



## Gästföreläsning

Dr Odont. Asbjørn Jokstad  
Oslo, Norge

### "Evidence Based Medicine in Dentistry"

onsdag 3 november 1999, kl 13.15 - 14.00

lokal: Aulan, Tandvårdshögskolan, Malmö

Dr Jokstad arbetar vid Odontologiska fakulteten i Oslo och är en erkänt skicklig förespråkare för evidence based medicine in dentistry, vilket han bl.a. presenterat vid Riksstämman i Stockholm 1998. Han ingår i det s.k. Cochrane-nätverket.

Till föreläsningen, som ges på engelska, hälsas samtliga studenter, lärare och annan intresserad personal välkomna.

***Välkomna!***

***Maria Nilner***  
***Grundutbildningsnämnden***

- Begynner med forelesning 13.15- 14.00.

EBM i odontologien

- Deretter critical appraisal seminar 14.00 - 15.00

Følgende artikler skal være lest og kritisk analysert (etter synkende prioritering):

Skjema for kritisk analyse av de to typer artikler er vedlagt.

1. Browning WD, Johnson WW, Gregory PN. Reduction of postoperative pain: a double blind randomised controlled clinical trial. JADA 1997;128:1661-7. (RCT studie)
2. Dao TT, Lavigne GJ. Oral splints: the crutches for temporomandibular disorders and bruxism? Crit Rev Oral Biol Med. 1998;9(3):345-61. (review)
3. Quarnstrom F, McDade NE, McLean K, Munk A, Nicholls J. A randomized clinical trial of agents to reduce sensitivity after crown cementation. Gen Dent. 1998 Jan-Feb;46(1):68-74. (RCT studie)
4. Letzel H, Van 'T Hof MA, Marshall GW, Marshall SJ. The Influence of the Amalgam Alloy on the Survival of Amalgam Restorations: A Secondary Analysis of Multiple Controlled Clinical Trials. J Dent Res 1997; 76: 1787-1798. (RCT studie)
5. Randall RC, Wilson NH. Glass-ionomer restoratives: a systematic review of a secondary caries treatment effect. J Dent Res. 1999 Feb;78(2):628-37. (review)

- Til slutt search på datamaskiner 15-17.00 (eller 15-16 & 16-17).

asbjørn

# Evidence based dentistry

## Introduction

Asbjørn Jokstad  
Departments of Prosthetics and Oral Function  
Dental Faculty  
University of Oslo

# Information Explosion in Dentistry

- Tremendous growth in scientific and biomedical publications
  - Estimates: number of papers doubling every 10 years
  - Increasing number of journals in a given field - 500 in dentistry
  - MEDLINE indexes ~4000 publications; a distinct minority
  - Related to numbers of physicians and scientists
    - volume of publications key to success

# Hypothetical patient problems

- A 32 y. patient calls four hours after a wisdom tooth has been removed and complains about bleeding, pain and severe swelling. He demands immediately pain killers, antifebriles, antibiotics and an sick leave.
- A new employee in a public dental health district complain of high caries prevalence and neglect of oral hygiene in her district. A stragey for improving the situation is required.
- A 66 y. old women comes to your clinic because she hasn't received any help from her former dentist for oral lichen planus. She wants to discuss the various treatment options with you.
- One of your patient confess that she has almost stopped using tooth paste due to dentin hypersensitivity. Can you help her?
- ....

# The “programmed” approaches when we’re uncertain

- The pathophysiologic approach: makes sense
- The expert/"how I trained" approach: I learned this didn't work
- The anecdotal approach: didn't work last time we tried
- The consult approach: maybe I can ask a few colleagues I work with
- The textbook approach: often outdated and no strong support
- Confess that you don't know - or - do something and pray...
- Or some combination of these...

# The dentist's situation:

- We need information, but most of our needs are never met:
  - Our textbooks are out of date.
  - Our journals are disorganised.
- Consequently, our knowledge and performance deteriorate.
- And traditional instructional CME doesn't improve our performance.

# Levels of Information and Evidence

- Traditional route
  - training
  - print original journals
  - meetings and CME
  - consultation
- Faltering now
  - information overload
    - small fraction truly appropriate for direct application
    - ill equipped to digest and synthesize
  - busier practices
  - reimbursement pressures



# The emerging approach

- First instinct: the programmed approach
- Find information
  - Do you have updated textbooks or articles?
    - Can you find them?
  - Can you go to a library?
  - Can you go to a workstation?
    - Search on the Internet





# The emerging approach

- First instinct: same as 1990
- Find information
  - Go to library
  - Go to workstation:
    - Internet search
      - **Medical databases**

# Using the Univ. Oslo OVID medical databases

**OVID Choose a database** [?](#) Help

-- To **begin a search**, click the name of the desired database.  
-- To **get more information** about a database, click the information icon:   
-- [Logoff](#)

-  - [Journals@Ovid Full Text](#) September 14, 1999
-  - [EBM Reviews - Best Evidence](#) 1991 to July/August 1999
-  - [EBM Reviews - Cochrane Database of Systematic Reviews](#) 2nd Quarter 1999
-  - [CINAHL](#) 1982 to August 1999
-  - [EMBASE](#) 1988 to 1999 Week 35
-  - [EMBASE](#) 1980 to 1999 Week 35
-  - [EMBASE](#) 1980 to 1987
-  - [Full Text: Core Biomedical Collection](#) 1993 to September 1999 Week 1
-  - [Full Text: Nursing Collection](#) 1995 to August 1999
-  - [Full Text: Mental Health Collection](#) 1995 to July 1999
-  - [Medline](#) 1996 to November 1999 Week 1
-  - [Medline](#) 1966 to 1995
-  - [Medline](#) 1991 to 1995
-  - [Medline](#) 1985 to 1990
-  - [Medline](#) 1976 to 1984
-  - [Medline](#) 1966 to 1975
-  - [Medline](#) November 1999 Week 1
-  - [Medline](#) 1966 to November 1999 Week 1

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# The emerging approach

- First instinct: same as 1990
- Find information
  - Go to library
  - Go to workstation:
    - Internet search
      - Medical databases
        - » Medline

# OVID search strategies difficult to remember

Ovid: Search Form - Netscape

File Edit View Go Communicator Help

Bookmarks Netsite: http://gateway.ovid.com/server1/ovidweb.cgi

What's Related

**Medline** 1996 to November 1999 Week 1 [?](#) Help

Author Title Journal Search Fields Tools Combine Limit Basic Change Database Logoff

#	Search History	Results	Display
1	Molar/ or Tooth extraction/	2238	<a href="#">Display</a>
2	Molar, third/ or Postoperative complications/ or Tooth extraction/ or Tooth, impacted/	23675	<a href="#">Display</a>
3	Tooth extraction/ and Tooth, impacted/	101	<a href="#">Display</a>
4	Molar, third/ and Pain, postoperative/ and Tooth extraction/	44	<a href="#">Display</a>

Run Saved Search
  Save Search History
  Delete All Searches

Enter **Keyword** or phrase:  Map Term to Subject Heading

[Perform Search](#)

**Limit to:**

Full Text Available
  EBM Reviews
  Human
  English
  Reviews

Abstracts
  Latest Update

From:  To:

---

Results of your search: **Molar, third/ and Pain, postoperative/ and Tooth extraction/**

Citations available: **44**

Citations displayed: **1-10**

Citations in "Titles Display" format

1. D... H... B... I... C... W... G... T... S... A... 54(2):280-2 1999 M...

Document: Done

# NLM offers two windows to Medline

Search MEDLINE: PubMed and Internet Grateful Med - Netscape

File Edit View Go Communicator Help

Bookmarks Location: <http://www.nlm.nih.gov/databases/freemedl.html>

What's Related



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# National Library of Medicine

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[Health Information](#) | [Library Services](#) | [Research Programs](#) | [New & Noteworthy](#) | [General Information](#)

## Search MEDLINE: PubMed and Internet Grateful Med

For consumer health information, consider using [MEDLINEplus](#). Health consumers are encouraged to discuss search results with their health care professional.

NLM offers [PubMed](#) and [Internet Grateful Med](#), two free systems to search MEDLINE. They both:

- Provide an easy way to search the 11 million references and abstracts in the MEDLINE database;
- Use PubMed's retrieval engine to link to about 400 journals for full text of articles (some publishers may require a subscription) and provide pre-computed sets of relevant MEDLINE articles;
- Offer NLM's Medical Subject Headings for searching; and
- Use Loansome Doc for document delivery services (there may be local charges).

### PubMed

- Also has links to molecular biology databases of DNA/protein sequences and 3-D structure data.

### Internet Grateful Med

- Also provides access to other NLM databases on AIDS, bioethics, history of medicine, toxicology, health services research, and other topics.

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[U.S. National Library of Medicine](#), 8600 Rockville Pike, Bethesda, MD 20894

[National Institutes of Health](#)

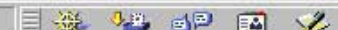
[Department of Health & Human Services](#)

[Copyright and Privacy Policy](#)

Last updated: 2 August 1999



Document: Done




# PubMed offers easy search facilities

Welcome to PubMed - Netscape

File Edit View Go Communicator Help

Bookmarks Location: <http://www.ncbi.nlm.nih.gov/PubMed/> What's Related



## PubMed

NLM's search service to access the 9 million citations in MEDLINE and Pre-MEDLINE (with links to participating on-line journals), and other related databases.

Search  for:

Number of documents to display per page:

Entrez Date limit:

- Enter one or more search terms.
- Author names should be entered in the form Smith JB, but initials are optional.
- Journal titles may be entered in full, as valid MEDLINE abbreviations, or as ISSN numbers (see Journal Browser for more information).

Questions or comments? Write to the [Help Desk](#).

Document: Done

# Useful details are the “see related articles” & “clinical queries” possibility

PubMed medline query - Netscape

File Edit View Go Communicator Help

Bookmarks Location: [lm.nih.gov/htbin-post/Entrez/query?form=4&db=m&term=impacted+teeth+third+molar+pain+postoperative&dispmax=20&relentrezdate=No+Limit](http://lm.nih.gov/htbin-post/Entrez/query?form=4&db=m&term=impacted+teeth+third+molar+pain+postoperative&dispmax=20&relentrezdate=No+Limit) What's Related

NCBI PubMed PubMed QUERY PubMed ?

Details impacted teeth third molar pain postoper. Search Clear

Docs Per Page: 20 Entrez Date limit: No Limit

**citations 1-20 displayed (out of 152 found), page 1 of 8**

Display Abstract report for the articles selected (default all).

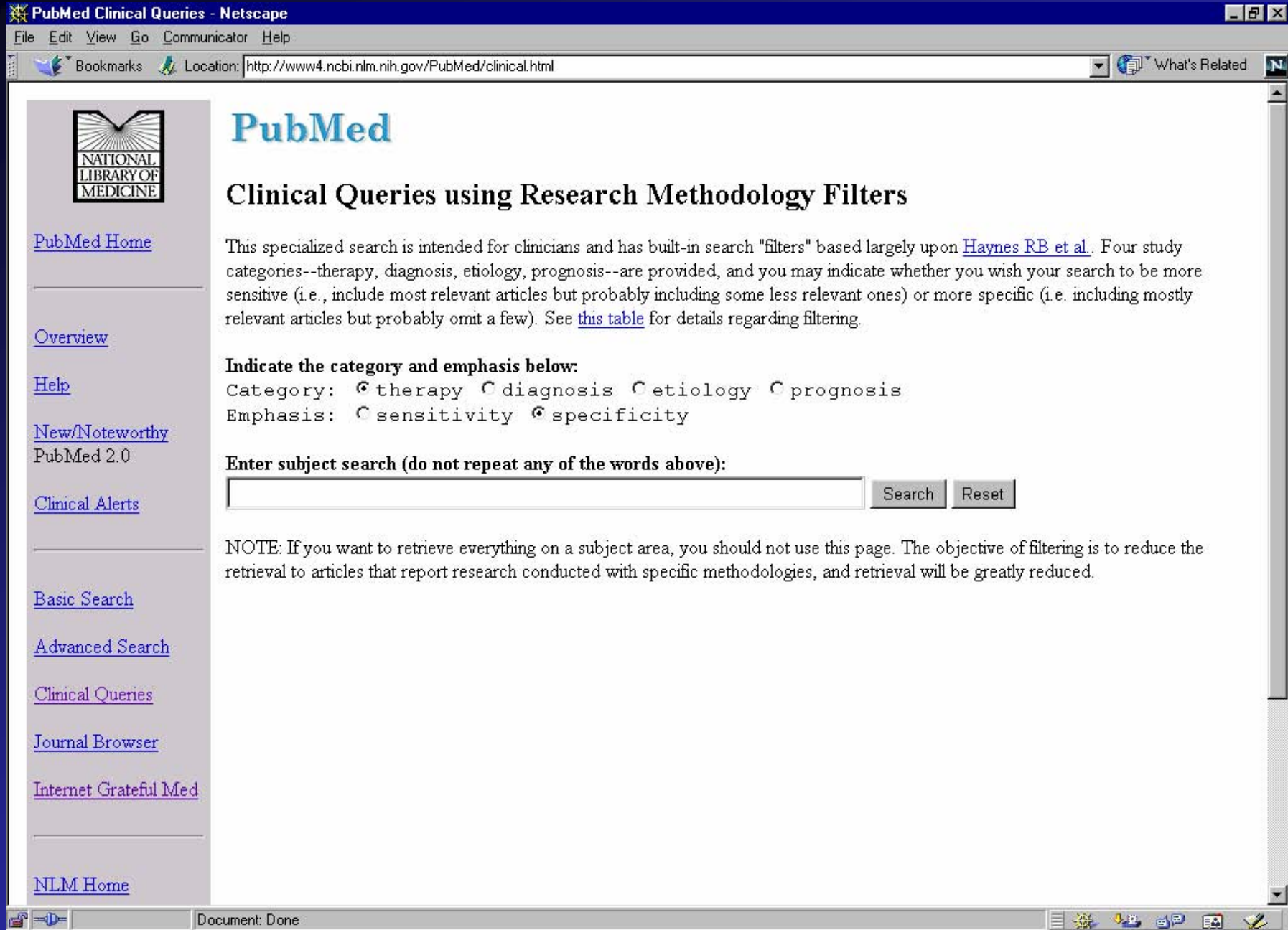
Order documents on this page through Loansome Doc

- [Dionne RA](#) [See Related Articles]  
Additive analgesic effects of oxycodone and ibuprofen in the oral surgery model.  
J Oral Maxillofac Surg. 1999 Jun;57(6):673-8.  
PMID: 10368091; UI: 99294557.
- [Zacharias M, et al](#) [See Related Articles]  
Effectiveness of preoperative analgesics on postoperative dental pain: a study.  
Anesth Prog. 1996 Summer;43(3):92-6.  
PMID: 10323113; UI: 99256489.
- [Bouloux GF, et al](#) [See Related Articles]  
Bupivacaine versus lidocaine for third molar surgery: a double-blind, randomized, crossover study.  
J Oral Maxillofac Surg. 1999 May;57(5):510-4; discussion 515.  
PMID: 10319823; UI: 99251541.
- [Wenzel A, et al](#) [See Related Articles]  
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.
- [Bastian H, et al](#) [See Related Articles]  
Comparative study of pain control by cryotherapy of exposed bone following extraction of wisdom teeth.

Document: Done



# Filters can be applied to therapy, diagnosis, etiology or prognosis



The screenshot shows a Netscape browser window titled "PubMed Clinical Queries - Netscape". The address bar displays "http://www4.ncbi.nlm.nih.gov/PubMed/clinical.html". The main content area features the PubMed logo and the heading "Clinical Queries using Research Methodology Filters". Below this, a paragraph explains the search filters based on Haynes RB et al. and lists four categories: therapy, diagnosis, etiology, and prognosis. It also allows users to specify emphasis on sensitivity or specificity. A search input field is provided with "Search" and "Reset" buttons. A note at the bottom explains that the objective of filtering is to reduce retrieval to articles with specific methodologies.

**PubMed**

## Clinical Queries using Research Methodology Filters

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):**

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.

[PubMed Home](#)  
[Overview](#)  
[Help](#)  
[New/Noteworthy PubMed 2.0](#)  
[Clinical Alerts](#)  
[Basic Search](#)  
[Advanced Search](#)  
[Clinical Queries](#)  
[Journal Browser](#)  
[Internet Grateful Med](#)  
[NLM Home](#)

# Alternative possibilities for finding information is ISI:

The screenshot shows a Netscape browser window titled "Search ISI - Netscape". The address bar shows the URL "http://igate.bidsys.no/isearch/isi?lang=E". The main content area has a yellow background and features the "BIDSYS - Search the ISI databases" logo at the top. Below the logo are navigation buttons: "New search", "Refine", "Citation srch", "Contents", and "Instructions". The "Citation srch" button is highlighted. The main heading is "Article search". Below this are three buttons: "Search", "Browse index", and "Reset form". The search form includes several fields: "Database" (a dropdown menu set to "ALL (SCI Expanded@, SSCI@, AHCI@)"), "Author" (a text input field with the instruction "(Lastname, initial(s))"), "Title" (a dropdown menu set to "Title words" followed by a text input field), "Free text" (a text input field), "Keywords" (a text input field), "Source" (a text input field), and "Journal cat" (a text input field). Below these fields is a note: "If you enter more than one word in fields Title words, Free text or Keywords, then Boolean AND will be inserted." followed by a checkbox labeled "Check here if you instead choose OR." and a "CCL string" text input field. At the bottom of the page, the heading "Citation search" is visible, along with "Search", "Browse index", and "Reset form" buttons. The browser's status bar at the bottom shows "Document: Done" and various system icons.

Search ISI - Netscape

File Edit View Go Communicator Help

Bookmarks Location: http://igate.bidsys.no/isearch/isi?lang=E What's Related

**BIDSYS** - Search the ISI databases

New search Refine **Citation srch** Contents Instructions

**Article search**

Search Browse index Reset form

Database : ALL (SCI Expanded@, SSCI@, AHCI@) ▾

Author : \_\_\_\_\_ (Lastname, initial(s))

Title : Title words ▾ \_\_\_\_\_

Free text : \_\_\_\_\_

Keywords : \_\_\_\_\_

Source : \_\_\_\_\_

Journal cat: \_\_\_\_\_

If you enter more than one word in fields Title words, Free text or Keywords, then Boolean **AND** will be inserted.  
 Check here if you instead choose **OR**.

CCL string : \_\_\_\_\_

**Citation search**

Search Browse index Reset form

Document: Done

# Several “windows” to Medline can be assessed:



The screenshot shows a Netscape browser window with the title "Dr. Felix's Free MEDLINE Page - Netscape". The address bar shows "http://www.docnet.org.uk/dfelix/". The page content includes a cartoon of a doctor, the title "Dr Felix's Free MEDLINE® Page", and a subtitle "Links to web sites where you can search MEDLINE® for free." It also features a "HOT SITE BioMed Link" graphic, a "CAVEAT" section, and a list of links for "Free MEDLINE® SITES AT A GLANCE".

Dr Felix's Free MEDLINE® Page

Links to web sites where you can search MEDLINE® for free.

Updated 26th October 1998  
The Original And Best!

Welcome to our permanent location on the [Docnet site](#). Those outside Europe might like to try our [US Mirror Site](#) instead

**HOT SITE BioMed Link**

**CAVEAT:** Do we really know what we're getting for free? Some of these sites only provide free access to certain parts of the vast MEDLINE database. Some permit quite detailed searching, others simple keywords only. Some have usage restrictions, though so far there have been no problems accessing US-only sites from the UK, France and elsewhere.

**There are currently two evaluation projects under way, under the auspices of [NAHRS](#) in the USA and [OMNI](#) in the UK. More details as they become available.**

[NLM Supplement \(PubMed/IGM\)](#)   [Foreign language MEDLINE®](#)   [MEDLINE® Chat Room \(experimental\)](#)   [MEDLINE® Bulletin Board \(experimental\)](#)

[ [CINAHL® Tutorials](#) | [MEDLINE® Tutorials](#) | [More MEDLINE® lists](#) | [Low-price & Demos](#) | [Bibliography](#) | [Other free databases](#) | [Help for Authors](#) | [feedback](#) ]

## Free MEDLINE® SITES AT A GLANCE

<a href="#">AVICENNA</a> 	<b>REGISTRATION REQUIREMENTS</b> Free & immediate: <a href="#">HERE</a>	<b>MORE INFO.</b> • <a href="#">Dr. Felix</a>
<b>DATABASE COVERAGE</b>	<b>USAGE RESTRICTIONS</b>	

## Problems with Medline searches:

- First instinct: same as previously
- Go to workstation: Medline search
  - Can't remember how to search
  - Unable to retrieve original paper(s)
  - Not enough time anyway
- Try other solutions on workstation

# The emerging approach

- First instinct: same as 1990
- Find information
  - Go to library
  - Go to workstation:
    - Internett search
      - Medical databases
        - » Medline
        - » ISI
      - Other databases

# Other information sources are found on the university net

**Databaser@ub.uio.no** samler alle databaser i digital form som UiO har kjøpt eller abonnerer på. Det dreier seg om over 90 referanse/bibliografiske databaser, noen av dem i fulltekst. Databasene er koblet til UiOs nett, og kan brukes av samtlige ansatte og studenter ved UiO. [UBOs IT-seksjon](#) har ansvar for tjenesten og driften av databasene. Generelle spørsmål/feilmeldinger kan sendes til [databaser@ub.uio.no](mailto:databaser@ub.uio.no).

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**Elektroniske tidsskrifter i fulltekst:**

- [Swetsnet](#) gir tilgang til 180 realfagtidsskrifter og 32 humaniora og samfunnsfag tidsskrifter. ([Mer informasjon](#))
- [Science online](#) tilsvare det trykte uke-magasinet *Science*
- [Tidsskrifter i fulltekst fra Springer](#) ([Mer informasjon](#))
- [Tidsskrifter i fulltekst fra Wiley](#). ([Mer informasjon](#))
- [Licence Depot](#). Informasjon om e-tidsskrifters lisenser, utgivere og priser. Etter "Login", ignorer "Username / Password". Trykk på "Continue".

**Test av nye databaser, tidsskrifter m.m.**

**Databasene fra SilverPlatter:**

Fra 1.1.99 er tjenesten flyttet til en server i Sverige. For Web-aksess bruk **WebSPIRS** som før. Når du kommer til neste webside, kan du velge mellom to versjoner av WebSpirs. Les informasjon der. WebSpirs kan brukes av samtlige brukere, også de som før har brukt WinSpirs. Bruker du WebSpirs, kan du i samme operasjon sjekke om dokumentet er registrert i Bibsys. Det arbeides

# Medical information can be found many places on the net - but beware of quality!

**Megasites: Table of Contents - Netscape**

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Stop

Bookmarks Location: <http://www.lib.umich.edu/megasite/toc.html> What's Related

**HealthLinks** **OMNI** **LS** Falk WPIC Nursing Bergman **MED FINDER** The Web's Medical Librarian **HEALTHWEB**

**MedExplorer** HealthMedical Internet Search Engine

**The Megasite Project:**  
**A Metasite Comparing Health Information Megasites & Search Engines**

P. F. Anderson, Nancy Allee, Jean Chung, Brian Westra, University of Michigan

**Achoo** **Healthfinder** www.healthfinder.gov

**@HON** **Abstract Comparisons**

**MEDICAL MATRIX** **Methodology Survey**

**WebDoctor™** the internet navigator for physicians **Criteria Best of the Best**

**YAHOO!** **Unique Features Site Map**

**MedWeb** **Bibliography About This Site**

**1999 Update!: New Search Test**

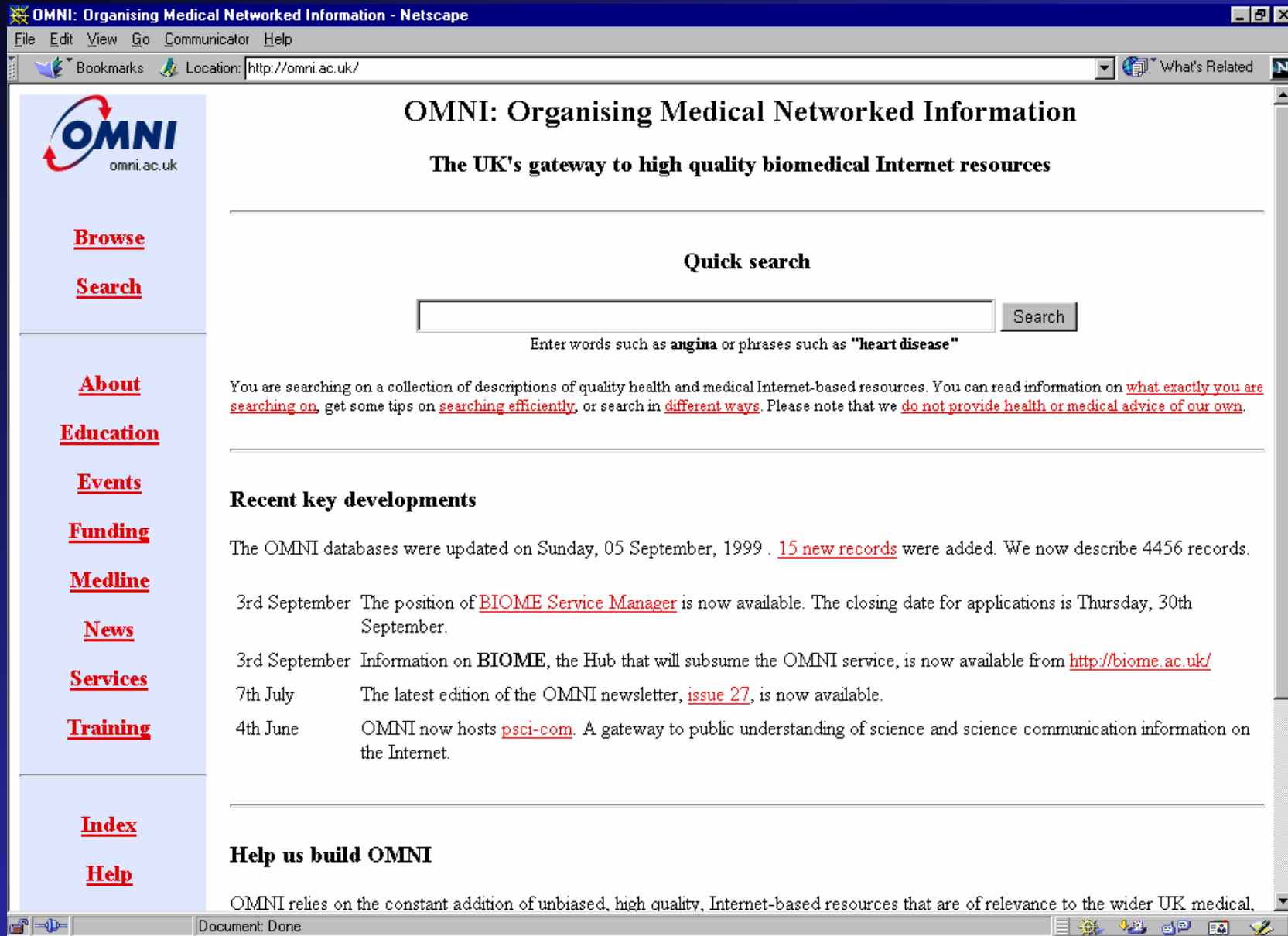
**MMRL** **HealthAtoZ**

**NOAH**

**GLOBAL HEALTH NETWORK** **Martindale's Health Science Guide** **Search**

Click here for Healthfinder

# Medical information can be found many places on the net - but beware of quality!



The screenshot shows a Netscape browser window displaying the OMNI website. The browser's title bar reads "OMNI: Organising Medical Networked Information - Netscape". The address bar shows "http://omni.ac.uk/". The website header includes the OMNI logo and the text "OMNI: Organising Medical Networked Information" and "The UK's gateway to high quality biomedical Internet resources". A navigation menu on the left lists links for Browse, Search, About, Education, Events, Funding, Medline, News, Services, Training, Index, and Help. The main content area features a "Quick search" section with a search box and a "Search" button. Below this is a paragraph of text explaining the search process and providing tips. A section titled "Recent key developments" lists several updates, including the addition of 15 new records on September 5, 1999, and the availability of the BIOME Service Manager position. The footer of the page states that OMNI relies on unbiased, high-quality Internet-based resources.

OMNI: Organising Medical Networked Information - Netscape

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Bookmarks Location: <http://omni.ac.uk/> What's Related

**OMNI**  
omni.ac.uk

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## OMNI: Organising Medical Networked Information

The UK's gateway to high quality biomedical Internet resources

### Quick search

Enter words such as **angina** or phrases such as **"heart disease"**

You are searching on a collection of descriptions of quality health and medical Internet-based resources. You can read information on [what exactly you are searching on](#), get some tips on [searching efficiently](#), or search in [different ways](#). Please note that we [do not provide health or medical advice of our own](#).

### Recent key developments

The OMNI databases were updated on Sunday, 05 September, 1999. [15 new records](#) were added. We now describe 4456 records.

3rd September The position of [BIOME Service Manager](#) is now available. The closing date for applications is Thursday, 30th September.

3rd September Information on [BIOME](#), the Hub that will subsume the OMNI service, is now available from <http://biome.ac.uk/>

7th July The latest edition of the OMNI newsletter, [issue 27](#), is now available.

4th June OMNI now hosts [psci-com](#). A gateway to public understanding of science and science communication information on the Internet.

### Help us build OMNI

OMNI relies on the constant addition of unbiased, high quality, Internet-based resources that are of relevance to the wider UK medical,



# Information highway = knowledge?

- First instinct: same as 1990
- Go to workstation: Medline search
  - Unable to retrieve original paper(s)
  - Not enough time anyway
- Go to Web browser on workstation
  - General searching non-specific
  - “Metasite” searching too “textbook”
- Is this as good as it gets?

Perhaps this new thing  
EBM can help me?

## What is evidence-based medicine:

Evidence-based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.

Its philosophical base dates back to the sceptics of post-revolutionary Paris (Bichat, Louis, Magendie).

## What evidence-based medicine is not:

- The term “evidence” in Evidence-based medicine must not be regarded as synonymous with “science”.
- The whole principle of EBM is that all information about any medical/health topic is “evidence” and must be considered as such.
- However, just as evidence in a court is considered strong or weak, this also applies to the above information.
- Awareness of grading of evidence is important
- It is incorrect to dichotomise evidence as valid or not, in contrast to other data that can be categorized either as scientific or as unscientific.
- EBM must not be translated as Scientific-based medicine (In Norwegian as “Vitenskapelig-basert medisin”)

# What evidence-based medicine is:

The practice of EBM requires the integration of

- individual clinical expertise

with the

- best available external clinical evidence  
from systematic research.

## What evidence-based medicine is:

- Good doctors use both individual clinical expertise and the best available external evidence, and neither alone is enough.
  - Without the former, practice risks becoming evidence-tyrannised, for even excellent external evidence may be inapplicable or inappropriate for an individual patient.
  - Without the latter, practice risks becoming rapidly out of date, to the detriment of patients and patient-care.

## What evidence-based medicine is:

- **Individual clinical expertise**: the increasing proficiency and judgement that individual clinicians acquire through clinical experience and clinical practice.
  - reflected especially in more effective and efficient diagnosis, and
  - in the more thoughtful identification and compassionate utilisation of individual patient's predicaments, rights, and preferences in making clinical decisions about their care.

# What evidence-based medicine is:

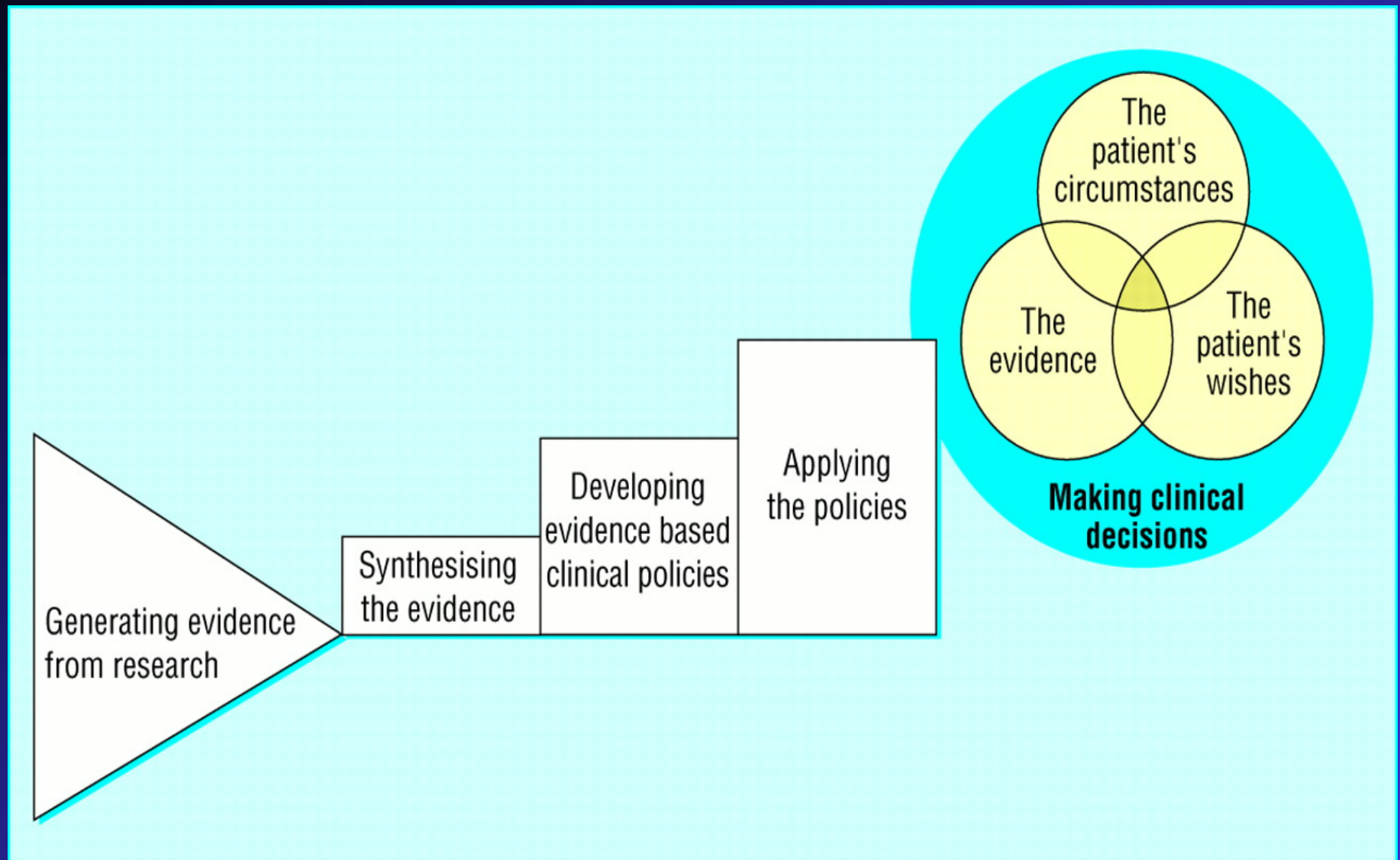
- Best available external clinical evidence:
  - clinically relevant research, often from the basic sciences of medicine, but especially from patient-centred research into the accuracy and precision of diagnostic tests (including the clinical examination), the power of prognostic markers, and the efficacy and safety of therapeutic, rehabilitative, and preventive regimens.
  - How and where do we find our information?



# How can EBM be practiced locally?

1. Generate focused clinical questions
  - Questions for articles on therapy, diagnostic tests, prognosis, harm, etc.
2. Efficiently find the evidence
  - Database searching: tools and techniques
  - Locating appropriately focused clinical studies
3. Determine validity, results, applicability
  - User's Guide to the Medical Literature
4. Apply the evidence in daily care

# How can EBM be practiced generally?



Haynes et al. Br Med J  
1998;317:273-276

# Learning how to practice evidence-based medicine

- Seminars
- Books
- Internett
  - On line courses
  - On line articles
  - Link banks
  - Journals

# How to learn about EBM - textbook:

Evidence-Based Medicine - Netscape

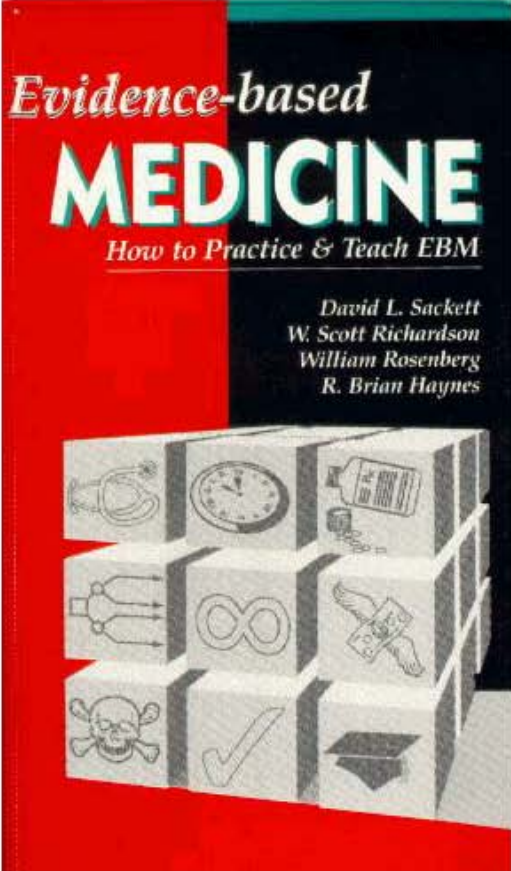
File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Stop

Bookmarks Netsite: <http://hiru.mcmaster.ca/ebm.htm> What's Related

## Evidence-Based Medicine: How to Practice and Teach EBM

by Sackett DL, Richardson S, Rosenberg W, Haynes RB.  
London; Churchill Livingstone. 1997.



### Ordering Information

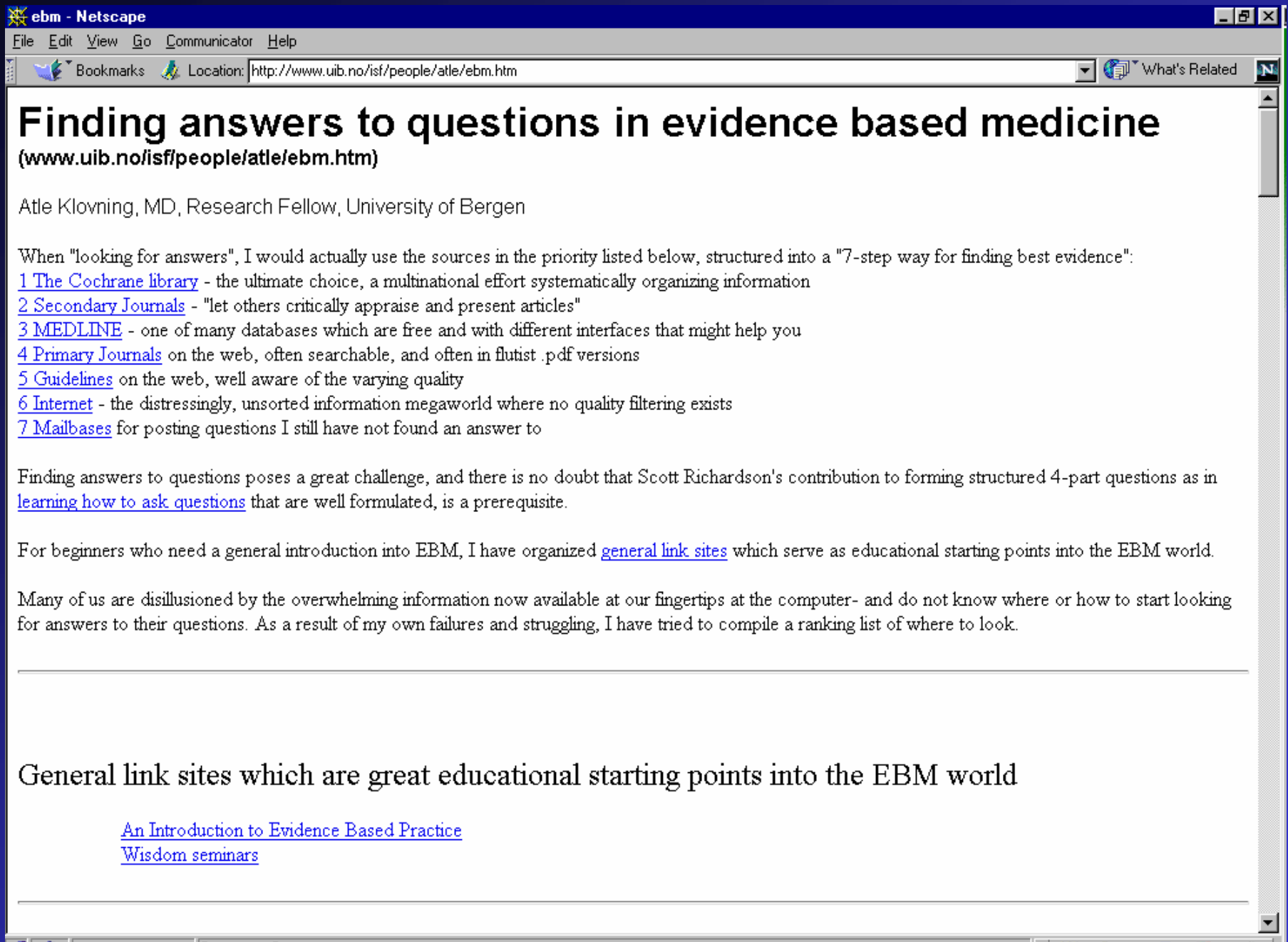
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# How to learn about EBM - Internet:



The image shows a Netscape browser window with the title "ebm - Netscape". The address bar shows the URL "http://www.uib.no/isf/people/atle/ebm.htm". The main content of the page is as follows:

## Finding answers to questions in evidence based medicine

([www.uib.no/isf/people/atle/ebm.htm](http://www.uib.no/isf/people/atle/ebm.htm))

Atle Klovning, MD, Research Fellow, University of Bergen

When "looking for answers", I would actually use the sources in the priority listed below, structured into a "7-step way for finding best evidence":

- 1 [The Cochrane library](#) - the ultimate choice, a multinational effort systematically organizing information
- 2 [Secondary Journals](#) - "let others critically appraise and present articles"
- 3 [MEDLINE](#) - one of many databases which are free and with different interfaces that might help you
- 4 [Primary Journals](#) on the web, often searchable, and often in flutist .pdf versions
- 5 [Guidelines](#) on the web, well aware of the varying quality
- 6 [Internet](#) - the distressingly, unsorted information megaworld where no quality filtering exists
- 7 [Mailbases](#) for posting questions I still have not found an answer to

Finding answers to questions poses a great challenge, and there is no doubt that Scott Richardson's contribution to forming structured 4-part questions as in [learning how to ask questions](#) that are well formulated, is a prerequisite.

For beginners who need a general introduction into EBM, I have organized [general link sites](#) which serve as educational starting points into the EBM world.

Many of us are disillusioned by the overwhelming information now available at our fingertips at the computer- and do not know where or how to start looking for answers to their questions. As a result of my own failures and struggling, I have tried to compile a ranking list of where to look.

---

## General link sites which are great educational starting points into the EBM world

[An Introduction to Evidence Based Practice](#)  
[Wisdom seminars](#)

# How to learn about EBM - Internett:

Netting the Evidence : A ScHARR Introduction - Netscape

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Bookmarks Location: <http://www.shef.ac.uk/~scharr/ir/netting.html> What's Related



## Netting the Evidence

### A ScHARR Introduction to Evidence Based Practice on the Internet

<http://www.shef.ac.uk/~scharr/ir/netting.html>

---

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**Current Awareness: Do you wish to browse the latest articles on Evidence Based Medicine from the MEDLINE database? If so click [here](#).** **NEW**

ScHARR-approved mirror sites exist at the [University of Sydney](#). A Spanish Language version "[Atrapando la evidencia : Una Introducción de la ScHARR a la práctica basada en la evidencia en Internet](#)" is also available, maintained by Rafael Bravo Toledo. The ScHARR site will always be the most up-to-date. Please let [Andrew Booth](#) know if you identify any errors or omissions.

*A set of [self-assessment exercises](#) for users of "Netting the Evidence" is available as a Microsoft Word document.*

A

# How to learn about EBM - CEBM Oxford:

Centre for Evidence-Based Medicine - Netscape

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Bookmarks Location: <http://cebm.jr2.ox.ac.uk/> What's Related

[index](#) 

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## Centre for Evidence-Based Medicine

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NHS Research and Development  
**Centre for  
Evidence-Based Medicine**

Last update 12th September 1999

### What's New?

- A new course, Clinical Research Methods applied to Randomised Controlled Trials and Systematic Reviews, is starting in October. [Click here](#) to find out more
- Do you think we should run a workshop on how to practice EBM in April 2000? If so, [tell Olive!](#)
- If you were at the Future of EBM conference in May, [click here](#) to choose your pictures.
- A new project: [Evidence-Based On Call](#) (EBOC) has just begun here at the Centre, creating accurate, up-to-date evidence-based information for clinicians.

---

### Contents

- [Centre for Evidence-Based Medicine](#), the what, who, where and why.
- [How to Practice and Teach Evidence-Based Medicine](#), support materials for the book by Sackett, Richardson, Rosenberg and Haynes.

# How can we apply EBM in our daily practice?

- 1 by learning how to practice evidence-based medicine ourselves.
- 2 by seeking and applying evidence-based medical summaries generated by others.
  - Journals that critically appraise primary studies



# On line secondary journals - ACP:

Dental and Cardiac Risk Factors for..., Annals 15 Nov 98 - Netscape

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Bookmarks Location: <http://www.acponline.org/journals/annals/15nov98/endocard.htm> What's Related

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## Annals of Internal Medicine

### Dental and Cardiac Risk Factors for Infective Endocarditis

#### A Population-Based, Case-Control Study

*Annals of Internal Medicine*, 15 November 1998.  
129:761-769.

[Related Editorial](#)  
[Related Letters](#)

Brian L. Strom, MD, MPH; Elias Abrutyn, MD; Jesse A. Berlin, ScD; Judith L. Kinman, MA; Roy S. Feldman, DDS, DMSc; Paul D. Stolley, MD, MPH; Matthew E. Levison, MD; Oksana M. Korzeniewski, MD; and Donald Kaye, MD

**Background:** Although antibiotic prophylaxis against infective endocarditis is recommended, the true risk factors for infective endocarditis are unclear.

**Objective:** To quantitate the risk for endocarditis from dental treatment and cardiac abnormalities.

**Design:** Population-based, case-control study

**Setting:** 54 hospitals in the Philadelphia area.

**Patients:** Persons with community-acquired infective

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# On line secondary journals - EBM:

Evidence-Based Medicine - Netscape


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Bookmarks Location: <http://www.bmjgroup.com/data/ebm.htm> What's Related

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## Evidence-Based Medicine



With 2 million new papers published each year how can you be sure you read all the papers essential for your daily practice, and how can you be sure of the scientific soundness of what you do read?

**Order now online**

To help you base your clinical decisions on the best current scientific evidence the BMJ Publishing Group together with the American College of Physicians have launched a new journal, Evidence-Based Medicine.

Published bi-monthly Evidence-Based Medicine surveys a wide range of international medical journals (at least 70) to identify the key research papers that are scientifically valid and relevant to practice.

Evidence-Based Medicine:

- uses scientific criteria to select articles from the most important papers from the world's leading journals
- selects only those papers which have a direct message for practice
- provides more information abstracts and commentaries on the articles which will


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# On line secondary journals - EBD:

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Bookmarks Location: <http://www.ihs.ox.ac.uk/cebd/ebdj.htm> What's Related

## evidence- based dentistry

Published as a supplement to the [British Dental Journal](#)



[Aims & Criteria](#)

[Editorial team](#)

[Volume 1, Number 1 Nov. 1998](#)

[Volume 1, Number 2 June 1999](#)

ISSN: 1462-0049

**Editorial Office**  
64 Wimpole Street  
London W 1 M 8AL, UK  
Tel: +44 (0)171-935 0875  
Fax: +44 (0)171-224 0603

**For further details:-**  
Tel. +44 (0)1256 351898  
Fax +44 (0)1256328339  
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# How can we apply EBM in our daily practice?

- 1 by learning how to practice evidence-based medicine ourselves.
- 2 by seeking and applying evidence-based medical summaries generated by others.
  - Journals that critically appraise primary studies
  - Systematic reviews: Cochrane Collaboration

# What are Systematic Reviews

- Clear statement of purpose and scope
- Comprehensive search and retrieval of the relevant research
- Explicit selection criteria
- Critical appraisal of the primary studies
- Reproducible decisions regarding relevance, selection, and methodologic rigor of the primary research
- When quantitative methodology applied -> meta-analysis



*Preparing, maintaining and promoting the accessibility of systematic reviews of the effects of health care*

- [General Information](#) **What's new!**
- [Help for newcomers](#)
- [Guidelines, Manuals and Software](#)
- [Contact details for Cochrane Groups](#)
- [Internet resources](#)
- [Site index](#)



# The Cochrane Collaboration

## [Local pages for The Nordic Cochrane Centre](#)

For further information contact your nearest [Cochrane Centre](#)

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This page was last updated on 4 January 1999  
Comments for improvement or correction are welcome.  
[david.badger@flinders.edu.au](mailto:david.badger@flinders.edu.au)



## THE NORDIC COCHRANE CENTRE

Rigshospitalet, Dept. 7112, Tagensvej 18B, DK-2200 Copenhagen N, DENMARK  
Tel: +45 35 45 55 71, Fax: +45 35 45 70 07, E-mail: [general@cochrane.dk](mailto:general@cochrane.dk)

*The Nordic Cochrane Centre is part of The Cochrane Collaboration, an international network of individuals and institutions committed to preparing, maintaining, and disseminating systematic reviews of the effects of health care.*

### [Workshops, courses and meetings in the Nordic region](#)

#### Information material:

- [Danish brochure: 'Cochrane-samarbejdet'](#)
- [Finnish brochure: 'Cochrane-yhteistyö'](#)
- [Norwegian brochure: 'Cochranesamarbeidet'](#)
- [Russian brochure: 'Кокрановское Сотрудничество'](#)
- [Swedish brochure: 'Cochranesamarbetet'](#)
- [English brochure: 'The Cochrane Collaboration'](#)
- [Nordic Cochrane News](#)

#### The Nordic Cochrane Centre:

- [About The Nordic Cochrane Centre \(Centre module\)](#)
- [Report 1998 and Strategic plan for 1999 - 2001](#)
- [History of The Nordic Cochrane Centre and Network](#)
- [Personnel](#)

For more information, see the [international Cochrane pages](#).

Visitors since 12 August 1998: **002655**

[Evidence  
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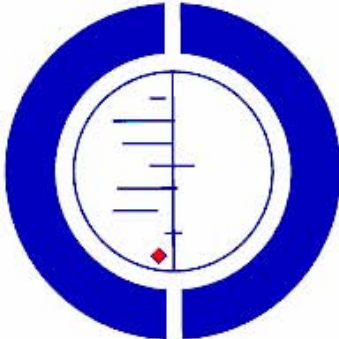
# The Cochrane library:

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# NHS Centre for Reviews and Dissemination- York:

EHC5 5(2): Dental Restoration: What Type of Filling? - Netscape

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Bookmarks Location: <http://www.york.ac.uk/inst/crd/ehc52.htm> What's Related

THE UNIVERSITY *of York*

NHS CENTRE FOR REVIEWS AND DISSEMINATION

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*EFFECTIVE HEALTH CARE*

APRIL 1999 VOLUME 5 NUMBER 2

---

*Bulletin on the effectiveness of health service interventions for decision makers*

NHS Centre for Reviews and Dissemination  
University of York

---

**Dental Restoration: What Type of Filling?**

- Tooth decay is one of the most common diseases and accounts for almost half of all tooth extractions. The treatment of tooth decay by the placement of simple, direct restorations (fillings) alone costs the NHS in England & Wales £173 million per year.
- Dental restorations do not last forever; over 60% of all restorative dentistry is for the replacement of restorations.
- New restorative materials are often marketed and introduced into practice with limited evidence on their long-term clinical performance.



# How can we apply EBM in our daily practice?

- 1 by learning how to practice evidence-based medicine ourselves.
- 2 by seeking and applying evidence-based medical summaries generated by others.
- 3 by accepting evidence-based practice protocols developed by our colleagues.

# Information and Evidence: Translation into Practice

- **New venues: Synthetic Research**
  - Journals that critically appraise primary studies
  - Systematic reviews: Cochrane Collaboration
- Formulation of Evidence-Based Practice Guidelines
  - Critical analysis of primary evidence
  - Promise of consistency and optimal care
  - Source, methodology, accessibility

# National Guideline Clearinghouse (USA)

- The NGC Web site will:
  - contain standardized information for thousands of guidelines such as title, sponsoring organization, author(s), and methodology used;
  - provide guideline abstracts, and where possible the full text of guidelines;
  - compare and contrast the recommendations of guidelines on similar topics, with summaries covering major areas of agreement and disagreement;
  - have topic-specific electronic mailing lists to enable registered users to communicate with one another on guideline development, dissemination, implementation, and use.

# Example of one guideline web centre (NGC, USA):

Agency for Health Care Policy and Research Home Page - Netscape

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Bookmarks Location: <http://www.ahcpr.gov/> What's Related



**NATIONAL  
GUIDELINE  
CLEARINGHOUSE**  
[www.guideline.gov](http://www.guideline.gov)

**HCUPnet: Interactive Tool for Hospital Statistics**  
[Your Guide to Choosing Quality Health Care](#)  
[Put Prevention Into Practice](#)  
Attention Researchers: Grant Money Available!

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**Agency for Health Care Policy and Research**

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<b>Consumer Health</b>	<a href="#">Healthfinder, specific health conditions, surgery, prescriptions, health plans, health guides</a>	<a href="mailto:info@ahcpr.gov">info@ahcpr.gov</a>
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**AHCPR: Improving Health Care Quality Through Research & Education**

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# Information and Evidence: Translation into Practice


- New venues: Synthetic Research
  - Journals that critically appraise primary studies
  - Systematic reviews: Cochrane Collaboration
- Formulation of Evidence-Based Practice Guidelines
  - Critical analysis of primary evidence
  - Promise of consistency and optimal care
  - Source, methodology, accessibility
- User's Guide to interpret literature


















# Appraisal tools are available on line directly:

EBHC appraisal - Netscape

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Download PDF versions of the appraisal criteria by clicking the  icons

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