Electronic search for Literature review

Amr A. Jamal, *MD, SBFM, ABFM, MRCGP, GCCI, MBI*

Chairman, Associate Professor and Consultant
Family Physician and Clinical Informatician

Family and Community Medicine Department
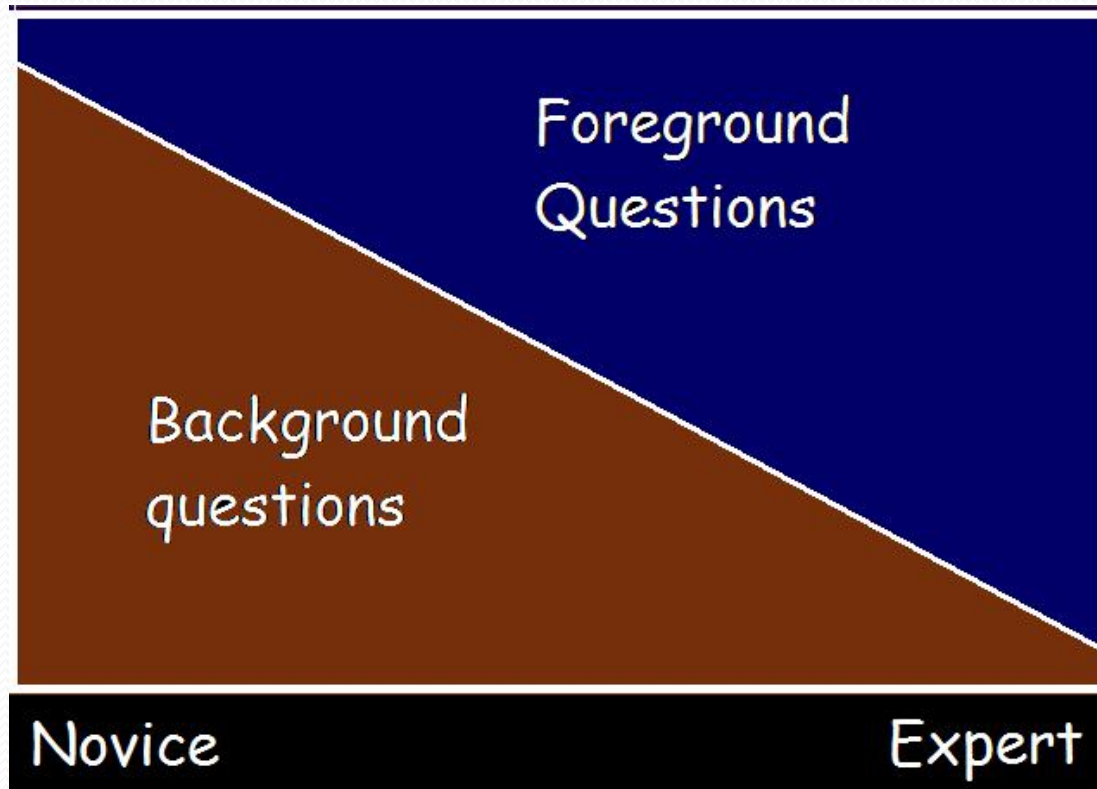College of Medicine, King Saud University

What is the first step in the evidence based practice process?

A. **Applying research to practice**
B. Acquiring available research and evidence
C. Assessing the impact of change
D. Asking a clinical question
E. Appraising the research quality
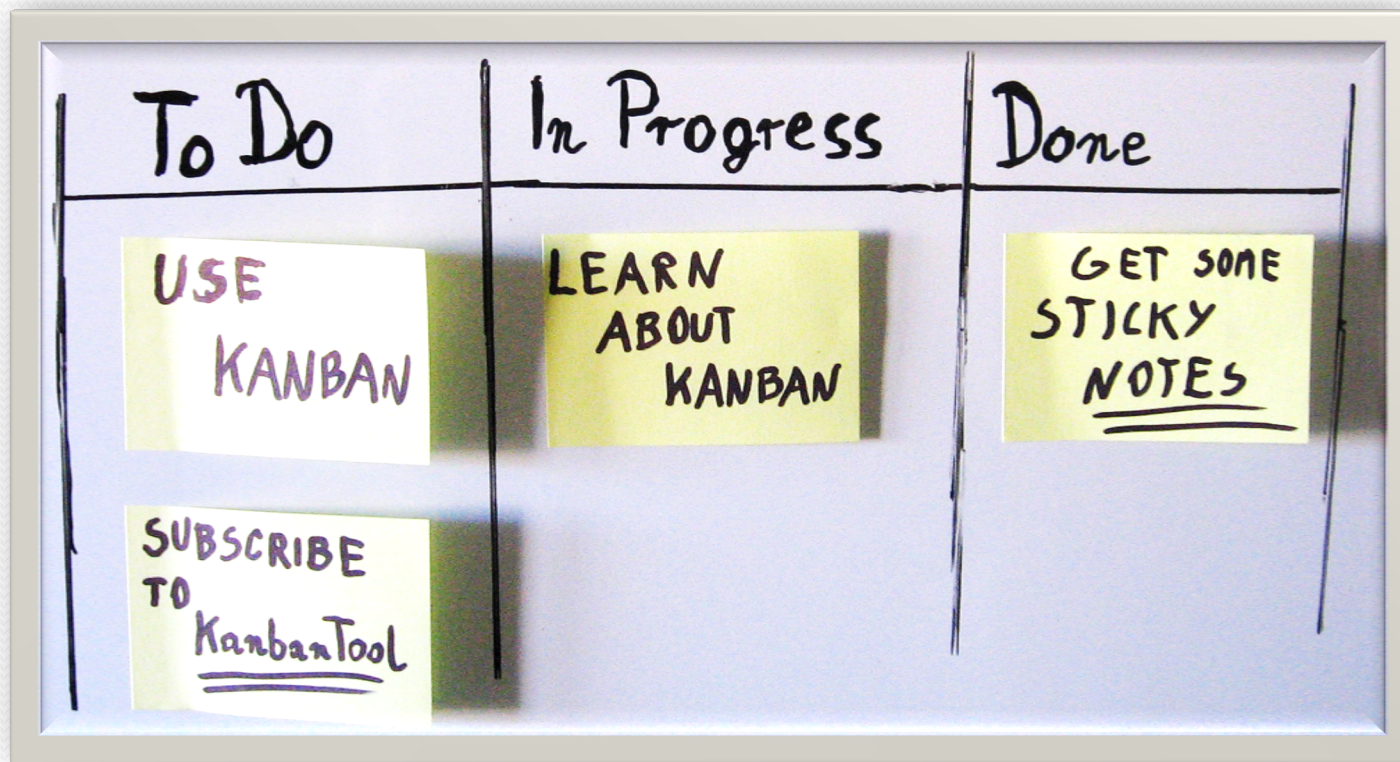
5-step EBM process
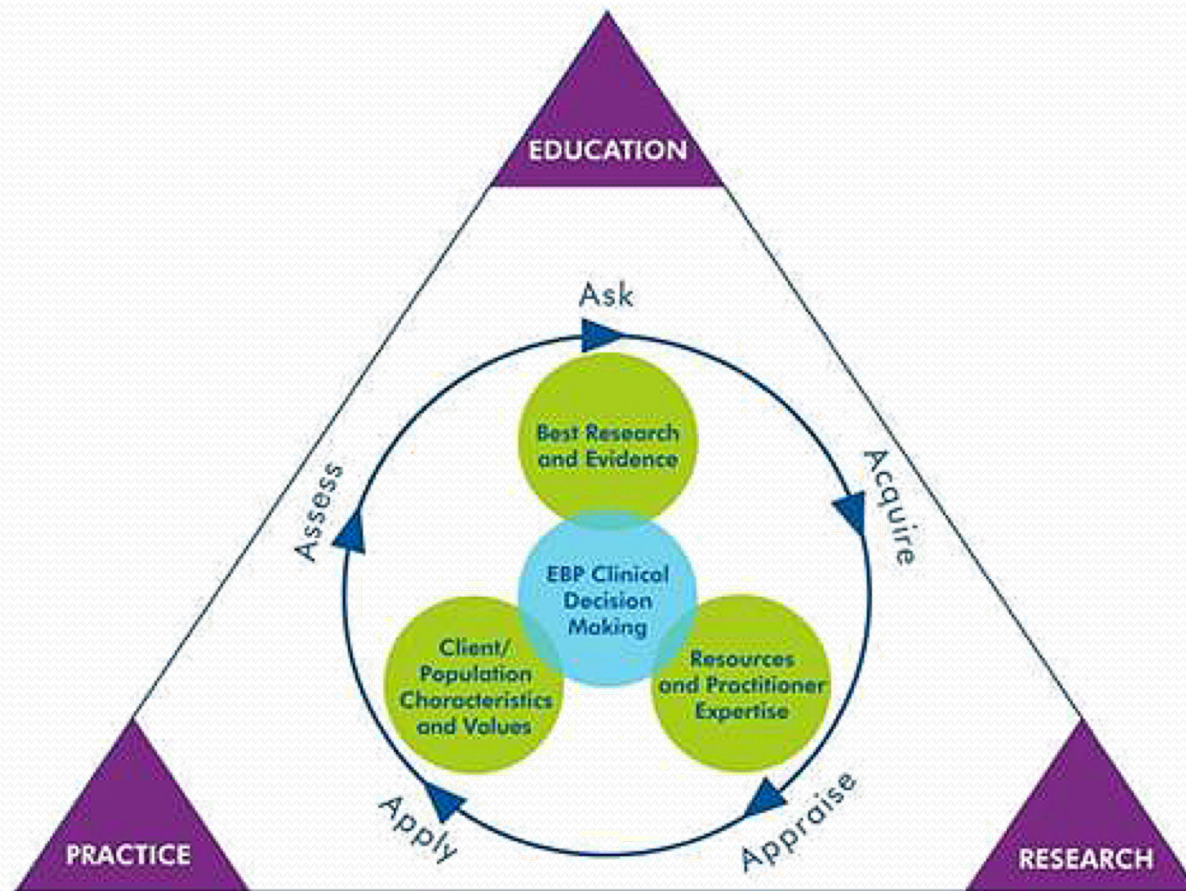
Foreground Vs. Background EBM questions

Kanban Board

2nd step: Acquire
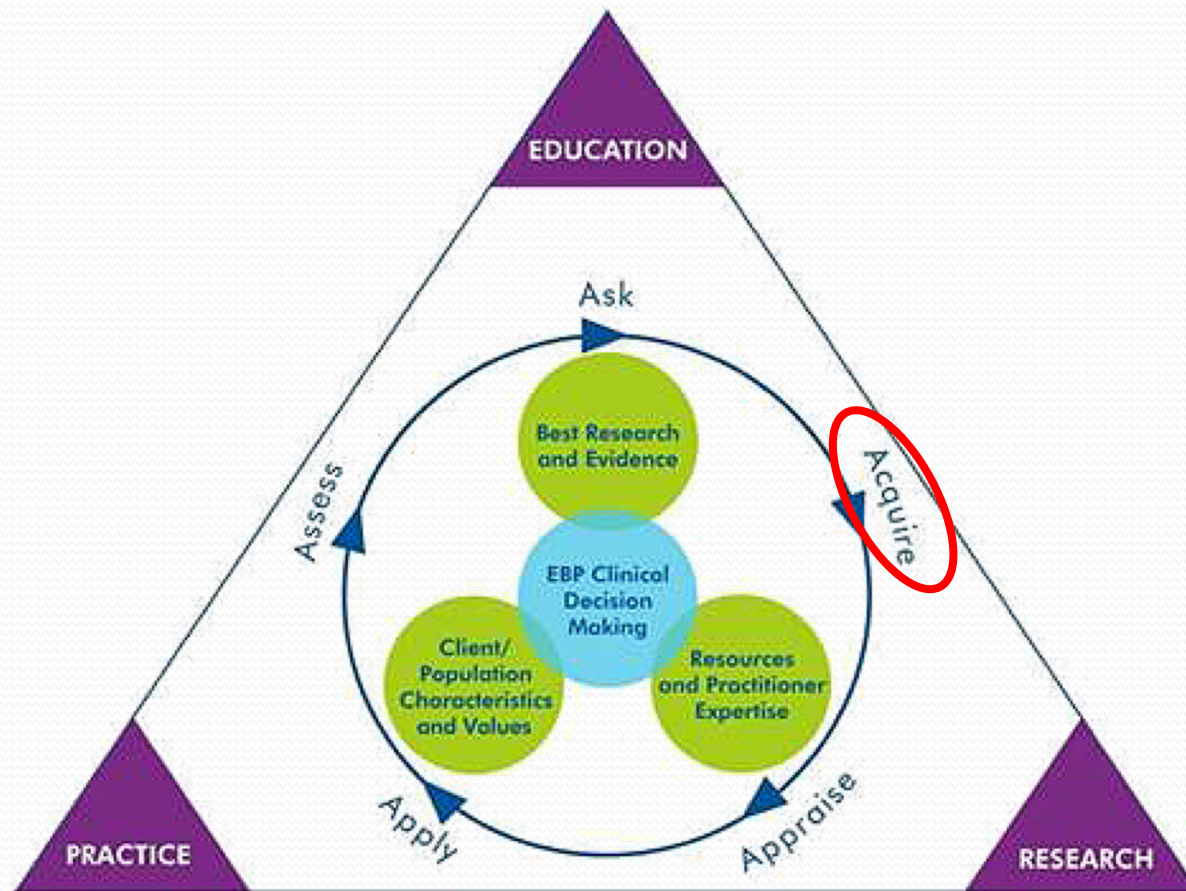
Where do you search for evidence?

1. ACP Clinical Guidelines and Recommendations
2. BMJ BestPractice / Clinical Evidence
3. ClinicalKey / MDConsult
4. Cochrane Library
5. DynaMed
6. Essential Evidence Plus
7. Google
8. Google Scholar
9. Medscape
10. PubMed
11. Saudi Digital Library
12. Skyscape
13. StatRef
14. TRIP Database
15. UpToDAte
16. Web of Knowledge
17. WebMD (Med-U)
18. Other

Hierarchy of evidence

Levels of evidence

Systematic Reviews

Randomized Controlled Trials

Cohort Studies

Case-Control Studies

Case Series, Case Reports

Editorials, Expert Opinion

Sources of evidence (6 Ss)

Systems — Computerised decision support systems

Summaries — Evidence based clinical practice guidelines / Evidence based textbooks

Synopses of synthesis — Evidence based journal abstracts

Synthesis — Systematic reviews

Synopses of studies — Evidence based journal abstracts

Studies — Original journal articles

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"

Haynes' 5S pyramid of EBM resources
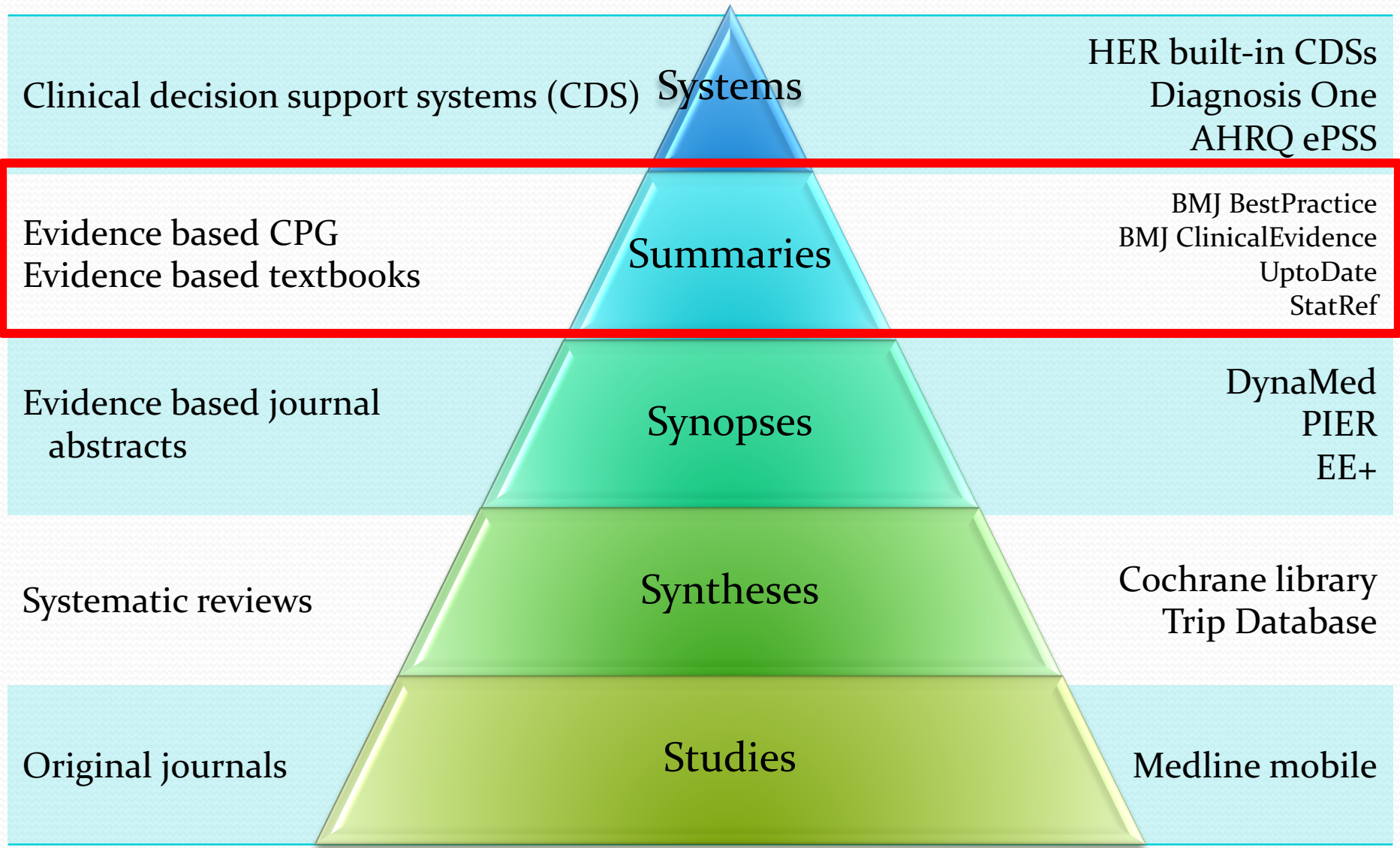
Systems — Clinical decision support systems (CDS)
HER built-in CDSs
Diagnosis One
AHRQ ePSS

Summaries — Evidence based CPG / Evidence based textbooks
BMJ BestPractice
BMJ ClinicalEvidence
UptoDate
StatRef

Synopses — Evidence based journal abstracts
DynaMed
PIER
EE+

Syntheses — Systematic reviews
Cochrane library
Trip Database

Studies — Original journals
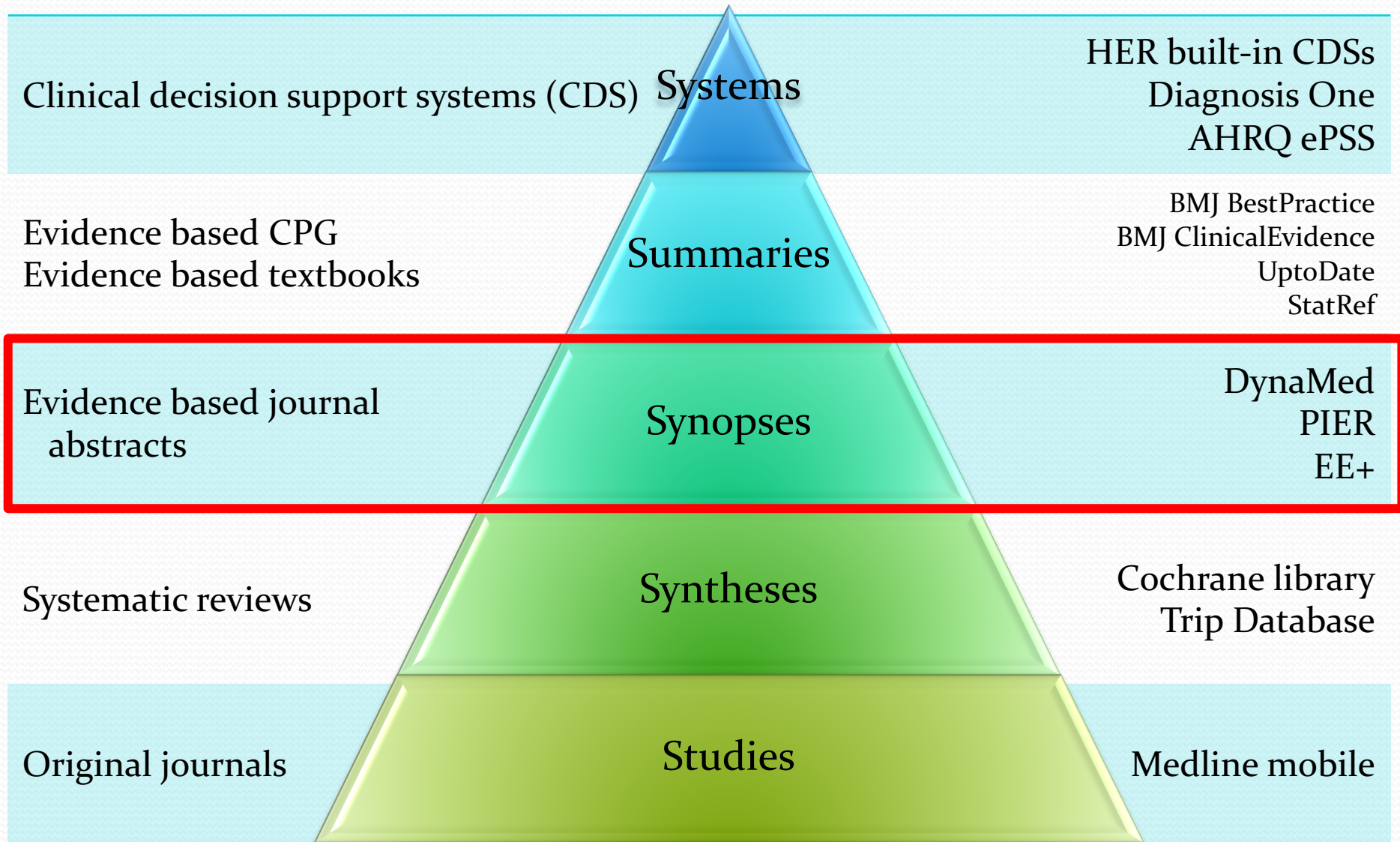Medline mobile

Where do you search for guidelines?

1. BMJ Best Practice
2. CMA Infobase
3. Cochrane
4. DynaMed
5. EMBASE
6. Essential Evidence Plus
7. Medline
8. National guideline Clearinghouse
9. **TRIP database**

Haynes' 5S pyramid of EBM resources

Clinical decision support systems (CDS) — **Systems** — HER built-in CDSs / Diagnosis One / AHRQ ePSS

Evidence based CPG / Evidence based textbooks — **Summaries** — BMJ BestPractice / BMJ ClinicalEvidence / UptoDate / StatRef

Evidence based journal abstracts — **Synopses** — DynaMed / PIER / EE+

Systematic reviews — **Syntheses** — Cochrane library / Trip Database

Original journals — **Studies** — Medline mobile

EvidenceUpdates
from BMJ

Home | **About This Site** | **About BMJ Group**

BMJ Group and McMaster University's Health Information Research Unit are collaborating to provide you with access to current best evidence from research, tailored to your own health care interests, to support evidence-based clinical decisions.

This service is unique: all citations (from over 120 premier clinical journals) are pre-rated for quality by research staff, then rated for clinical relevance and interest by at least 3 members of a worldwide panel of practicing physicians. Here's what we offer:

- A searchable database of the best evidence from the medical literature
- An email alerting system
- Links to selected evidence-based resources

Hit Parade: The most often read articles in all disciplines, in the past 30 days

1. **Effectiveness of non-steroidal anti-inflammatory drugs for the treatment of pain in knee and hip osteoarthritis: a network meta-analysis.**
   Lancet *(Review)*

2. **Vaccines for preventing herpes zoster in older adults.**
   Cochrane Database Syst Rev *(Review)*

3. **Blood-Pressure and Cholesterol Lowering in Persons without Cardiovascular Disease.**
   N Engl J Med *(Original)*

News and headlines:

☐ Warning issued over alarming rise in 'super-gonorrhoea' cases
Mon, 18 Apr 2016 16:00:00 GMT

☐ Child head injuries could harm relationship with parents
Mon, 18 Apr 2016 13:30:00 GMT

☐ Would you trust a smartphone app as a contraceptive?
Fri, 15 Apr 2016 12:00:00 GMT

☐ Zika virus 'does cause birth defects'
Thu, 14 Apr 2016 16:30:00 GMT

☐ Study argues ditching butter for veg oil won't prevent heart disease
Wed, 13 Apr 2016 16:30:00 GMT

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Email a colleague: Introduce colleagues to this site
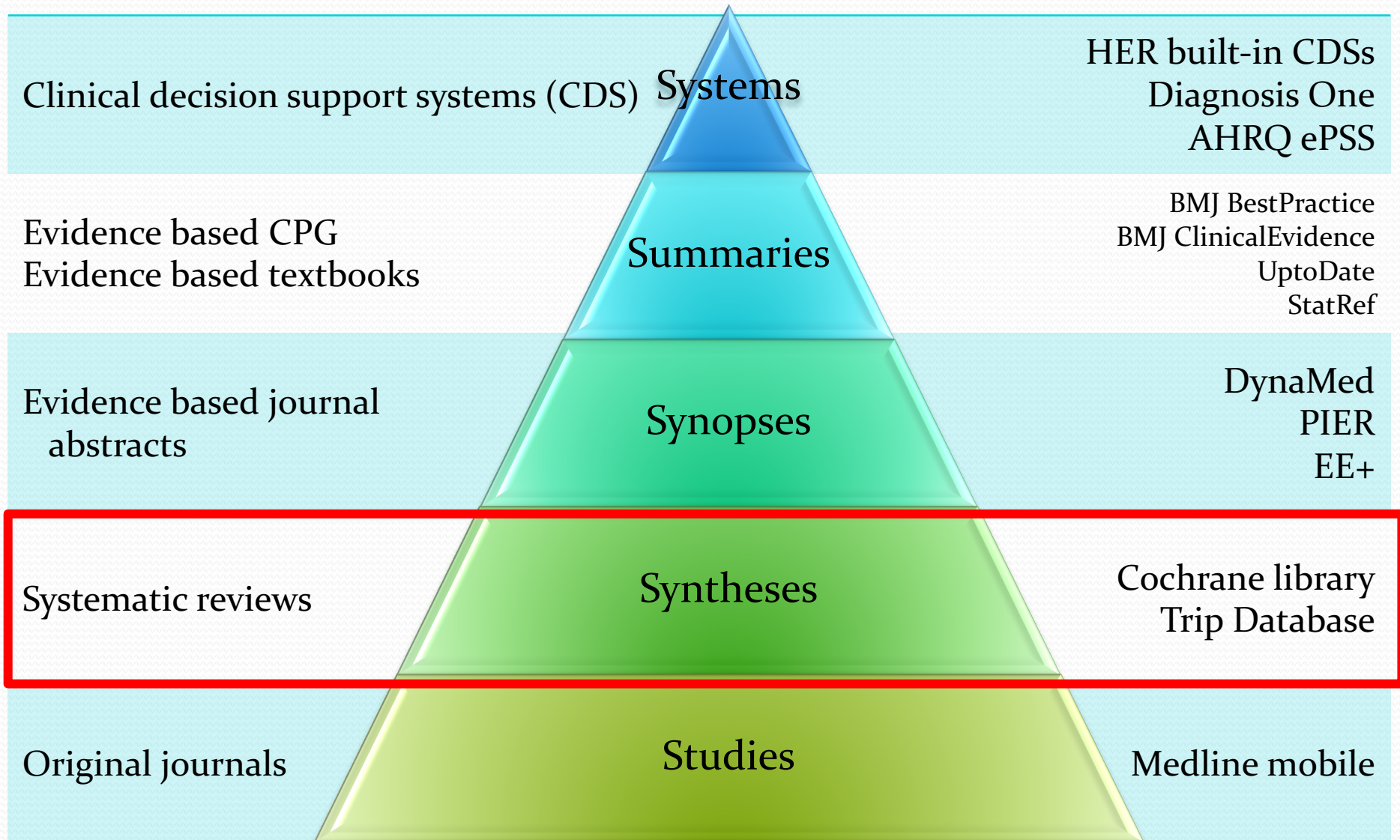**About this site:** Find out more about this site and how it works
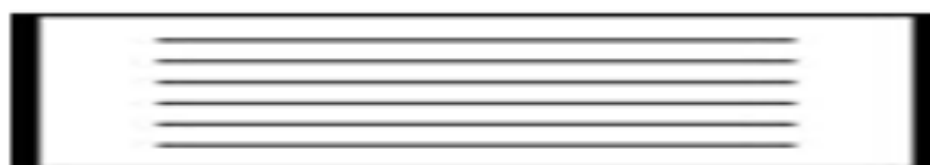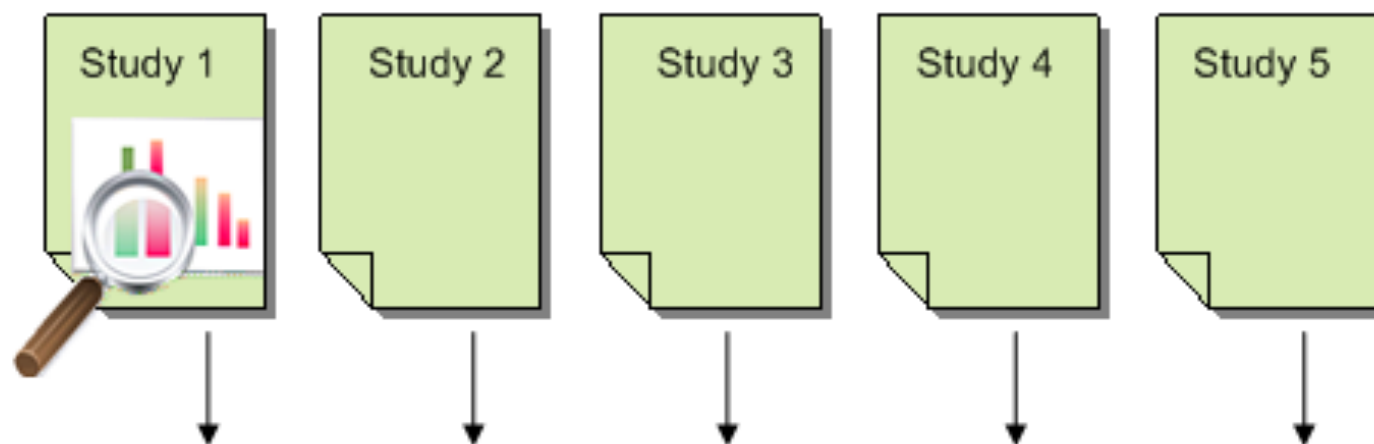**Updates:** Featured article | Headlines | Tip of the day | Feedback
Help: Unable to log in? | Not receiving email alerts?

BMJ McMaster PLUS

Haynes' 5S pyramid of EBM resources

Clinical decision support systems (CDS) — **Systems** — HER built-in CDSs / Diagnosis One / AHRQ ePSS

Evidence based CPG / Evidence based textbooks — **Summaries** — BMJ BestPractice / BMJ ClinicalEvidence / UptoDate / StatRef

Evidence based journal abstracts — **Synopses** — DynaMed / PIER / EE+

Systematic reviews — **Syntheses** — Cochrane library / Trip Database

Original journals — **Studies** — Medline mobile

Systematic Reviews and Meta-analysis:
Putting Results into Perspective

| Study 1 | Study 2 | Study 3 | Study 4 | Study 5 |

Systematic Review of Studies

A thorough, comprehensive, and explicit interrogation of the medical literature.

Combined data
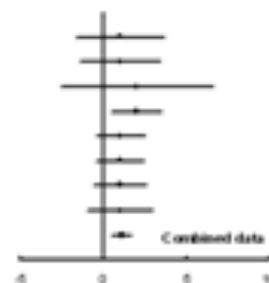
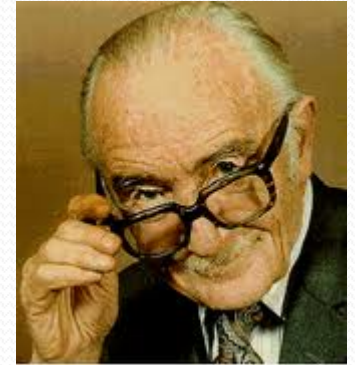**Meta-analysis**

A statistical approach to combine the data derived from a systematic review.

What is Cochrane

The School of Medicine, Cardiff University and the Cochrane Archive

- Archie Cochrane (1909-88)
  - British epidemiologist
  - Advocated RCTs to inform healthcare practice

- Cochrane collaboration
  - Cochrane Reviews (>4,000) registered
  - Identify, appraise and synthesise research-based evidence and present it in accessible format; regularly updated
  - Focus on interventions
  - Outstanding general resource

THE COCHRANE COLLABORATION®
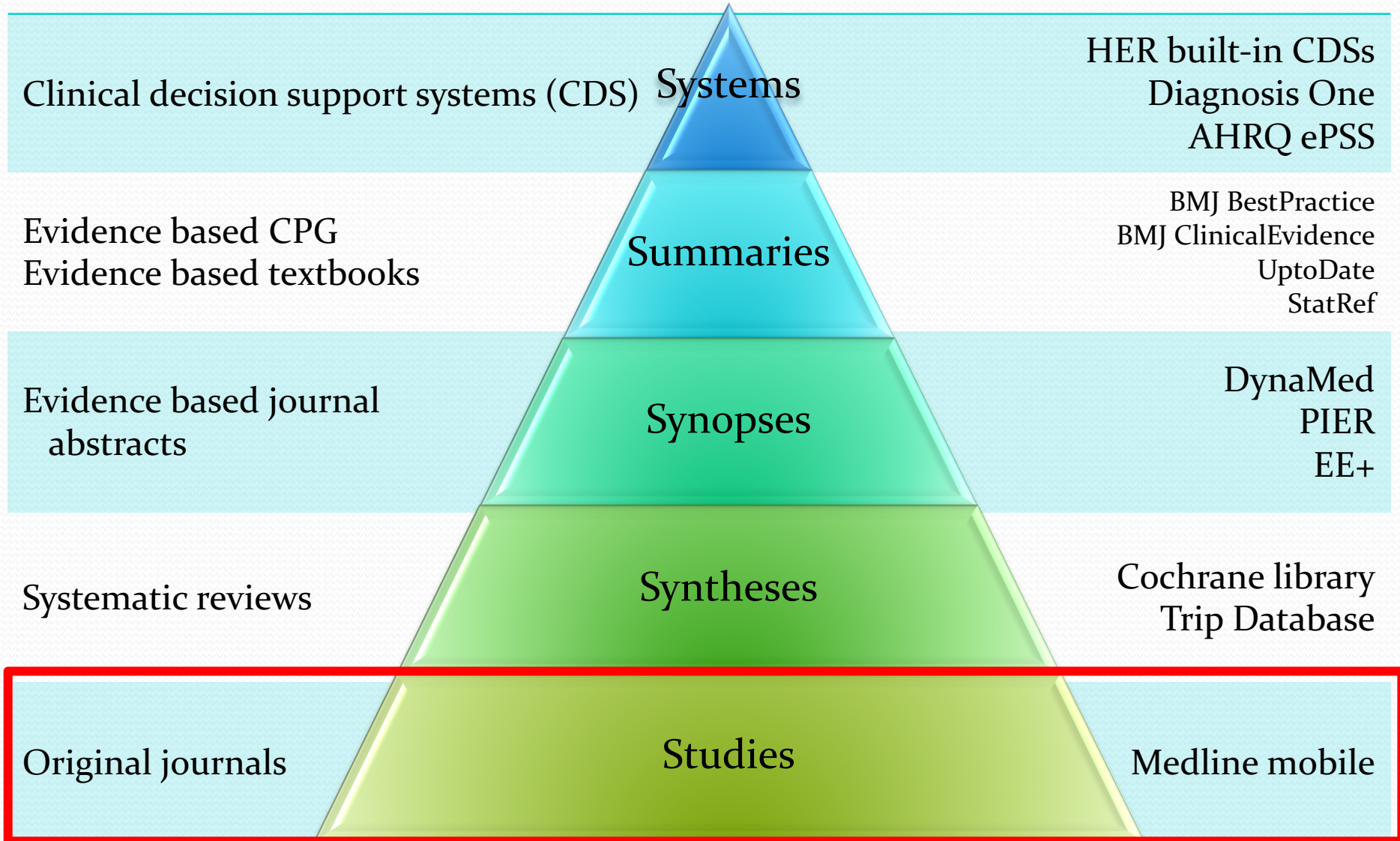
http://www.cochrane-handbook.org/

Filtered and Critically Appraised EBM Resources

- *The Cochrane Library* by The Cochrane Collaboration via Wiley
  - Independent non-for-profit international collaboration
  - Reviews are among the studies of highest scientific evidence
  - Minimum Bias: Evidence is included/excluded on the basis of explicit quality criteria
  - Reviews involve exhaustive searches for all RCT, both published and unpublished, on a particular topic
  - Abstracts searchable for free on the Internet; complete database is available via OVID in SDL for all universities
  - 1995-

Haynes' 5S pyramid of EBM resources

Clinical decision support systems (CDS) — **Systems** — HER built-in CDSs / Diagnosis One / AHRQ ePSS

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Primary resources

- Global databases
  - (Cochrane, PubMed, Health PubMed, Ovid, Science Citations, grey literature, etc.)
- WHO databases
  - (global / regional): observatories; scientific journals (WHO Bulletin / EMHJ); surveillance; surveys; ICTRP; CPG, etc.
- National databases:
  - ENSTINET, SaudiMedLit; NCHS, CAPMAS; healthcare delivery institutions (websites, reports); clinical trials; grey literature, etc.

PubMed

https://www.ncbi.nlm.nih.gov/pubm

- Hands on training

PubMed® Online Training

Tutorials:

- PubMed Tutorial
  [Understanding the Vocabulary] - [Building the Search] - [Managing the Results] - [Saving the Search] - [Getting the Articles]
- The Basics of Medical Subject Headings (MeSH®) in MEDLINE®/PubMed®
- Searching Drugs or Chemicals in PubMed
- PubMed for Nurses

New

- PubMed for Scientists
  A Webinar introduction to PubMed for scientists.
- Finding Genes in PubMed
- PubMed for Nurses

Quick Tours:

Searching PubMed

- Search PubMed by Author (2 min., Dec 2014)
- Searching PubMed by Author and Subject (1 min., Dec 2014)
- PubMed Simple Subject Search (1 min., Dec 2014)
- PubMed Simple Subject Search: How It Works (1 min., Dec 2014)
- Use MeSH to Build a Better PubMed Query (3 min., YouTube video, February 2013)
- PubMed: The Filters Sidebar (2 min., YouTube video, December 2012)
- Search for a Journal (2 min., Dec 2014) - See also Searching for Journals in the NLM Catalog
- Retrieving Citations from a Journal Issue (1 min., Dec 2014)
- Advanced Search Builder (2 min., YouTube video, December 2011)

Managing Results

- Changing Your Default Display Settings (2 min., Dec 2014)

Links to Full Text (My NCBI)

Your library may use LinkOut Filters or Outside Tool to link from PubMed to full text articles. Ask your librarian.

- Need the Full Text Article? (2 min., YouTube video, revised April 2013)
- Links to Full Text from Your Library (Library LinkOut Filters) (3 min., Dec 2014)
- Selecting Your Outside Tool Preference (3 min., Dec 2014)

Saving Searches (My NCBI)

- Save Searches and Set E-mail Alerts (2 min., June 2015)
- E-mail Alerts for Articles from Your Favorite Journals (3 min., June 2015)

Collections and Bibliographies (My NCBI)

Webcasts and Videos:

- PubMed for Scientists (45 min. video, November 2015)
- Finding Genes in PubMed (12 min. video, December 2015)
- PubMed for Librarians (5 part series, NLM Training Center)
- PubMed Update (26 min. video, MLA Annual Meeting Theater Presentation, May 2015)
- PubMed Commons and Journal Clubs (17 min. video, MLA Annual Meeting Theater Presentation, May 2015)
- My NCBI Update: SciENcv & My Bibliography (26 min. video, MLA Annual Meeting Theater Presentation, May 2015)
- Branching Out: The MeSH® Vocabulary (11 min. video)

Handouts:

These handouts are a U.S. National Network of Libraries of Medicine (NN/LM) resource.

- PubMed Basics (tri-fold handout in PDF, docx and doc)
- Searching PubMed with MeSH (tri-fold handout in PDF, docx and doc)
- Full Text and PubMed (tri-fold handout in PDF, docx and doc)
- PubMed Journal Searching (tri-fold handout in PDF, docx and doc)
- Advanced PubMed Searching Resource Packet (tri-fold handout in PDF, docx and doc)
- My NCBI (tri-fold handout in PDF, docx and doc)
- Loansome Doc (tri-fold handout in PDF, docx and doc)
- U.S. National Network of Libraries of Medicine (NN/LM) Non-English Guides to PubMed

More:

LinkOut for Libraries Training and Educational Resources

PubMed Instructional Resources (for Trainers)

PubMed Health

- **About Pubmed Health**
  - PubMed Health provides information for consumers and clinicians on prevention and treatment of diseases and conditions.
  - PubMed Health specializes in reviews of clinical effectiveness research, with easy-to-read summaries for consumers as well as full technical reports. Clinical effectiveness research finds answers to the question "What works?" in medical and health care.
  - PubMed Health is a service provided by the National Center for Biotechnology Information (NCBI) at the U.S. National Library of Medicine (NLM).

Medline via OVID

- Hands on training