randomization and concealment allocation procedures were not described in 30 articles (70%). Reasons for withdrawals were not given in 10 reports (23%). No attempt at blinding was reported in 31 studies (72%). The quality of RCTs of oral implants is generally poor and needs to be improved. INT J ORAL MAXILLOFAC IMPLANTS 2001;16:783–792

Key words: *dental implants, randomized controlled trial, registries, research design, review literature*

The quality of RCTs of oral implants is generally poor and needs to be improved

Quality assessment

A) Was a sample size calculation undertaken?

0 No/not mentioned

1 Yes, but not confirmed by calculation

2 Yes, confirmed

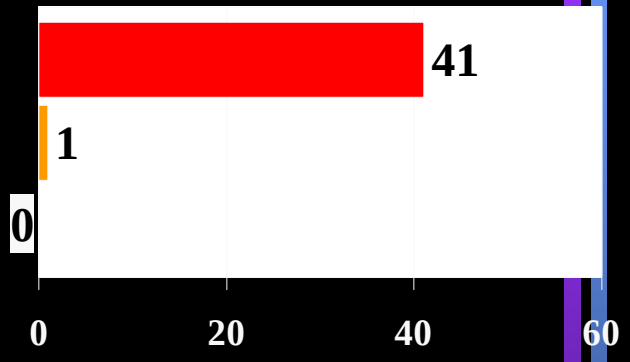
B) Randomization and allocation concealment method

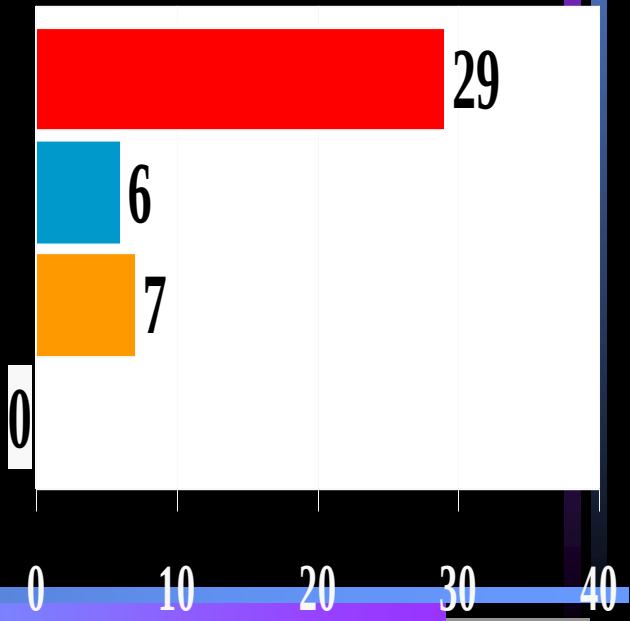
0 Not described

1 Clearly inadequate - transparent before assignment

2 Possibly adequate-sealed envelopes

3 Clearly adequate- centralized randomization and third party contact for group code





Quality assessment

A) Was a sample size calculation undertaken?

B) Randomization and allocation concealment method

C) Were inclusion/exclusion criteria clearly defined?

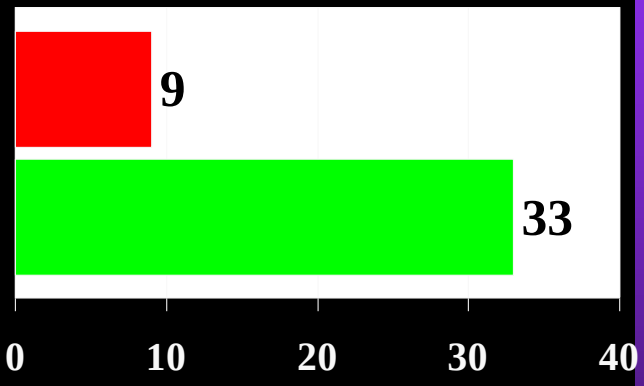
0 No

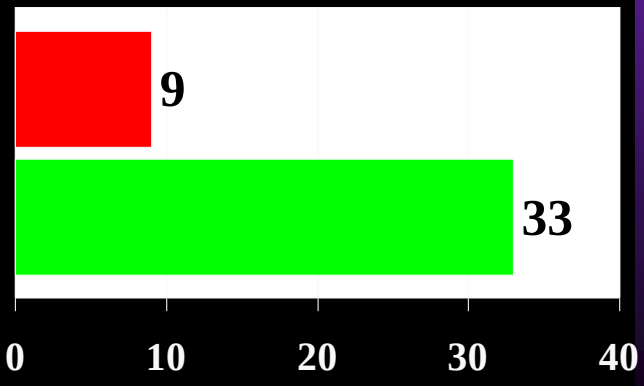
1 Yes

D) Was reason for withdrawal specified by study group?

0 No/not mentioned

1 Yes, or not applicable as no withdrawals



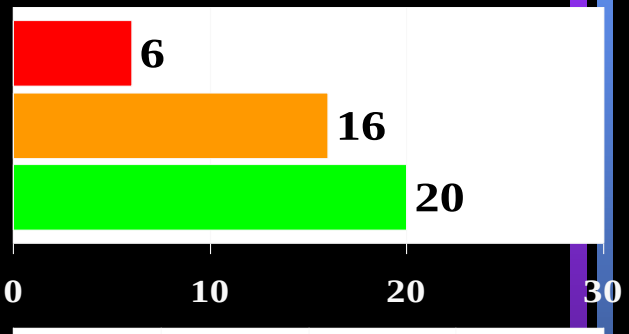


Quality assessment

A) Was a sample size calculation undertaken?
B) Randomization and allocation concealment method
C) Were inclusion/exclusion criteria clearly defined?
D) Was reason for withdrawal specified by study group?

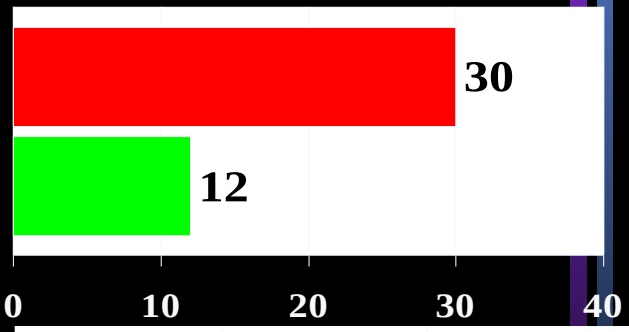
E) Were the control and treatment groups comparable at entry for important prognostic factors?

0 No 1 Unclear 2 Yes



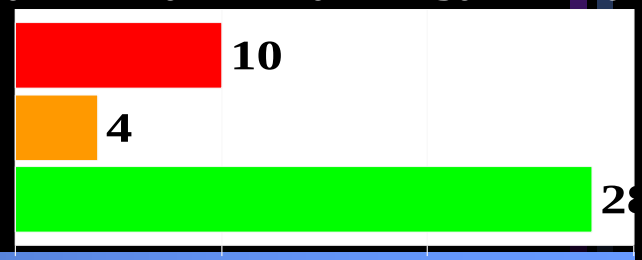
F) Was there any attempt at blinding (e.g., independent assessor)?

0 No 1 Yes

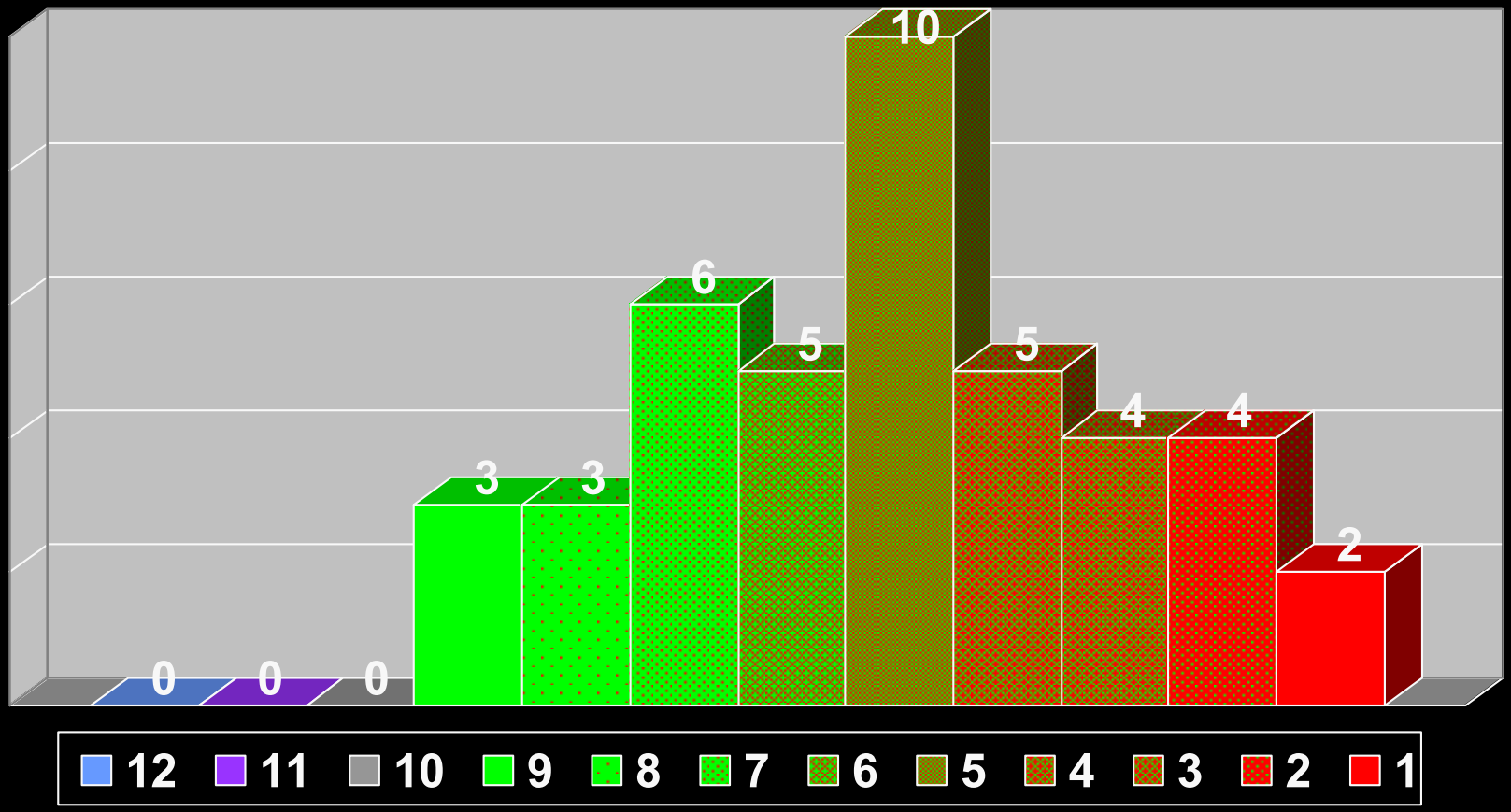


G) Was the statistical analysis appropriate?

0 No 1 Unclear 2 Yes



Methodologic scoring of RCTs (n=42)



Excellent

Poor

An evidence-based critical appraisal process 4/5

1. How many reports related to the topic can be identified?
2. How can these reports be characterized. Which study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?
4. How can the reports be described in terms of participants- Interventions- Outcome measures

Selection of papers (n = 35)

Cochrane	7	RCT
FDI Science Commission	35	SR, RCT, CCT, clinical studies

Authors	Effect appraisal	Sample (n)	Per. (yrs)	Design*
Batenburg *et al.*, 1998 (Netherlands)	Brånemark vs ITI vs IMZ	30x2x3	1	RCT
Engquist *et al.*, 2002 Åstrand *et al.*, 1999 (Sweden)	Astra Tech vs Brånemark	184+187	3 1	RCT
Kemppainen *et al.*, 1997 (Finland)	Astra Tech vs ITI	56+46	1	RCT
Tawse-Smith *et al.*, 2002 Tawse-Smith *et al.*, 2001 (New Zealand)	Southern vs Sterioss	48x2 24x2	2 1	RCT
Heydenrijk *et al.*, 2002 (Netherlands)	TPS coating, IMZ vs ITI	20x2	1	RCT
Moberg *et al.*, 2001 (Sweden)	Brånemark vs ITI	102+106	3	RCT
Jones *et al.*, 1999 Jones *et al.*, 1997 (USA)	Sterngold/Implamed, plasma-spray Ti vs 1 HA coated	176x2	5 <1	RCT

Authors	Effect appraisal	Sample (n)	Per. (yrs)	Design*
Gotfredsen & Karlsson 2001 Karlsson *et al.*, 1998 (Sweden)	Astra Tech, turned vs TiO_2 –blast	64+64	5 2	Split-RCT
Orenstein *et al.*, 1998 Truhlar *et al.*, 1997 Ochi *et al.*, 1994 (USA)	Spectra system, HA groove vs screw vs cylinder vs Ti screw vs Ti-alloy basket vs screw	2641 2633 1565	<1 <1 <1	Split-RCT
Khang *et al.*, 2001 (USA)	3i, Dual-etch vs turned	247+185	2-5	Split-RCT
Roccuzzo *et al.*, 2001 (Italy)	ITI, SLA vs TPS	68x2	1	Split-RCT
van Steenberghe *et al.*, 2000 (Belgium)	Astra Tech vs Brånemark	45+50	2	Split-RCT

Authors	Effect appraisal	Sample (n)	Per. (yrs)	Design*
Becker *et al.*, 2000 (USA)	Brånemark vs ITI	160+78	1-3	CCT
Friberg *et al.*, 1997 Olsson *et al.*, 1995 Friberg *et al.*, 1992 (Sweden)	Brånemark, standard vs self-tapping design	288+275 288+275 88+91	5 3 1	Split-CCT
Røynesdal *et al.*, 1998 (Norway)	3i, 2 designs, turned, HA & TPS	15x3	3	Split-CCT
Røynesdal *et al.*, 1999 (Norway)	3i, 2 designs, turned, HA & TPS	15x3	3	Split-CCT

Authors	Effect appraisal	Sample (n)	Per. (yrs)	Design *
Naert *et al.*, 2002a, 2002b (Belgium)	Brånemark, 5 implant designs, 4 abutment designs	1956	1-16	CS
Ferrigno *et al.*, 2002 (Italy)	ITI, 4 implant designs	1286	1-10	CS
Romeo *et al.*, 2002 (Italy)	ITI, 2 implant designs	187	1-7	CS
Naert *et al.*, 2001 (Belgium)	Brånemark, 3 implant designs	668	1-15	CS
Bianco *et al.*, 2000 (Italy)	Brånemark, 4 implant designs, 4 abutment designs	252	1-8	CS
Naert *et al.*, 2000 (Belgium)	Brånemark, 5 implant designs	270	1-11	CS
Puchades-Roman *et al.*, 2000 (UK)	Astra Tech vs Brånemark	15x2	>2	CS
Scurria *et al.* 1998 (USA)	Brånemark vs IMZ	384	1-8	CS
Buser *et al.*, 1997 (Switzerland)	ITI, 4 implant designs	2359	1-8	CS
Malevez *et al.*, 1996 (Belgium)	Brånemark, 3 implant designs, 2 abutment designs	84	1-6	CS
Engquist *et al.*, 1995 (Sweden)	Brånemark, 4 implant designs, 4 abutment designs	82	1-5	CS
Weyant & Burt, 1993 (USA)	not specified, HA vs Ti implants	2098	1-6	CS
Quirynen *et al.*, 1992 (Belgium)	Brånemark, 3 implant designs	1279	1-3	CS

An evidence-based critical appraisal process 5/5

1. How many reports related to the topic can be identified?
2. How can these reports be characterized. Which study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?
4. How can the reports be described?
5. Which conclusions and implications can be drawn from the present science foundation?

Clinical outcomes	Dental implant	Implant and abutment interface
1. Ease of placement	Body geometry	
2. Predictability and rate of osseointegration	Body geometry Surface morphology & coating & roughness Thickness of oxide layer	
3. Esthetics	Collar morphology & material	Interface design
4. Peri-implant mucositis	Collar morphology & material & roughness Surface chemistry	Interface design
5. Marginal bone loss	Collar morphology & material & roughness Surface chemistry & roughness	Interface design
6. Mechanical problems implant/ abutment/ superstructure connections		Interface design Joint design strength Material properties Precision fit of components
7. Mechanical failing of the dental implant	Material properties Implant diameters	

Ease of placement	*No demonstration of clinical superiority*
Predictability and rate of osseointegration	*Minor differences and ambiguous data. Etched better than turned surfaces?*
Esthetics	*Not evaluated clinically to any extent*
Peri-implant mucositis	*No demonstration of clinical superiority*
Marginal bone loss	*Inconclusive evidence of clinical superiority and short observation time*
Mechanical problems	*No demonstration of clinical superiority*
Mechanical failing	*Not evaluated clinically to any extent*

Management of the dentition in the elderly

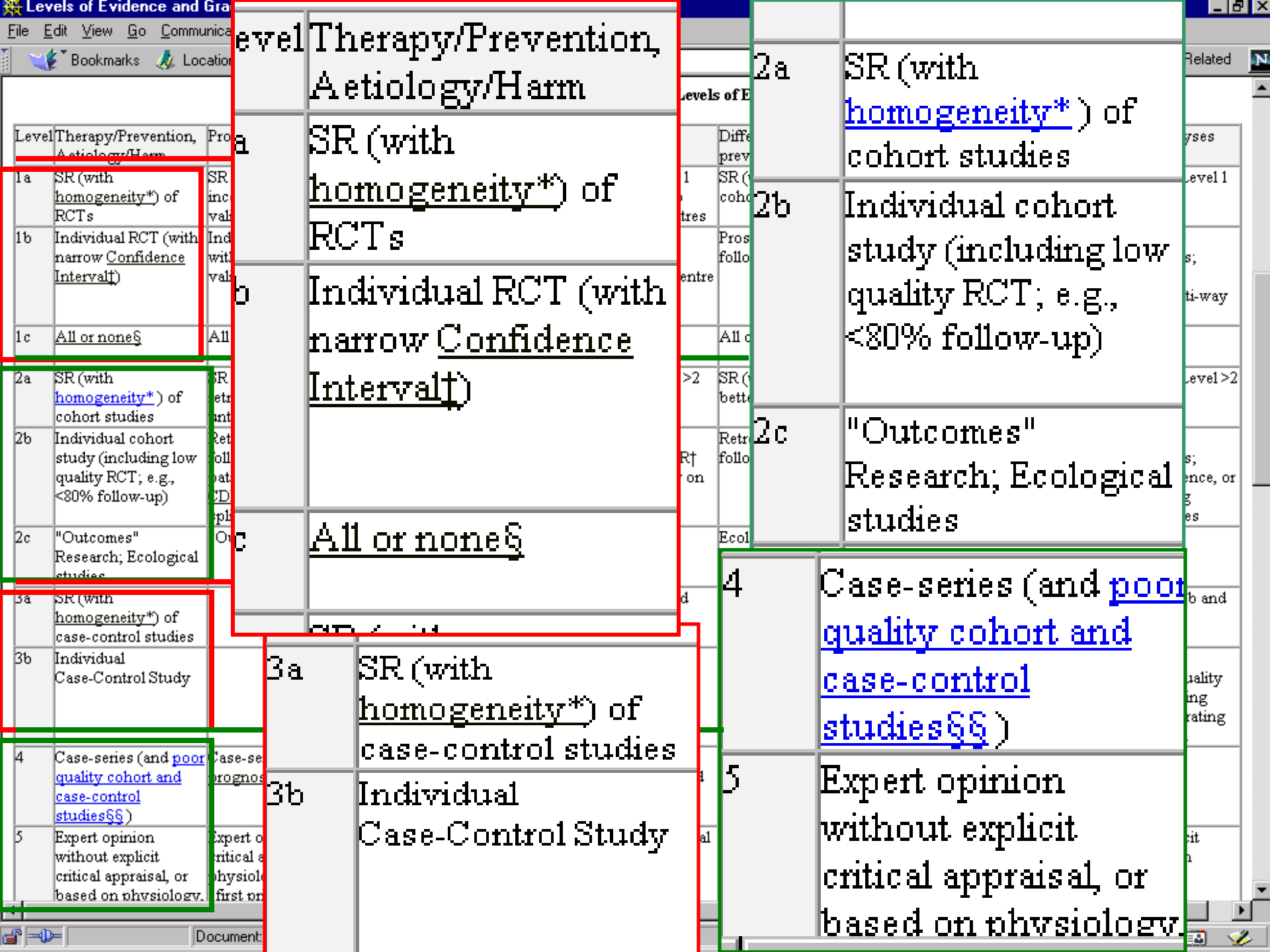
How do you prevent and manage root caries?

A question of prevention

Therapy / Prevention / Education

	Qualitative	Cross-Sectional	Case Control	Cohort	RCT
Diagnosis				☆	☆☆
Therapy				☆	☆☆
Prognosis				☆☆☆	
Screening			☆	☆	☆☆
Views/beliefs perceptions	☆☆☆				
Prevalence/ hypothesis generation	☆☆☆	☆☆☆			

- Random allocation of the participants to the different interventions
- Outcome measures of known or probably clinical importance for at least 80 per cent of participants who entered the investigation
- A statistical analysis consistent with the study design.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Related
Level Therapy/Prevention, Aetiology/Harm
1a SR (with homogeneity*) of RCTs
1b Individual RCT (with narrow Confidence Interval†)
1c All or none§
2a SR (with homogeneity*) of cohort studies
2b Individual cohort study (including low quality RCT; e.g., <80% follow-up)
2c "Outcomes" Research; Ecological studies
3a SR (with homogeneity*) of case-control studies
3b Individual Case-Control Study
4 Case-series (and poor quality cohort and case-control studies§§)
5 Expert opinion without explicit critical appraisal, or based on physiology
evel Therapy/Prevention, Aetiology/Harm
a SR (with homogeneity*) of RCTs
b Individual RCT (with narrow Confidence Interval†)
c All or none§
3a SR (with homogeneity*) of case-control studies
3b Individual Case-Control Study
2a SR (with homogeneity*) of cohort studies
2b Individual cohort study (including low quality RCT; e.g., <80% follow-up)
2c "Outcomes" Research; Ecological studies
4 Case-series (and poor quality cohort and case-control studies§§)
5 Expert opinion without explicit critical appraisal, or based on physiology

Clarifications

- Preventive interventions on a community level versus an individual level?
- Interventions for prevention of root caries same as for management of root caries?
- Interventions for root caries different from coronal caries?
- Consensus on correct diagnostic criteria for root caries?
- Interventions effective for functionally independent adults effective/relevant for dependent and frail (and old) adults?

Will the results help my patients?

Are my patients mostly

1. (Old) Functionally independent adults
2. (Old) Functionally dependent adults
3. (Old) Frail adults

A Risk Appraisal is always required

Step 1: Assess patient overall risk profile

- Lack of compliance to a recall program or irregular dental attendance
- Presence of a systemic disease
- Medication side effects
- Cigarette smoking
- Dietary habits
  - Frequency of sugar intake
  - Availability of snacks
- Use of fluorides
- Social deprivation
- Low knowledge of dental disease
- Low dental aspirations
- History of repeated interventions

Step 2: Recognize key risk markers of oral disease

- Previous caries experience or loss of periodontal support in relation to the patient's age
- Full mouth plaque and/or bleeding scores
- Saliva quantity and quality
- Prevalence of residual pockets

Step 3: Identify pathogenic conditions and risk markers of progressive oral disease

- Inflammatory periodontal parameters and their persistence
- Caries and caries location
- Presence of ecological niches with difficult access such as furcations
- Presence of iatrogenic factors such as restoration discrepancies

Step 4: Diagnose root caries correctly

Signs

Visual:

Color	yellow
	light brown
	dark brown
	black
Dimensions	length (mm)
	width (mm)
Cavitation	depth (mm)
Gingival margin	distance (mm)
Plaque	visible on lesion

Tactile:

Texture	soft
	leathery
	hard

Activity - clinical signs

Inactive (arrested, remineralized)

1. well-defined
2. dark brownish or black in color
3. smooth, shiny surface
4. hard on probing with moderate pressure
5. usually not covered with plaque
6. cavitation may be/is present

Active

1. yellowish, light brown
2. soft or leathery on probing with light pressure

Interventions for managing root caries on individuals - alternatives

1. No treatment
2. Chemotherapeutic agents
3. Debridement
4. Debridement and Restoration

An evidence-based critical appraisal process 1/5

How many reports related to the prevention and management of root caries can be identified?

caries

Year	Original title	Type	Country	Source	Publish	Authors	http	ISDN	Topic
2002	Diagnosis and Management of Dental Caries. Current Bibliographies in Medicine 2001-1	Resource	USA	NLM, National Library of Medicine			NLM, National Library of Medicine		caries
2001	Management of caries in the primary dentition	Guidelines	United Kingdom	British Society of Paediatric Dentistry	Int J Paediatr Dent 2001; 11: 153-7	Fayle SA, Welbury RR, Roberts J	Int J Paediatr Dent		caries pedodontics
2001	Diagnosis and Management of Dental Caries	Review	USA	NIH, National Institutes of Health			NICDR		caries
2001	Recommendations for Clinical Practice. Fissure Caries	Guidelines	International	Academy of Operative Dentistry	Operative Dentistry 2001; 26:324-7				caries
2001	Management alternatives for the Carious Lesion. Proceedings from an International Symposium, Charleston, SC, September 2000	Proceedings	International	Conference proceedings	Operative Dentistry 2001; Suppl 6: 1-243				caries restorative
2001	Trends in Children's Oral Health	Guidelines	USA	National Maternal and Child Oral Health Resource Center			National Maternal and Child Oral Health Resource Center		caries epidemiology pedodontics
2001	Diagnosis and Management of Dental Caries. Technology Assessment: Number 36	Guidelines	USA	AHRQ, Agency for Healthcare Research and Quality	AHRQ Publication No. 01-E055		AHRQ		caries
2001	Modern methods for he	Proceedings	International	International Workshop to	Br Dent J 2001;	Curzon MEJ, Hefferren JJ	Br Dent J		caries diet

Current Bibliographies in Medicine 2001-1

Diagnosis and Management of Dental Caries

January 1980 through December 2000

1592 Citations

Prepared by
Martha Glock, M.L.S., National Library of Medicine
Alice M. Horowitz, Ph.D., National Institute of Dental and Craniofacial Research
Maria T. Canto, D.D.S., National Institute of Dental and Craniofacial Research

2001 February

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
National Institutes of Health

NIH Consensus Development Conference

Diagnosis & Management of Dental Caries Throughout Life

- Request a copy of the Journal of Dental Education, October 2001
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  Caries Throughout Life
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Image in banner: magnified fluoride crystal

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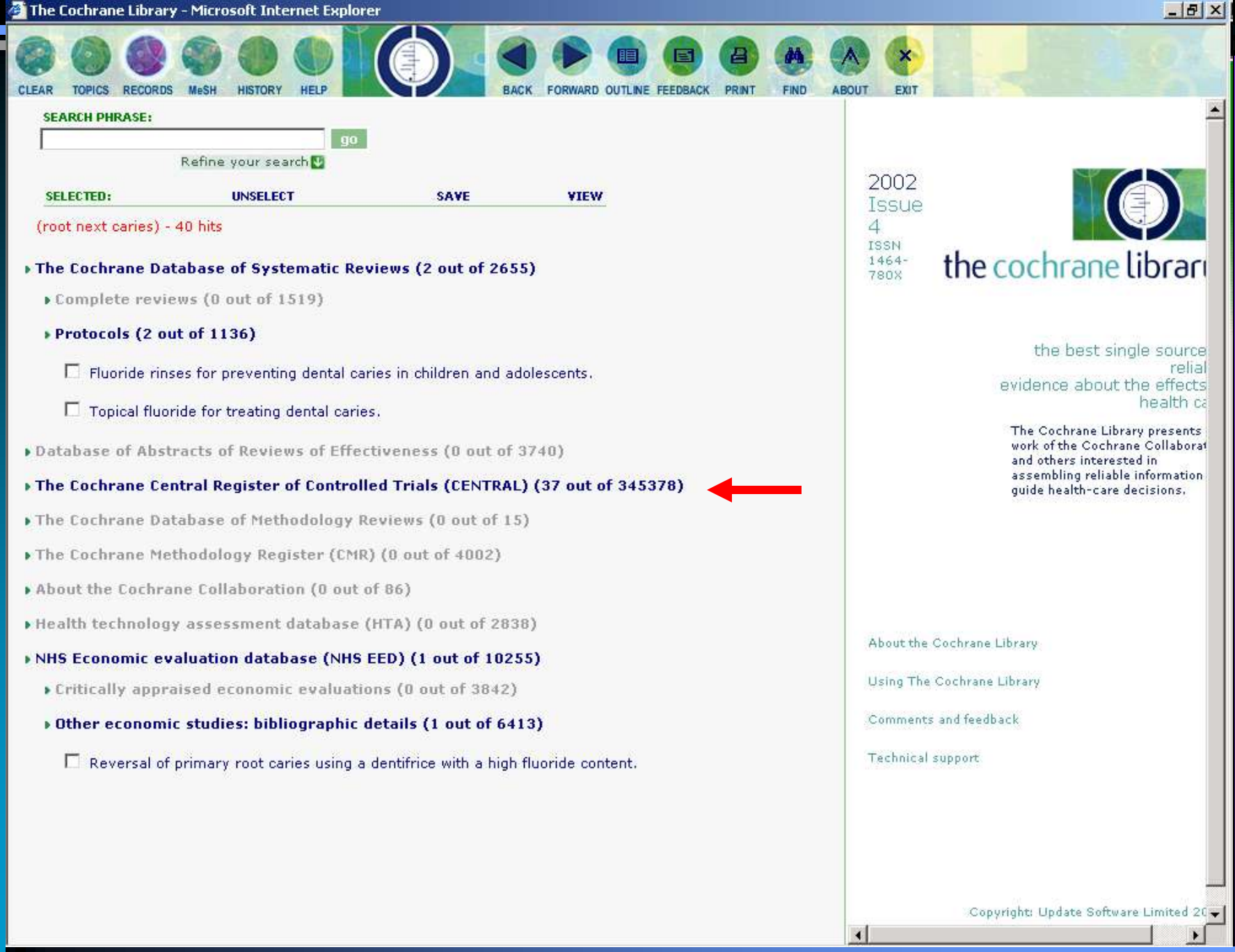
Department of Health and Human Services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SELECTED:
UNSELECT
SAVE
VIEW
(root next caries) - 40 hits
The Cochrane Database of Systematic Reviews (2 out of 2655)
Complete reviews (0 out of 1519)
Protocols (2 out of 1136)
Fluoride rinses for preventing dental caries in children and adolescents.
Topical fluoride for treating dental caries.
Database of Abstracts of Reviews of Effectiveness (0 out of 3740)
The Cochrane Central Register of Controlled Trials (CENTRAL) (37 out of 345378)
The Cochrane Database of Methodology Reviews (0 out of 15)
The Cochrane Methodology Register (CMR) (0 out of 4002)
About the Cochrane Collaboration (0 out of 86)
Health technology assessment database (HTA) (0 out of 2838)
NHS Economic evaluation database (NHS EED) (1 out of 10255)
Critically appraised economic evaluations (0 out of 3842)
Other economic studies: bibliographic details (1 out of 6413)
Reversal of primary root caries using a dentifrice with a high fluoride content.
2002
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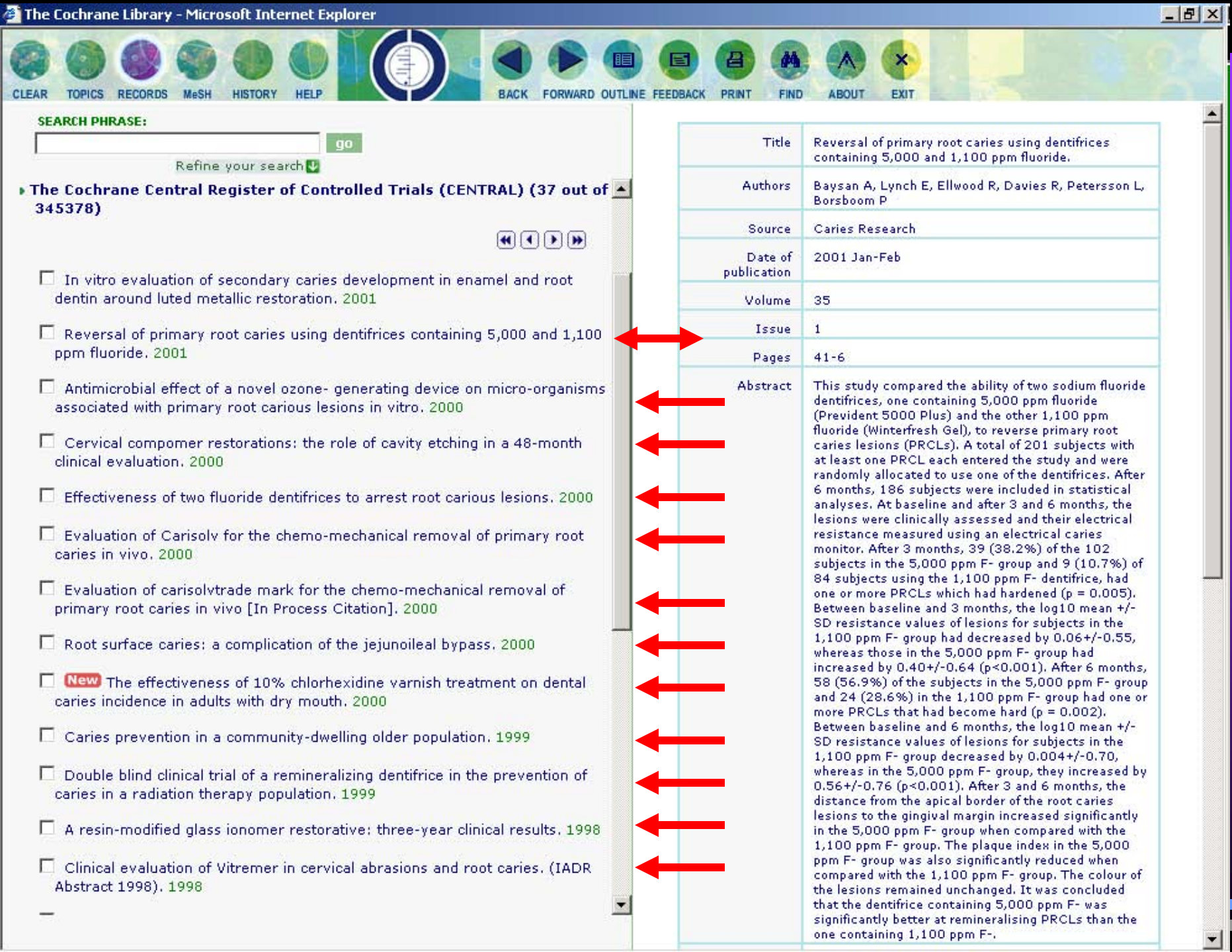
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EXIT
SEARCH PHRASE:
go
Refine your search
The Cochrane Central Register of Controlled Trials (CENTRAL) (37 out of 345378)
In vitro evaluation of secondary caries development in enamel and root dentin around luted metallic restoration. 2001
Reversal of primary root caries using dentifrices containing 5,000 and 1,100 ppm fluoride. 2001
Antimicrobial effect of a novel ozone- generating device on micro-organisms associated with primary root carious lesions in vitro. 2000
Cervical compomer restorations: the role of cavity etching in a 48-month clinical evaluation. 2000
Effectiveness of two fluoride dentifrices to arrest root carious lesions. 2000
Evaluation of Carisolv for the chemo-mechanical removal of primary root caries in vivo. 2000
Evaluation of carisolvtrade mark for the chemo-mechanical removal of primary root caries in vivo [In Process Citation]. 2000
Root surface caries: a complication of the jejunoileal bypass. 2000
New The effectiveness of 10% chlorhexidine varnish treatment on dental caries incidence in adults with dry mouth. 2000
Caries prevention in a community-dwelling older population. 1999
Double blind clinical trial of a remineralizing dentifrice in the prevention of caries in a radiation therapy population. 1999
A resin-modified glass ionomer restorative: three-year clinical results. 1998
Clinical evaluation of Vitremer in cervical abrasions and root caries. (IADR Abstract 1998). 1998
Title
Reversal of primary root caries using dentifrices containing 5,000 and 1,100 ppm fluoride.
Authors
Baysan A, Lynch E, Ellwood R, Davies R, Petersson L, Borsboom P
Source
Caries Research
Date of publication
2001 Jan-Feb
Volume
35
Issue
1
Pages
41-6
Abstract
This study compared the ability of two sodium fluoride dentifrices, one containing 5,000 ppm fluoride (Prevident 5000 Plus) and the other 1,100 ppm fluoride (Winterfresh Gel), to reverse primary root caries lesions (PRCLs). A total of 201 subjects with at least one PRCL each entered the study and were randomly allocated to use one of the dentifrices. After 6 months, 186 subjects were included in statistical analyses. At baseline and after 3 and 6 months, the lesions were clinically assessed and their electrical resistance measured using an electrical caries monitor. After 3 months, 39 (38.2%) of the 102 subjects in the 5,000 ppm F- group and 9 (10.7%) of 84 subjects using the 1,100 ppm F- dentifrice, had one or more PRCLs which had hardened (p = 0.005). Between baseline and 3 months, the log10 mean +/- SD resistance values of lesions for subjects in the 1,100 ppm F- group had decreased by 0.06+/-0.55, whereas those in the 5,000 ppm F- group had increased by 0.40+/-0.64 (p<0.001). After 6 months, 58 (56.9%) of the subjects in the 5,000 ppm F- group and 24 (28.6%) in the 1,100 ppm F- group had one or more PRCLs that had become hard (p = 0.002). Between baseline and 6 months, the log10 mean +/- SD resistance values of lesions for subjects in the 1,100 ppm F- group decreased by 0.004+/-0.70, whereas in the 5,000 ppm F- group, they increased by 0.56+/-0.76 (p<0.001). After 3 and 6 months, the distance from the apical border of the root caries lesions to the gingival margin increased significantly in the 5,000 ppm F- group when compared with the 1,100 ppm F- group. The plaque index in the 5,000 ppm F- group was also significantly reduced when compared with the 1,100 ppm F- group. The colour of the lesions remained unchanged. It was concluded that the dentifrice containing 5,000 ppm F- was significantly better at remineralising PRCLs than the one containing 1,100 ppm F-.

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Notices Tutorial

The Notices file was last updated 10/5/2002

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Easy Search Results--Summary

TS=(root caries) AND random*

Database(s)=SCI-EXPANDED, SSCI, A&HCI; Timespan=1945-2002; (sorted by relevance)

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Page 1 (Articles 1 -- 10):

[1|2|3|4]

Use the checkboxes to add individual articles to the Marked List. Be sure to click SUBMIT MARKS button before leaving page.

☐ Beck JD, Drake CW
Do root lesions tend to develop in the same people who develop coronal lesions?
J PUBLIC HEALTH DENT 57 (2): 82-88 SPR 1997

☐ Fure S
Five-year incidence of coronal and **root caries** in 60-, 70- and 80-year-old Swedish individuals
CARIES RES 31 (4): 249-258 JUL-AUG 1997

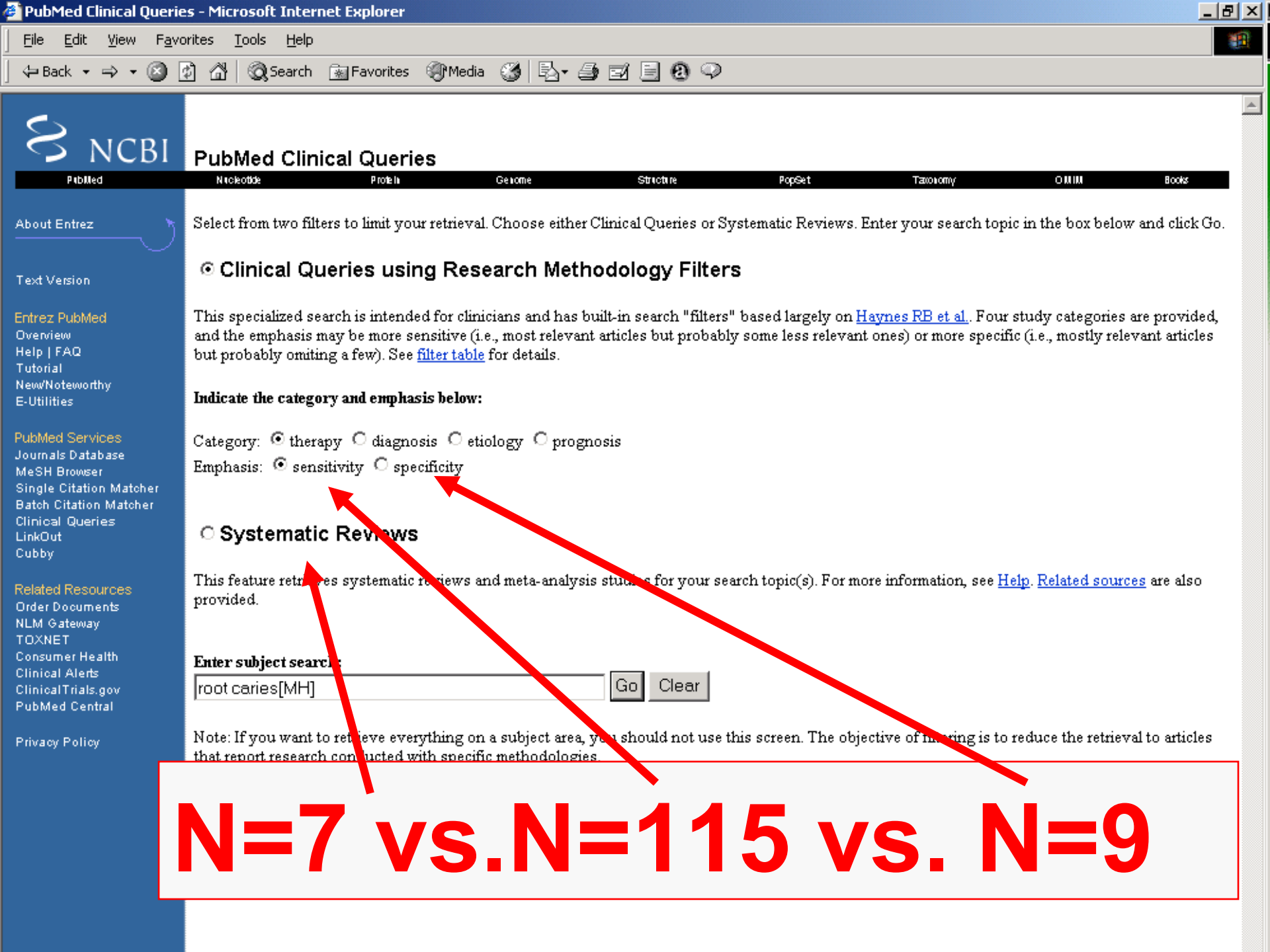
☐ Locker D
Incidence of **root caries** in an older Canadian population
COMMUNITY DENT ORAL 24 (6): 403-407 DEC 1996

☐ Fure S, Lingstrom P, Birkhed D
Evaluation of Carisolv (TM) for the chemo-mechanical removal of primary **root caries** in vivo
CARIES RES 34 (3): 275-280 MAY-JUN 2000

☐ Hsu CYS, Donly KJ, Drake DR, et al.
Effects of aged fluoride containing restorative materials on recurrent **root caries**
J DENT RES 77 (2): 418-425 FEB 1998

☐ Gilbert GH, Duncan RP, Dolan TA, et al.
Twenty-four month incidence of **root caries** among a diverse group of adults
CARIES RES 35 (5): 366-375 SEP-OCT 2001

N=33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Category: therapy diagnosis etiology prognosis
Emphasis: sensitivity specificity
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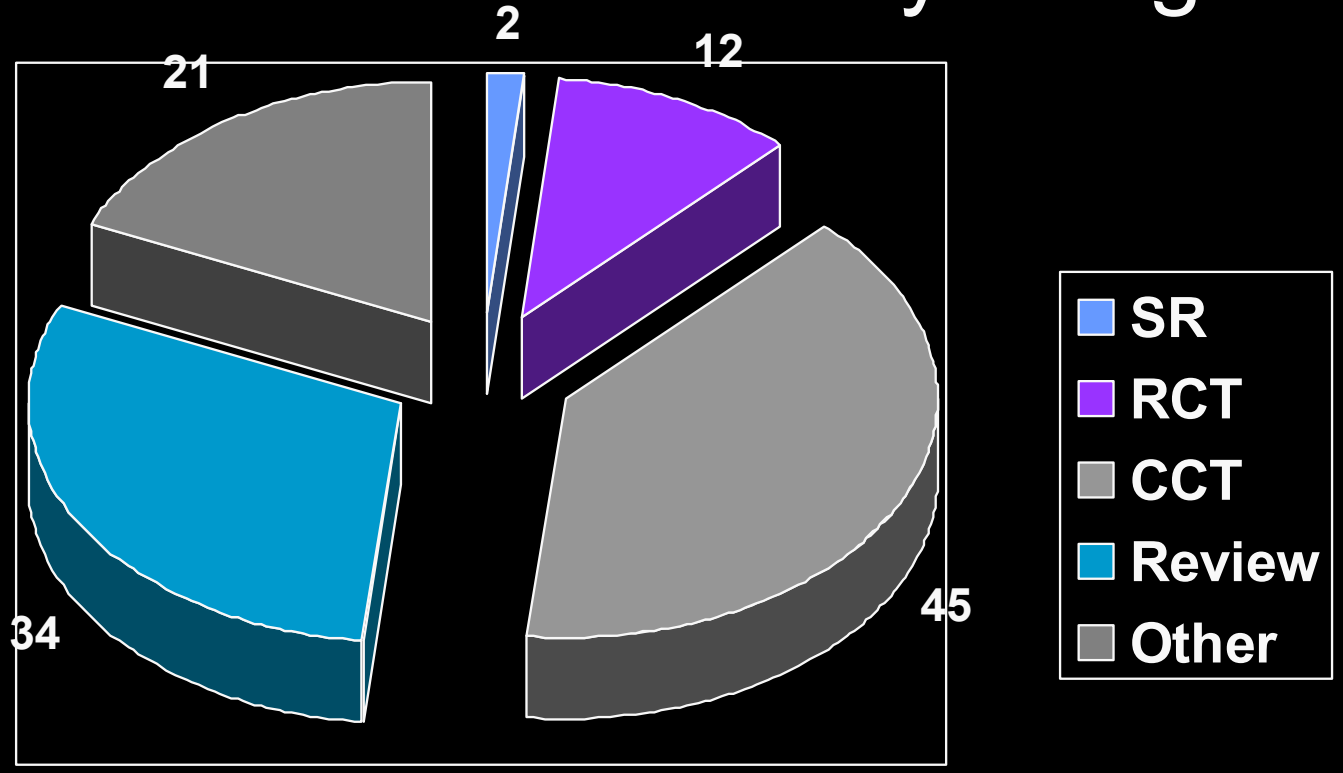
Note: If you want to retrieve everything on a subject area, you should not use this screen. The objective of filtering is to reduce the retrieval to articles that report research conducted with specific methodologies.
N=7 vs.N=115 vs. N=9

An evidence-based critical appraisal process 2/5

1. How many reports related to the topic can be identified?
2. How are these approx. 120 reports characterized. Which study design?



An evidence-based critical appraisal process 3/5

1. How many reports related to the topic can be identified?
2. How can these reports be characterized. Which study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?

Consensus Statements

NIH Consensus Development Program

Diagnosis and Management of Dental Caries Throughout Life

March 26-28, 2001
Vol. 18, No. 1

Read Final NIH Consensus Statement

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Related Conference Materials

- News Release
- Agency for Healthcare Research and Quality Systematic Evidence Review
- Univ of Michigan Search
- Program and Abstract Book (PDF file)
- NLM Bibliography

Dental Caries Conference

NOTE:

NIH Consensus Statements are prepared by a nonadvocate, non-Federal panel of experts, based on (1) presentations by investigators working in areas relevant to the consensus questions during a 2-day public session; (2) questions and statements from conference attendees during open discussion periods that are part of the public session; and (3) closed deliberations by the panel during the remainder of the second day and morning of the third. This statement is an independent report of the panel and is not a policy statement of the NIH or the Federal Government.

The statement reflects the panelís assessment of medical

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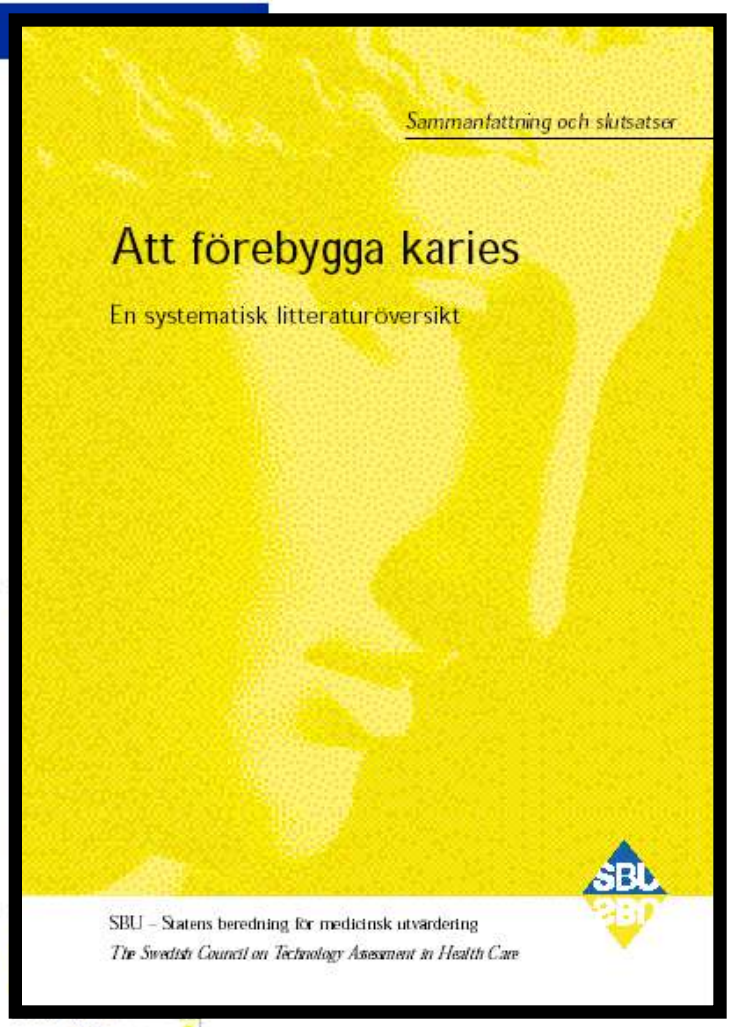


NIH Consensus Conference- Numbers of studies included/excluded and reasons (Leake, J)

Evidence Table	Number of studies in evidence table (total number matching the terms in final database)	Number of studies excluded by reason
Diagnostic tests (diagnosis, reliability, agreement)	5 (57)	**17 - not a diagnosis study** **11 - non-systematic review** **8 - predictive test/risk factor analysis** **6 - article cited in text** **3 - cited in text for evidence of reliability** **3 - descriptive, expert opinion** **3 - no data to abstract** **1- in vitro study**
Treatment (treatment)	Total 11 (69) 7 remineralization 4 restoration	**27 - non-systematic review** **22 - not treatment** **5 - failed to meet inclusion criteria (less than 1year duration, non-human study)** **2 - technique (how to) study** **1 - duplicate publication** **1 - not able to obtain**

An evidence-based critical appraisal process 4/5

1. How many reports related to the topic can be identified?
2. How can these reports be characterized. Which study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?
4. How can the reports be described in terms of participants- Interventions- Outcome measures

An evidence-based critical appraisal process 5/5

1. How many reports related to the topic can be identified?
2. How can these reports be characterized. Which study design? How many reports are included within each category?
3. What is the methodological scientific quality of these reports? How many reports can be excluded within each category due to questionable validity?
4. How can the reports be described?
5. Which conclusions and implications can be drawn from the present science foundation?

CDC recommendations on use of fluorides

Strength of Recommendation: A

- Good evidence to support the use of this modality.
- Continue and extend fluoridation of CWF
- Benefits persons in all age groups and of all socioeconomic status, including those difficult to reach through other public health programs and private dental care.

Oral Health in America: A report of the Surgeon General

- Water fluoridation is recommended as a very effective and cost-effective method of preventing coronal and root caries in children and adults.
- Moreover, water fluoridation benefits all residents served by community water supplies regardless of socioeconomic status.

Canadian Task Force on Preventive Health Care

Evidence Strength: A

Good evidence that water fluoridation is the most effective, equitable and efficient preventative for coronal and root dental caries

Guide to Community Preventive Services

Community water fluoridation (CWF) is strongly recommended (21 refs)

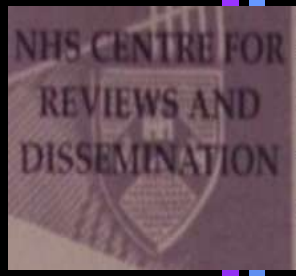
- Starting or continuing CWF is effective in reducing caries in communities
- Stopping CWF is associated with increases in caries in some communities and decrease in others
- CWF is the most cost saving community intervention for large populations

Report prepared for Ontario's Public Consultation on Water Fluoridation

(N=29)

- Decrease in caries prevalence in communities with WF
- The magnitude of difference between F and non-F communities is small in absolute terms, particularly in communities where the prevalence is low
- A careful assessment of the balance between reductions in decay and increases in fluorosis should be undertaken in communities where the prevalence of dental caries is low.

Systematic review of water fluoridation (NHS, UK)



Evidence Strength: B (No recommendation made) (n=26)

- YES: Decreases prevalence in communities initiating water fluoridation
- YES: Increases prevalence following withdrawal of water fluoridation
- Uncertain: Reduces prevalence across social classes, bringing equity

Prevention of (root) caries

Fluoride toothpaste	+	1
Preventive program with F^-	+	2
Water Fluoridation Professional cleaning with F^- Fluoride gel (APF) Fluoride varnish Fluoride swabbing Fluoride rinse 2x/yr	+	3
Fluoride in milk or salt Fluoride tablets Dietary Advice Sorbitol or Xylitol additives Triclosan in toothpaste Dental Floss	?	4

NIDCR Consensus

- Studies on the management of root caries do not offer strong evidence on how to care for patients
- They are few in number, and they are compromised either in design or duration
- Consequently, the issue of which approaches might be more appropriate in terms of patient preference, costs, and efficiency cannot be addressed
- Research is needed to
  - validate the accuracy of current diagnostic methods,
  - provide evidence on the efficacy of therapeutic measures through more rigorous designs and over longer periods
  - address the issue of patient-based measures of outcomes

Interventions for managing root caries on individuals

Clinical Signs	**Treatment**
1. Hard lesions	No treatment
2. **L**eathery to hard, easily cleaned	Chemotherapeutic agents
3. Leathery, able to maintain plaque-free	Debridement
4. **L**arge, leathery with loss of contour, soft, unable to maintain plaque-free	Debridement and Restoration

Therapy for root caries

- Remineralizing with fluoride rinses
- Tentatively, with fluoride gels and varnishes or chlorhexidine varnish
- Recontouring before remineralizing with fluoride (supported by limited data only)
- No long term studies compare methods of restoring root caries
- Root caries may be restored with composite resins, although conventional practice may allow glass ionomer or even amalgam restorations

Other interventions for preventing and managing root caries

- Review patient medication. (Salivary production is not affected by aging. Older adults who suffer from dry mouth do so mainly due to medications)
- Dry mouth symptoms can be treated with hydration or artificial saliva. Sugar-free candy or gum can also stimulate saliva flow
- Fluoride rinses and gels
- Oral pilocarpine in patients with Sjögren's Syndrome, and in those that have undergone radiation therapy

Thank you for your kind attention

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