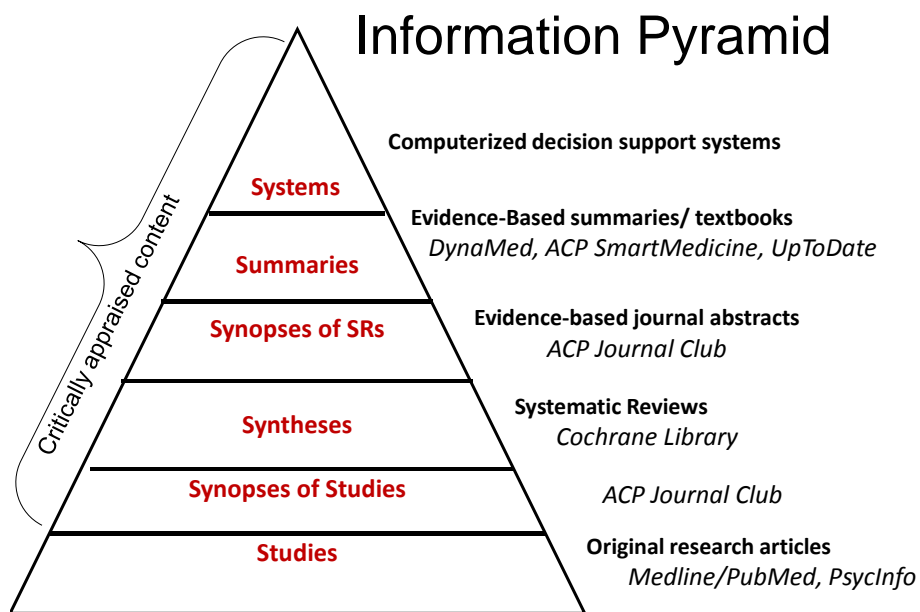


Finding Answers to Clinical Questions: the 6 “S” Model

Where do most of you go when you need to find answers to clinical questions? What sources give you the best, most reliable evidence about treating patients? What sources are the quickest and most efficient to use?

According to Dr. Brian Haynes of McMaster University, it’s helpful to think of clinical reference sources as being arranged in a 6 level hierarchy of evidence with the most efficient to search - i.e., evidence-based “Point of Care databases” - on the top. Databases of individual studies make up the bottom of the pyramid. He calls this the “6”S” model for the organization of evidence-based information services.”¹

The different levels are outlined below together with some of the representative databases available through EVMS. Ideally, you should start your search at the top of the pyramid and move down through the levels if you need more detailed information.



Brian Haynes. *The “6S” evolution of information services for evidence-based healthcare decisions.*

Systems are decision support systems that link individual patient electronic medical records to the best evidence about their conditions. Good ones are rare at this time, but you may find rudimentary systems at some hospitals.

Summaries provide critically appraised, concise information on all aspects of patient management and derive their information from the best evidence found in the lower “S” levels. The EVMS Brickell library subscribes to several summary type resources. Most of these are available to EVMS associates from on and off campus through the *Databases* link on our Webpage - www.evms.edu/library.

ACP Medicine www.evms.edu/library EVMS resource (in STAT!Ref)

Description: ACP Medicine is an evidence-based internal medicine diagnosis and treatment reference.

Search: ACP Medicine is designed to allow the user to browse by topic or use a keyword search function. ACP Medicine provides 'full-text' search techniques (the database will look for search terms in the article text and title).

Scope: Covers the 15 subspecialties of internal medicine, plus key topics in Women's Health, Preventive Medicine, Psychiatry, and more.

Use: Organized by health condition and disease. ACP Medicine provides in-depth coverage of topics. It is an excellent source for *Background Questions*.

Validity: Content is subject to editorial, peer and user review.

Applicability: Narrative summaries of conditions including sections on epidemiology.

Currency: Updates are ongoing and occur frequently. Over 30% new content per year.

More: EVMS associates can access ACP Medicine from STAT!Ref. www.evms.edu/evmslib

ACP SmartMedicine www.evms.edu/library EVMS resource (in STAT!Ref) **Point-of-Care Database PDA version available for Palm OS devices. Email: paceaa@evms.edu for instructions.**

Description: PIER is a “meta-product” that integrates and builds on other ACP-ASIM publications including ACP Journal Club and MKSAP. Includes links to these resources, enabling users to drill down to the evidence underlying recommendations. Content derives from evidence-based synopses of the literature on a condition or disease.

Search: designed to allow the user to browse by topic or use a keyword search function. Provides 'full-text' search techniques (the database will look for search terms in the article text and title).

Scope: Contains about 500 topics organized by Diseases, Screening and Prevention, Complementary/ Alternative Medicine, Ethical and Legal Issues, Procedures, and Drug Resource. ACP SmartMedicine is continually being expanded to include other areas of relevance.

Use: Organized by health condition and disease, optimized for quick review of disease management. Most complete for prevention, diagnosis and therapy.

Validity: Content is subject to editorial, peer and user review, relies on sources (e.g., ACP Journal Club) for much of the filtering and appraisal of validity.

Currency: Publishing began in 2002. Monthly updates.

More: EVMS associates can access ACP SmartMedicine from STAT!Ref. www.evms.edu/evmslib

DYNAMED www.evms.edu/library EVMS resource **Point-of-Care Database**

PDA version available for all devices. Email: paceaa@evms.edu for code and instructions.

Description: *DynaMed* is a clinical reference tool created by physicians for physicians and other health care professionals for use primarily at the 'point-of-care'. With clinically-organized summaries for over 3,000 topics, *DynaMed* is the only evidence-based reference shown to answer most clinical questions during practice. Based on the results of a study published in [*Annals of Family Medicine* \(November/December 2005\)](#), not only did primary care clinicians answer more clinical questions with access to *DynaMed* than without *DynaMed*, but these clinicians also found more answers in *DynaMed* that changed clinical decisions.

Currency: *DynaMed* is updated daily and monitors the content of over 500 medical journals and systematic evidence review databases directly and indirectly by using many journal review services. Each publication is reviewed cover-to-cover, and each article is evaluated for clinical relevance and scientific validity. The new evidence is then integrated with existing content, and overall conclusions are changed as appropriate representing a synthesis of the best available evidence. Through this process of systematic

literature surveillance, the best available evidence determines the content of *DynaMed*. (From DynaMed home page.)

UpToDate www.uptodate.com EVMS resource (on campus or EVMS clinical locations with an 157.21* IP address only)

Description: UpToDate is a clinical consulting tool covering the internal medicine subspecialties, family medicine and pediatrics. Topic reviews are based on clinical conditions. Topic cards may contain aids such as graphs, photos, calculators, and links to drug information and MEDLINE abstracts of cited articles.

Search: Browse the table of contents or search using key words. Searches can be narrowed by a topic list or by entering a second search term after the first search is completed. No Boolean searching.

UpToDate also provides a tutorial on their website.

Scope: Covers internal medicine, family medicine, pediatrics, and obstetrics; some are still in development. Strong in all areas including clinical presentation, differential diagnosis, and causation but the “strength of evidence” is best presented for therapy. Some patient education materials are available.

Use: Best for questions relating to diagnosis and disease management. (*Background Questions*)

Validity: Topic reviews are written by experts and peer reviewed. Reviewers monitor over 200 journals each month. UpToDate includes detailed up-to-date references for each topic card; references link to Medline abstracts. Editors are developing a process to make topic reviews explicitly evidence-based.

Currency: Publishing began in 1992. Updates continuously, date of last update is given for each topic card.

More: www.uptodate.com Individual annual subscriptions are about \$500.

Synopses are critically appraised summaries of individual trials or systematic reviews. EVMS subscribes to one of the best examples of this type of database. The synopsis provides enough information to support a clinical action, but can also serve as a reference to the original source of information. Examples of databases are described below.

ACP JOURNAL CLUB www.evms.edu/evmslib EVMS resource

Description: ACP Journal Club (ACPJC) is an evidence based surveillance and abstracting service published by the American College of Physicians (ACP). It contains structured abstracts that summarize the most important methodologically sound articles pertaining to clinical practice.

Search: Uses 'full-text' search techniques (the database will look for search terms in the article text and title) to find abstracts. Indexed articles provide links to the PubMed record and are available in full-text.

The **Basic Search** function allows you to enter key terms and phrases that will be searched against the ACPJC collection. The **Advance Search** provides a search template that allows the use of Boolean logic (AND/OR/NOT/NEAR) to combine search terms and search like terms. Click on the SEARCH button in the tool bar at the top of the page. The default is the Basic Search. Search results are displayed by the title of the article. Click on the title and the full-text will be displayed.

For a more detailed guide to searching ACPJC use the “Search Help” function, accessed by clicking on the “SEARCH” button in the toolbar of the home page.

Scope: Primary and secondary (reviews and guidelines) clinical studies that meet key methodological criteria are summarized and commented on by experts. Covers internal medicine and primary care.

Use: Best used for questions that can be addressed using clinical research, strongest for therapy and prognosis, weaker for diagnosis and causation. (*Foreground Questions*)

Validity: Articles are selected if they report evidence that could change what practitioners do. Explicit methods of selecting and summarizing articles are described in the introduction.

Applicability: Each abstract summarizes details about patients, practitioners and practices; experts comment on clinical relevance.

Currency: Publishing began in 1991. Updates

More: EVMS associates can access ACP Journal Club through Databases or the Electronic journals link on the library's home page or through STAT!Ref.

Note: Synopses make up the 3rd & 5th levels in Haynes' 6"3" model – i.e. synopses of SRs (3rd); synopses of trials (5th level)

BestBETs (Best Evidence Topics) www.bestbets.org Free resource

Description: BETs were developed in the Emergency Department of Manchester Royal Infirmary, UK, to provide rapid evidence-based answers to real-life clinical questions, using a systematic approach to reviewing the literature. BETs take into account the shortcomings of much current evidence, allowing physicians to make the best of what there is. Although BETs initially had an emergency medicine focus, there are a significant number of BETs covering cardiothoracics, nursing, primary care and pediatrics.

Essential Evidence Plus (formerly *InfoPoems*) www.essentialevidenceplus.com/

Library doesn't subscribe.

Description: Family Medicine evidence-based medicine information system.

Syntheses are systematic reviews/ meta-analyses of individual trials. Most systematic reviews address treatment or prevention; but the number of systematic reviews answering other types of clinical questions - e.g., diagnosis, etiology, and prognosis - is growing. Examples of databases are described below.

Cochrane Library www.evms.edu/library EVMS resource

Description: Cochrane's Database of Systematic Reviews (DSR) is a collection of high quality systematic reviews of controlled trials, including unpublished trials, produced by groups of collaborators (researchers and practitioners) who are organized through the Cochrane Collaboration. The Cochrane Library includes 2 other resources: 1) Database of Abstracts of Reviews of Effectiveness (DARE) - critical assessments and structured abstracts of good systematic reviews published elsewhere and 2) Cochrane Central Register of Controlled Trials (CCRCT) - bibliographic information on controlled trials.

Search: Each database within the Cochrane Library can be searched simultaneously by using the keyword search function provided from the home page. Search results (number of hits) are listed according to specific database. To display search results, click on the number of hits located directly across from the database name. The search browser is not organized by clinical conditions. Articles are indexed according to the Medical Subject Headings (MeSH). Search by using the keyword search function for the best results. Most articles are provided in full-text.

Scope: Cochrane Database of Systematic Reviews (DSR) includes planned [Protocol] and completed [Review] reviews.

Use: Best for therapy or preventive care questions that can be addressed by strong quantitative study designs. (*Foreground Questions*) Cochrane has just started including Diagnosis questions.

Validity: Strictly controlled methods for identifying, reviewing, and performing the meta-analysis for evidence in each review. Extensive links to source evidence including studies excluded from the review.

Applicability: Systematic reviews often include extensive sub-group analyses and policy considerations. Effect sizes usually expressed as absolute risk reduction and number needed to treat. Cumulative meta-analysis can be displayed for subgroups.

Currency: Publishing began in 1993. Updates occur monthly, the date of last update is given for each review. Substantive changes are highlighted.

More: free Cochrane abstracts available at www.cochrane.org/reviews/

Studies are the original trials or studies - i.e., the primary literature. You must critically appraise this evidence yourself before deciding whether it will be helpful for your patients. Some of the primary research databases licensed by EVMS include

PUBMED: CLINICAL QUERIES Free resource (<http://pubmed.gov>) or (better) through EVMS library www.evms.edu/library for Link-out version of PubMed with links to our full-text journals.

Description: PubMed Clinical Queries offers search filters that provides fast, reliable access to clinical studies that are more likely to have strong research methods. Clinical Queries offers four clinical study categories to choose from: therapy, diagnosis, etiology, and prognosis. Searches can also be limited by:

- Sensitivity (for broad search results) or Specificity (for precise search results).
- Systematic Reviews only.

Currency: Updates are ongoing and occur daily.

More: www.ncbi.nlm.nih.gov/entrez/query/static/clinical.html Free resource.

Other Sources for Studies

CINAHL www.evms.edu/library EVMS resource

Description: Cumulative Index to Nursing & Allied Health Literature The CINAHL® database includes citations from 2,593 journals of which 1,788 are currently indexed. Journals cover nursing, allied health, biomedicine, alternative/ complementary medicine, consumer health and health sciences librarianship. Database has over 1 million citations. 1982 to present.

More: www.cinahl.com/csources/csources.htm Individual annual subscriptions are about \$20 through CINAHL*direct*.

EMBASE – Excerpta Medica. www.embase.com (Mediated searching only through EVMS)

Description: European equivalent of Medline. 30 – 65% overlap with Medline depending on topic. Strong in pharmacology and toxicology. 1974 to the present. More than 10,725,971 records (10/05). Mediated searching.

PsycINFO www.evms.edu/library EVMS resource

Description: Complete American Psychological Association database. PsycINFO® contains citations and summaries of journal articles, book chapters, books, and technical reports, as well as citations to dissertations, in the field of psychology and the psychological aspects of related disciplines, such as medicine, psychiatry, nursing, sociology, education, pharmacology, physiology, linguistics, anthropology, business, and law. Journal coverage, spanning 1887 to the present, includes international material selected from more than 2,000 periodicals written in over 25 languages. Current chapter and book coverage includes worldwide English -language material published from the 1800s to the present. Over 100,000 references are added annually through regular updates. (EVMS resource.)

ERIC www.evms.edu/library EVMS resource

Description: The Education Resources Information Center (ERIC), sponsored by the Institute of Education Sciences (IES) of the U.S. Department of Education, produces the world's premier database of

journal and non-journal education literature. The ERIC online system provides the public with a centralized ERIC Web site for searching the ERIC bibliographic database of more than 1.1 million citations going back to 1966.
(EVMS resource.)

Meta Search Products

SUMSearch <http://sumsearch.org/> Free resource

TRIP Database www.tripdatabase.com Free resource
Create account and select EVMS as institution for additional content.

Evidence Based Practice Guidelines (a type of Syntheses)

National Guidelines Clearinghouse www.guideline.gov

Agency for Health Care Policy Research <http://www.ahrq.gov/>

Health Services Technology Assessment Text (HSTAT) <http://text.nlm.nih.gov/>

¹Haynes, Brian. *[Of studies, syntheses, synopses, summaries, and systems: the “5S” evolution of information services for evidence-based health care decisions.](#)* ACP Journal Club. November/December 2006 | Volume 145 • Number 3 p.A-8.

General Version: 8/2014