
Using Evidence-Based Medical Resources

FSU College of Medicine
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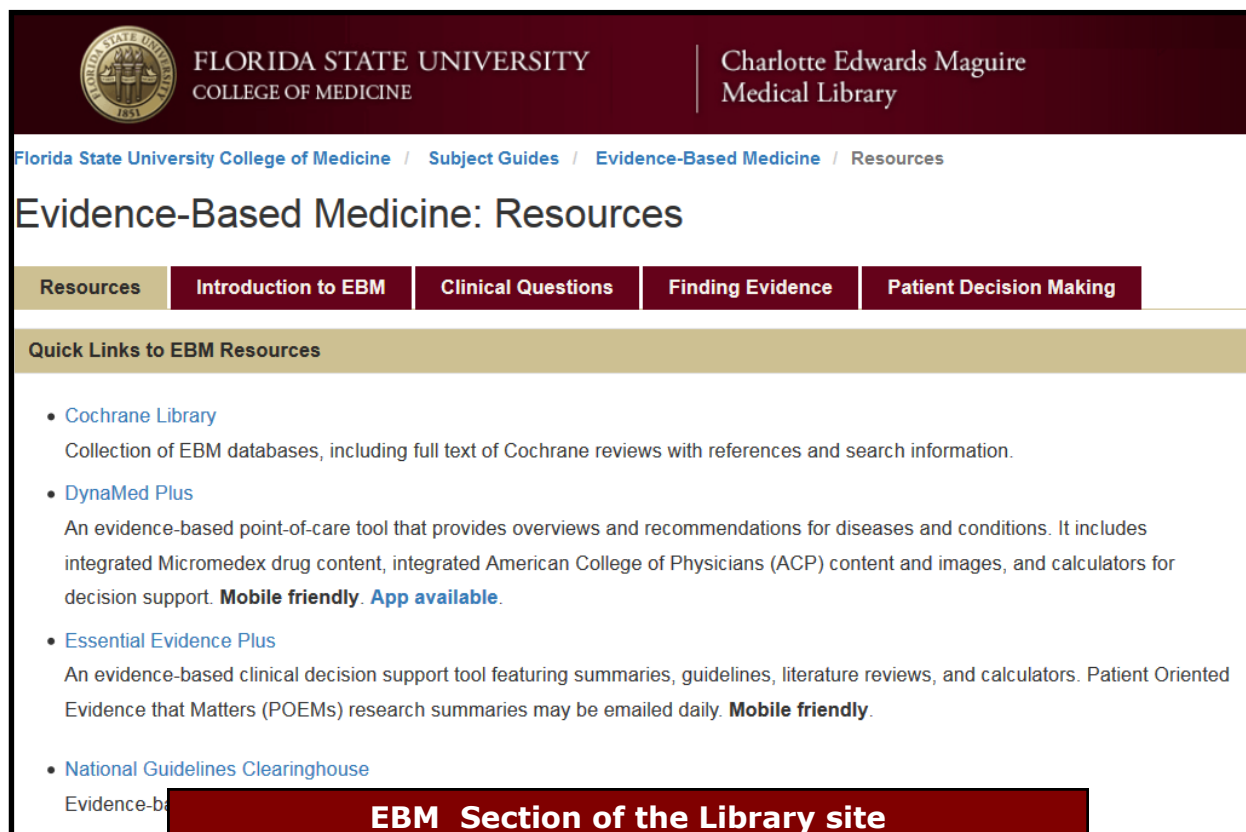
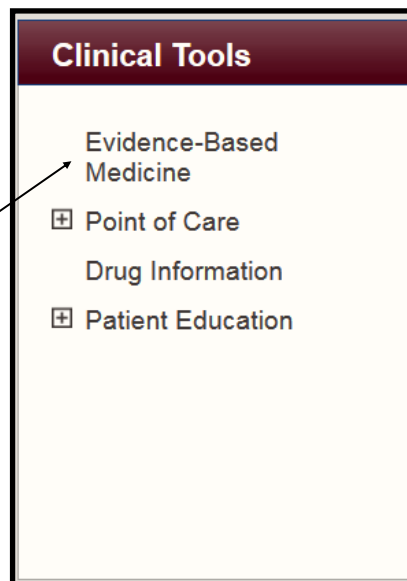
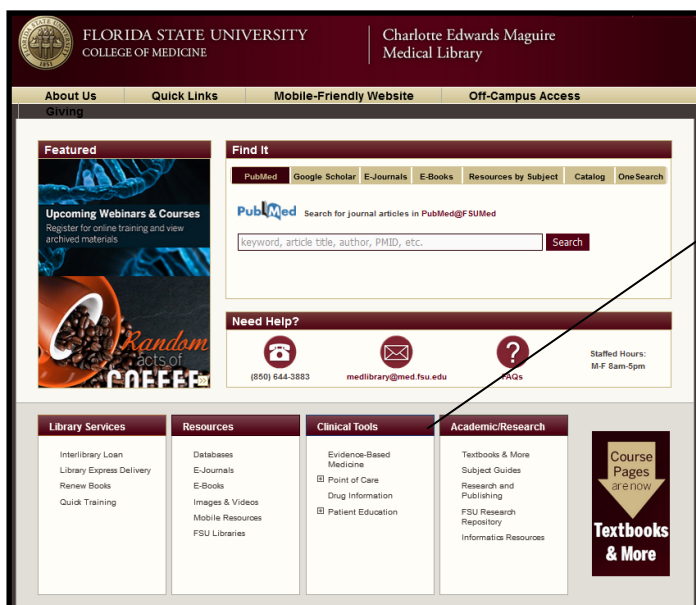


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Evidence Based Medicine Links

- ♦ On the Library website look under Clinical Tools for Evidence Based Medicine. Click on any of this to go to the Evidence Based Medicine Resources site, which also has tabs for an Introduction, Clinical Questions, Finding Evidence and Shared Decision Making.



The Evidence Based Medicine Process

The most current and widely accepted definition of evidence-based medicine is “the integration of the best research evidence with clinical expertise and patient values.” This reflects a systematic approach to clinical problem solving.

The following diagram illustrates this systematic process for implementing evidence based medicine into clinical practice:

1. The patient

1. Start with the patient -- a clinical problem or question arises out of the care of the patient

2. The question

2. **Construct a well built (PICO) clinical question** derived from a patient case, and identify the **P**atient, population, or problem, the **I**ntervention being considered, the **C**omparison you are considering, if any, and the desired **O**utcome you would want, then identify the type of question: background, diagnosis, treatment/prevention, prognosis or harm

P patient	I intervention	C comparison	O outcome
Who?	What?	Alternative Intervention?	Outcomes
“How would I describe a group of patients similar to this particular patient?”	“Which treatment, test or other intervention?”	“Compared to what other treatment, test, or perhaps compared to doing nothing”	What is the patient oriented outcome – better prognosis? Higher rate of cure? Etc.?”

Examples of PICO questions:

Therapy Question

In patients with migraine headaches without auras, is Depakote more effective than Inderal for prophylaxis of headaches?

Prognosis Question

In diabetic patients with foot ulcers, is the diagnosis of osteomyelitis with MRI as predictive of healing as an audible pulse on Doppler examination?

Diagnosis Question

In geriatric patients with suspected carotid stenosis, is duplex ultrasound as good as magnetic resonance angiography in detecting significant carotid stenosis?

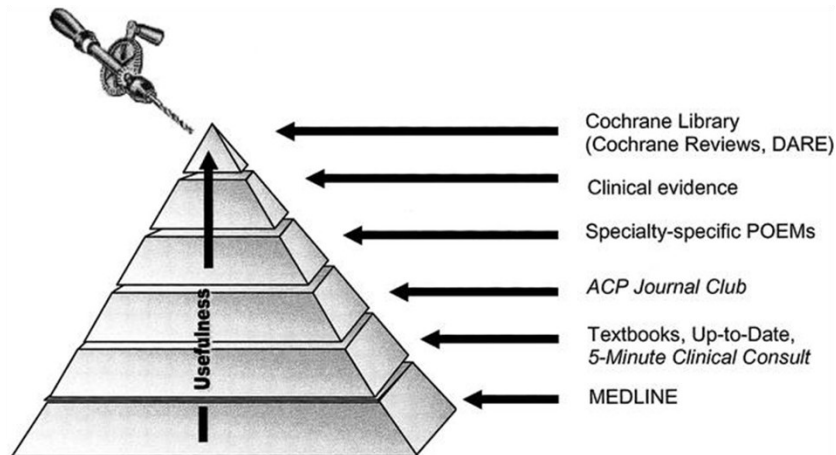
Harm Question

For pregnant patients, does the consumption of large amounts of coffee, (compared to non-coffee drinkers) increase the rate of spontaneous abortion?

The Evidence Based Medicine Process continued

3. The resource

3. **Select the appropriate resource** and conduct a search. Go to the appropriate topic which is then broken down for you into categories: diagnosis, treatment, prognosis, prevention/screening...



Grandage KK, Slawson DC, Shaughnessy AF. When less is more: a practical approach to searching for evidence-based answers. *J Med Libr Assoc.* 2002 Jul;90(3):298-304.

Attempt to find the best evidence with the highest quality and reliability first, such as a Cochrane review or POEM review of a study. If not available, drill down to an expert opinion level resource, such as a textbook or manual. As a last resort with time permitting, search Medline, find a full text article, and review it yourself for validity, rigor and study design.

4. The evaluation

4. **Appraise that evidence** for its validity (closeness to the truth) and applicability (usefulness in clinical practice). Look for the **Level of Evidence** or **Strength of Recommendation** provided by the resource selected. See next page for explanation of these terms.

5. The patient

5. **Return to the patient** -- integrate that evidence with clinical expertise, patient preferences and values and apply it to practice.

6. Self-evaluation

6. **Evaluate your performance** — How can you be more efficient in the future? For example: Was it a vague question? Did you use optimal resources?

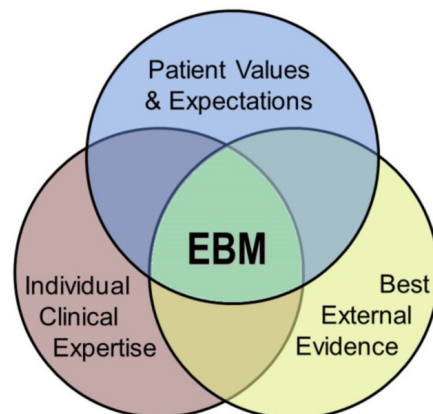
Sackett DL, Strauss SE, Richardson WS, et al. Evidence-based medicine: how to practice and teach EBM. 2nd Ed. London: Churchill-Livingstone, 2000

Evidence Based Medicine as Patient-Centered Care

To truly integrate patient values into the decision making process of evidence-based practice, one must practice patient-centered care, which is defined by the IOM as:

Provide patient-centered care—identify, respect, and care about patients' differences, values, preferences, and expressed needs; relieve pain and suffering; coordinate continuous care; listen to, clearly inform, communicate with, and educate patients; share decision making and management; and continuously advocate disease prevention, wellness, and promotion of healthy lifestyles, including a focus on population health.

IOM Report– Core Competencies Needed for Health Care Professionals.
<http://www.ncbi.nlm.nih.gov/books/NBK221528/>



Approaches to Patient-Centered Decision Making

The *Users Guide to the Medical Literature* published by JAMAEvidence offers the following three approaches to incorporating the patient's values and preferences into the decision making process:

- ◆ **"Clinician-as-perfect-agent" approach:**
Clinician ascertains patient's values and preferences, makes decision on behalf of patient
- ◆ **Informed decision making:**
Clinician provides patient with the information; patient makes the decision
- ◆ **Shared decision making:**
Patient and clinician both bring information/evidence and values and preferences to the decision

Patient Decision Aids

Decision aids are tools designed to facilitate shared decision making and patient participation in health care decisions.

Decision aids increase patient knowledge to help them understand their choices. Aids describe where and why choice exists and provide information about options. Aids should include, where reasonable, the option of taking no action. The goal of a decision aid is to help patients deliberate, independently or in collaboration with others, their options. Considering relevant risks and benefits helps patients determine how they might feel about short, intermediate and long-term outcomes which have relevant consequences.

Many implementation barriers exist to using decision aids in routine clinical practice. The availability of simple decision aids that clinicians can integrate into regular patient care could improve adoption. A Cochrane review has shown that decision aids improve patient's knowledge and reduce decisional conflict, and, in turn, affect the extent to which informed patients' values determine health care decisions.

Montori VM, Elwyn G, Devereaux P, Straus SE, Haynes R, Guyatt G. Decision Making and the Patient. In: Guyatt G, Meade MO, Rennie D, Cook DJ. eds. *JAMA evidence Using Evidence to Improve Care*. New York, NY: McGraw-Hill; 2014. <http://jamaevidence.mhmedical.com/content.aspx?bookid=847&Sectionid=69031507>. Accessed September 10, 2015.

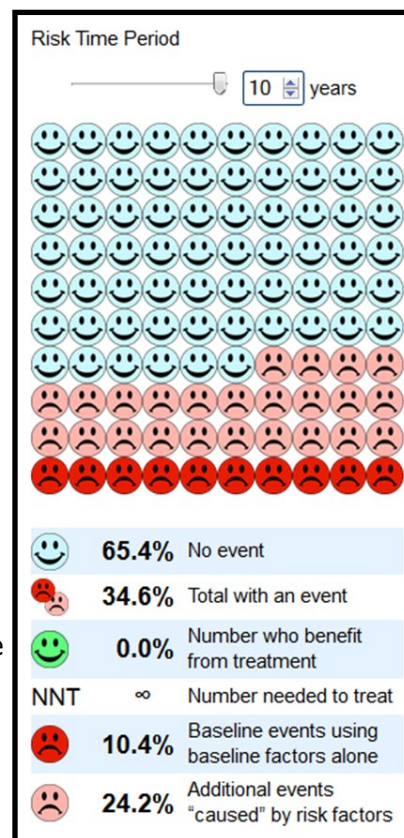
Evidence Based Medicine as Patient-Centered Care

Examples of Patient Decision Aids

An example of a useful decision aid is **The Absolute CVD Risk/Benefit Calculator** shown at right, which can be found at <http://cvdcalculator.org>. The tool estimates the risk of CVD using your choice of Framingham, QRisk, or ACC/AHA ASCVD formulas, then allows you to show the relative benefits of various options like statins, exercise, or smoking cessation. The resulting improvements are shown using 100 smiley faces.

Decision aids can be handouts, online interactive tools, apps or videos. These can be used with a patient during the encounter or given to the patient to use at home or while waiting at the clinic. The PDF handout below from **Mayo Clinic's Center for Shared Decision Making**, <http://shareddecisions.mayoclinic.org> on depression medication choices is presented in multiple formats on the website, which also provides a video demonstration of how to use the aid.

The **Ottawa Hospital Research Institute** has compiled a nice directory of online decision aids which can be found online at <https://decisionaid.ohri.ca>. Browse the A to Z Inventory. They link to a large number of interactive tools on many topics from Healthwise and other highly respected agencies and institutions.



<http://cvdcalculator.org>



Depression Medication Decision Aid

From the Mayo Clinic Shared Decision Making National Resource Center.
<http://shareddecisions.mayoclinic.org/>

“Level of Evidence” (LOE) and “Strength of Recommendation” (SOR) Scales

Definitions

Level of Evidence (LOE): The validity of an **individual study** based on an assessment of its study design. The essence of levels of evidence is that, in general, controlled studies are better than uncontrolled studies, prospective studies are better than retrospective studies, and randomized studies are better than nonrandomized studies.¹

Strength of Recommendation (SOR): The strength of a **recommendation for clinical practice** (guideline, etc.) based on a body of evidence, usually based on more than one study. This takes into account the level of evidence of individual studies; the type of outcomes measured by these studies (patient-oriented or disease-oriented); the number, consistency, and coherence of the evidence as a whole; and the relationship between benefits, harms, and costs.¹

How are these Assigned?

A LOE or SOR is assigned to a specific recommendation, guideline, or research article by one or more experts in the field of research design and critical appraisal of the literature working for either a journal, an association, or medical reference like ACP Smart Medicine or DynaMed using a carefully defined criteria. Most LOE scales, like the one Essential Evidence Plus uses, are roughly based on the scale developed by the Oxford Centre for Evidence Based Medicine. <http://www.cebm.net> There are different criteria for each type of recommendation: therapy, diagnosis, prognosis, etc. (below) The SOR scales used by various EBM resources are listed on the next page for comparison.

Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence					
Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5)
How common is the problem?	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample**	Case-series**	n/a
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard**"	Mechanism-based reasoning
What will happen if we do not add a therapy? (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
Does this intervention help? (Treatment Benefits)	Systematic review of randomized trials or n-of-1 trials	Randomized trial or observational study with dramatic effect	Non-randomized controlled cohort/follow-up study**	Case-series, case-control studies, or historically controlled studies**	Mechanism-based reasoning
What are the COMMON harms? (Treatment Harms)	Systematic review of randomized trials, systematic review of nested case-control studies, n-of-1 trial with the patient you are raising the question about, or observational study with dramatic effect	Individual randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort/follow-up study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**	Case-series, case-control or historically controlled studies**	Mechanism-based reasoning
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or n-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial	Non-randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning

OCEBM Levels of Evidence Working Group. "The Oxford 2011 Levels of Evidence". Oxford Centre for Evidence-Based Medicine. <http://www.cebm.net/index.aspx?o=5653>

1. Ebell MH, Siwek J, Weiss BD, et al. Strength of recommendation taxonomy (SORT): a patient-centered approach to grading evidence in the medical literature. *Am Fam Physician*. Feb 1 2004;69(3):548-556.

Strength of Recommendation Scales

	ACP Smart Medicine	USPSTF	EE+	DynaMed
A	A. the preponderance of data supporting this statement is derived from level 1 studies, which meet all of the evidence criteria for that study type	A. There is good evidence to support the recommendation that the condition be specifically considered in a periodic health examination	A. There is good research-based evidence to support the recommendation.	A. Consistent high-quality evidence
B	B. the preponderance of data supporting this statement is derived from level 2 studies, which meet at least one of the evidence criteria for that study type	B. There is fair evidence to support the recommendation that the condition be specifically considered in a periodic health examination.	B. There is fair research-based evidence to support the recommendation.	B. inconsistent or limited evidence
C	C. the preponderance of data supporting this statement is derived from level 3 studies, which meet none of the evidence criteria for that study type or are derived from expert opinion, commentary or consensus	C. There is insufficient evidence to recommend for or against the inclusion of the condition in a periodic health examination, but recommendations may be made on other grounds. D. There is fair evidence to support the recommendation that the condition be excluded from consideration in a periodic health examination. I. There is good evidence to support the recommendation that the condition be excluded from consideration in a periodic health examination.	C. The recommendation is based on expert opinion and panel consensus. X. There is evidence of harm from this intervention	C. lacking direct evidence

Level of Evidence or Strength of Evidence Scales

	DynaMed
1	Level 1 (likely reliable) Evidence - representing the most valid reports addressing patient-oriented outcomes. Examples include rigorous randomized trials, inception cohort studies for prognostic information, and systematic reviews of level 1 evidence reports.
2	Level 2 (mid-level) Evidence - representing reports addressing patient-oriented outcomes, and using some method of scientific investigation, yet not meeting the quality criteria to achieve level 1 evidence labeling. Examples include randomized trials with less than 80% follow-up, non-randomized comparison studies, and diagnostic studies without adequate reference standards. Level 2 evidence does not imply reliable evidence.
3	Level 3 (lacking direct) Evidence - representing reports that are not based on scientific analysis of patient-oriented outcomes. Examples include case series, case reports, expert opinion, and conclusions extrapolated indirectly from scientific studies.

Major EBM Databases—(Foraging Efforts)

A high-quality foraging tool employs a transparent process that

1. Systematically surveys or reviews the literature
2. filters out disease-oriented research and presents only patient-oriented research outcomes
3. demonstrates that a validity assessment has been performed using appropriate criteria
4. assigns levels of evidence, based on appropriate validity criteria, to individual studies
5. provides specific recommendations, when feasible, on how to apply the information, placing it into clinical context
6. comprehensively reviews the literature for a specific specialty or discipline
7. coordinates with a high-quality hunting tool

Slawson DC, Shaughnessy AF. Teaching evidence-based medicine: should we be teaching information management instead? *Acad Med.* 2005 Jul;80(7):685-9.

Cochrane Database of Systematic Reviews

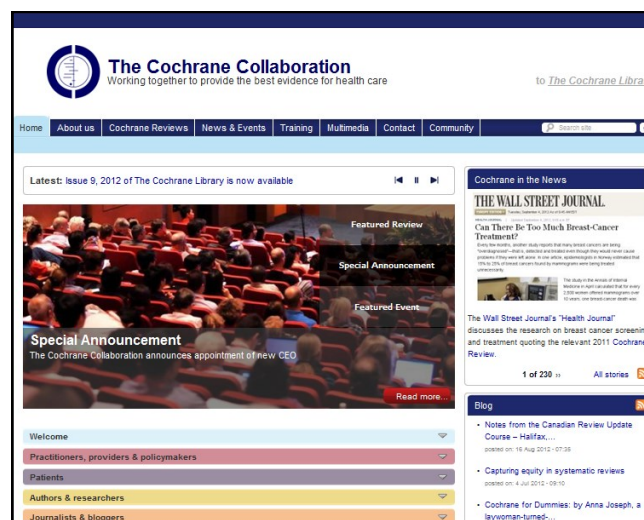
The Cochrane Collaboration is an international non-profit and independent organization, dedicated to making up-to-date, accurate information about the effects of healthcare readily available worldwide. It produces and disseminates systematic reviews of healthcare interventions and promotes the search for evidence in the form of clinical trials and other studies of interventions. The Cochrane Collaboration was founded in 1993 and named for the British epidemiologist, Archie Cochrane.

The major product of the Collaboration is the **Cochrane Database of Systematic Reviews** which is published quarterly as part of The Cochrane Library. Members of the Collaboration systematically review the entire English publications on a topic. Abstracts are free at their website. Full text is available through Wiley Interscience. (see link on library web page). Cochrane Systematic Reviews on therapy topics only contain randomized clinical trials.

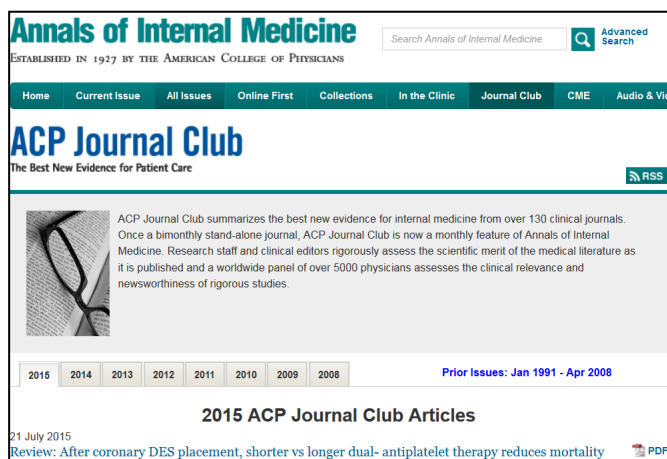
Those who prepare the reviews are mostly health care professionals who volunteer to work in one of the many *Collaborative Review Groups*, with editorial teams overseeing the preparation and maintenance of the reviews, as well as application of the rigorous quality standards for which Cochrane Reviews have become known.

ACP Journal Club

Critical appraisals of studies from two journals, the ACP Journal Club and Evidence Based Medicine. *ACP Journal Club's* general purpose is to select from the biomedical literature articles that report original studies and systematic reviews that warrant immediate attention by physicians attempting to keep pace with important advances in internal medicine. These articles are summarized in value-added abstracts and commented on by clinical experts.



<http://www.cochrane.org>



<http://annals.org/journalclub.aspx>

Daily POEMS

Patient **O**riented **E**vidence that **M**atters. Published daily, and ongoing since 1996, editors review more than 1,200 studies monthly from 100+ medical journals, presenting only the best as InfoPOEMs. The acclaimed POEMs process applies specific criteria for validity and relevance to clinical practice. About 1 in 40 studies reviewed qualifies for inclusion.

National Guideline Clearinghouse

A public resource for evidence-based clinical practice guidelines. NGC is an initiative of the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services. NGC was originally created by AHRQ in partnership with the American Medical Association and the American Association of Health Plans (now America's Health Insurance Plans [AHIP]).

US Preventative Services Task Force (USPSTF)

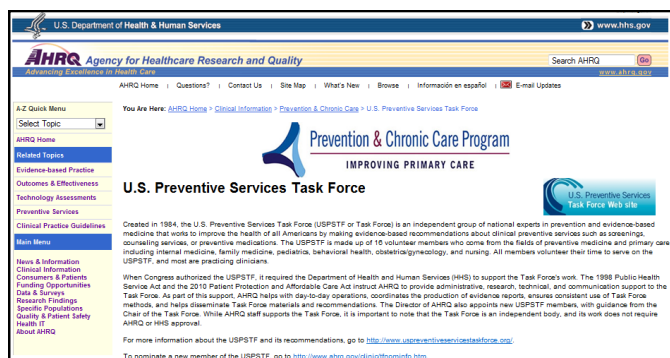
The USPSTF, first convened by the U.S. Public Health Service in 1984, and since 1998 sponsored by the Agency for Healthcare Research and Quality (AHRQ), is the leading independent panel of private-sector experts in prevention and primary care. The USPSTF conducts rigorous, impartial assessments of the scientific evidence for the effectiveness of a broad range of clinical preventive services, including screening, counseling, and preventive medications. Its recommendations are considered the "gold standard" for clinical preventive services.



<http://www.essentialevidenceplus.com/>

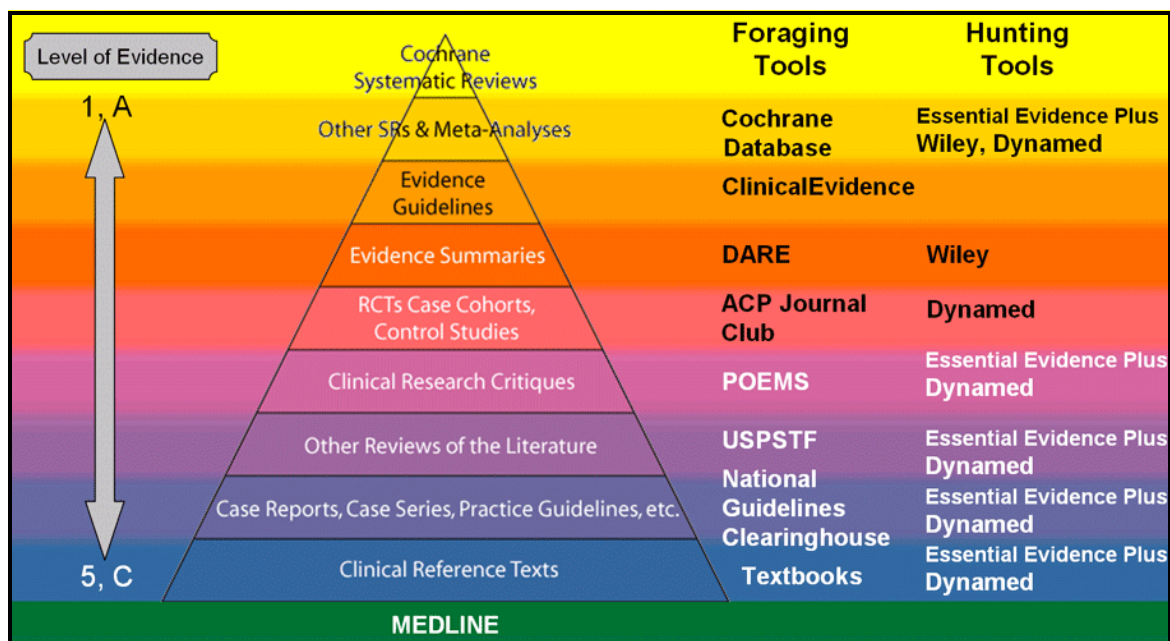


<http://www.guidelines.gov>



<http://www.ahrq.gov/clinic/uspstfix.htm>

Making EBM Databases Usable at the Point of Care: The Hunting Tools



EBM Hunting Tools combine many of the major EBM foraging tools into one tool that searches multiple resources, then organizes the results by category representing the type of question you have. The chart above summarizes the tools that can be found in Essential Evidence Plus, DynaMed and Wiley. Wiley currently contains the full text versions of the Cochrane Reviews, plus DARE. Each of the following are available on the web and all except ACP Smart Medicine are available on the mobile device for all CoM faculty and students:

Essential Evidence Plus (EE+)

EE+ includes the Cochrane abstracts, InfoPOEM reviews, guidelines, USPSTF recommendations, clinical prediction tools, 5 Minute Clinical Consult, Coding tools, images, and much more.



DynaMed Plus

DynaMed Plus contains clinically organized summaries of nearly 3,200 topics and is updated daily from review of the research literature. Links out to specific articles. It also includes the Cochrane abstracts, ACP Journal Club, guidelines, USPSTF recommendations, POEMs, their own reviews, as well as extensive background materials.

PEPID

PEPID is a resource designed for both medical education and clinical practice. The Clinical Rotation Companion contains disease, drug, and lab information, and many tools like a differential diagnosis generator and calculators. The Evidence Based Medicine content includes: Clinical Inquiries, FPIN Evidence Based Practice Journal Entries, PURLs: Priority Updates from the Research Literature, and the United States Preventive Services Task Force (USPSTF) Recommendations. Is available online and in a mobile app.

Essential Evidence Plus (EE+)

EE+ is a powerful, comprehensive, evidence-based, clinical decision support system that integrates information on 9,000 diagnoses into healthcare professionals' clinical workflows. This clinical tool, created by an international team of renowned medical

experts, was developed for physicians, nurses, and other healthcare professionals on the front line of patient care.

EE+ features over 13,000 topics, guidelines, abstracts, tools, images, and summaries covering the most common conditions, diseases, and procedures clinicians come in contact with every day. Every recommendation carries a *strength-of-evidence* rating that accurately grades each recommendation's merit on the basis of all of the evidence available in the relevant literature.

Some of the resources in E+ include:

Essential Evidence Topics — Provide best-evidence answers to the most important clinical questions concerning symptoms, diseases, drugs, and other treatment regimens. These contain concise, highly structured content which is tightly integrated and hyperlinked to thousands of calculators, articles, Cochrane Systematic Reviews, and evidence summaries within EE+ to make searching for answers quick and seamless. Each topic has a "strength-of-evidence" rating for every recommendation, a "Bottom Line" summary that introduces each section, and a broad array of algorithms to aid in the decision-making process.

POEMs (Patient Oriented Evidence that Matters) Research Summaries — Daily e-mail alerts and 3,000+ archived POEMs summarize the most recent, relevant research from over 100 journals to help you stay up to date in your practice

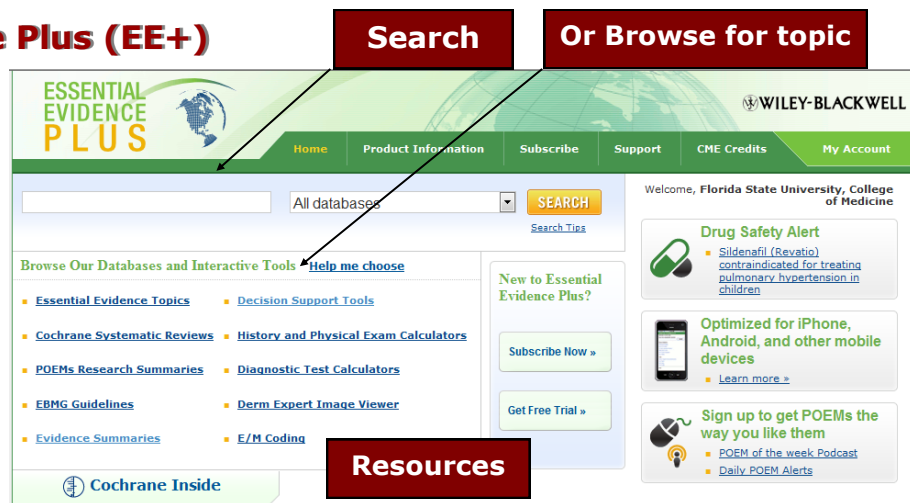
Decision Support Tools — 300+ enable you to assess risk and probability, estimate the reliability of a diagnosis and prognosis, calculate a patient's risk for disease, select the safest and most effective drug dosage and more.

EBM Guidelines — 1,000+ practice guidelines, 3,000 evidence-graded summaries, 950+ high quality photographs, and audio and videos for some of the most common diseases and procedures.

Derm Expert Image System —An interactive expert system to assist you in diagnosing skin problems with 1,000+ high quality photographs.

For more information on the content and using EE+, see the Users Guide posted here:

http://www.essentialevidenceplus.com/resources/EEP_guidebook_indv.pdf



Essential Evidence Plus—Web Version

Searching or browsing will eventually require browsing down to answer your question. Here is an example:

Sample Question

Do survivors of childhood cancers like leukemia have an increased risk of developing other cancers?

1. Select subject area Neoplasms or search for leukemia

Type of question:
Prognosis

The screenshot shows the Essential Evidence Plus website interface. At the top, there's a navigation bar with links: Home, Product Information, Subscribe, Support, CME Credits, and My Account. Below this is a search bar with the text "Search the complete EE+ collection:" and a "SEARCH" button. The main content area displays "Search Results" for the query "leukemia", showing "Showing 1-20 of 23 for: leukemia". On the left, there's a "Refine your results by:" section with a "Topic" list including Diagnosis (4), Epidemiology (1), Overviews and practice guidelines (12), Prognosis (3), Screening and Prevention (1), and Treatment (10). Below this is a "Resource" section with "Cochrane Systematic Reviews (6)". A "Refine Your Results By" section shows "Type of Result:" with a list including Epidemiology (1), Treatment (4), Overviews and practice guidelines (11), Prognosis (2), and Screening and Prevention (1). The main results list includes several items, with one item highlighted: "Survivors of childhood acute lymphoblastic leukemia at long-term increased cancer risk" (LOE 2b-). An arrow points from the "Prognosis (3)" link in the left sidebar to this highlighted item. Another arrow points from the "4. Select appropriate item" box to the same item.

2. Under Type of Result, select Prognosis

4. Select appropriate item

The screenshot shows the article page for "Survivors of childhood acute lymphoblastic leukemia at long-term increased cancer risk". The article is from "Daily POEMs" dated May 2007. The "Clinical question" is "Are survivors of childhood acute lymphoblastic leukemia at an increased risk of secondary cancers?". The "Bottom line" states: "Survivors of childhood acute lymphoblastic leukemia (ALL) remain at a significantly higher (13.5 fold) risk of secondary cancers than the general population. It is uncertain whether increased efforts for early diagnosis and treatment reduce overall morbidity or mortality. (LOE = 2b-)". The "Reference" is: "Hijiya N, Hudson MM, Lensing S, et al. Cumulative incidence of secondary neoplasm as a first event after childhood acute lymphoblastic leukemia. JAMA 2007;297:1207-1215." A "Earn CME Credit for this Search" box is present, with a note: "You must log in with your CME User account for this search to be saved." A "View article via PubMed" link is also visible. A box on the right states: "POEM stands for 'patient oriented evidence that matters'".

POEM stands for "patient oriented evidence that matters"

InfoPOEM

Essential Evidence Plus links out to multiple respected resources such as:

- ◆ PubMed with links to full text articles
- ◆ National Guidelines Clearinghouse
- ◆ Patient Education Handouts at FamilyDoctor.org

Link to PubMed

Printer Friendly

View article via PubMed

FSU link to full text article

The screenshot shows a PubMed search result for the article "Cumulative incidence of secondary neoplasms as a first event after childhood acute lymphoblastic leukemia." The article is by Hijiya N, et al., published in JAMA in 2007. The abstract is displayed, and the full text is available via FSU (Florida State University) link. The interface includes search filters, display settings, and related citations.

Guidelines

Linked to Guidelines.gov

Link to the original source of this Guideline: [Acute headache in the ED \(ACEP\)](#)
Clinical policy: critical issues in the evaluation and management of patients presenting to the emergency department with acute headache.
 Released: 2002

Source(s):
 American College of Emergency Physicians (ACEP). Clinical policy: critical issues in the evaluation and management of patients presenting to the emergency department with acute headache. *Ann Emerg Med* 2002 Jan;39(1):10-19.

Major Recommendations:
 Definitions for the strength of evidence (Class I-III) and strength of recommendations (Level A-C) are repeated at the end of the Major Recommendations.

I. Does a Response to Therapy Predict the Etiology of an Acute Headache?
Patient Management Recommendations.

Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. Pain response to therapy should not be used as the sole diagnostic tool for underlying etiology of an acute headache.

II. In Which Adult Patients with a Complaint of Headache Can a Lumbar Puncture (LP) be Performed without a Neuroimaging Study?
Patient Management Recommendations.

The screenshot shows the National Guidelines Clearinghouse website. The guideline title is "Clinical policy: critical issues in the evaluation and management of patients presenting to the emergency department with acute headache." The guideline status is "This is the current release of the guideline." The guideline content includes a brief summary, recommendations supporting the recommendations, and major recommendations. The major recommendations are listed under the heading "I. Does a Response to Therapy Predict the Etiology of an Acute Headache?" and "II. In Which Adult Patients with a Complaint of Headache Can a Lumbar Puncture (LP) be Performed without a Neuroimaging Study?"

National Guidelines Clearinghouse at
www.guidelines.gov

The Evidence Based Medicine Process Using Essential Evidence Plus Mobile Formatted Version

The Steps in the EBM Process

- | | |
|------------------------|--|
| The patient | 1. Start with the patient -- a clinical problem or question arises out of the care of the patient |
| The question | 2. Construct a well built (PICO) clinical question derived from a patient case, and identify the P atient or problem, the I ntervention being considered, the C omparison you are considering, if any, and the desired O utcome you would want, then identify the type of question: background, diagnosis, treatment/prevention, prognosis or harm |
| The resource | 3. Select the appropriate resource (EE+) and conduct a search. Go to the appropriate topic which is then broken down for you into categories: diagnosis, treatment... |
| The evaluation | 4. Appraise that evidence for its validity (closeness to the truth) and applicability (usefulness in clinical practice). Essential Evidence Plus provides the Level of Evidence for every resource using one of the four taxonomies: <ul style="list-style-type: none"> • Centre for Evidence-Based Medicine, Oxford (1a-5) • SORT: Strength-of-Recommendation Taxonomy (A,B,C) • GRADE: Grading of Recommendations Assessment, Development and Evaluation (A,B,C,D) • Practice Guidelines rating scales (various) |
| The patient | 5. Tap the level of evidence [SORT 2] to go to a page that explains these. |
| The patient | 5. Return to the patient -- integrate that evidence with clinical expertise, patient preferences and apply it to practice. Many of Essential Evidence Plus's clinical decision rules are useful within the patient interaction. |
| Self-evaluation | 6. Evaluate your performance with this patient |

Sample Question

In patients with migraine headaches without auras, is divalproex (Depakote) more effective than Inderal for prophylaxis of headaches?

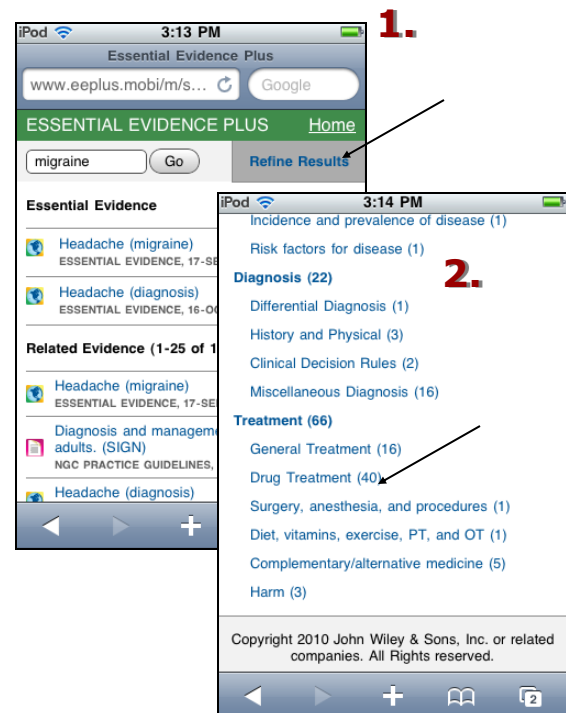
- P** = patients with migraines without auras
I = Depakote (divalproex sodium)
C = Inderal (propranolol)
O = prophylaxis of headaches

Type of question:

Tx: Drug Treatment

Method

1. Search the Essential Evidence Plus collection for Migraine.
2. Tap **Refine Results** and scroll for **Treatment**. Select **Drug Treatment**.
Continued on next page...



- Review results titles for appropriate reference. [Advance page if none are on first page.]
- Read resource. Note Level of Evidence on likely resource.

3.

Answer to Question:

No, Depakote is not more effective than Inderal.

Level Of Evidence (LOE):

1b = one randomized control trial with narrow confidence interval

Resource Type:

InfoPOEM

Essential Evidence Plus: Browse Selected Resource

Select a specific database when you have a specific need, such as using a calculator or getting an E/M code. We will look at the newest addition to EE+ called Essential Evidence and the valuable Decision Support Calculators.

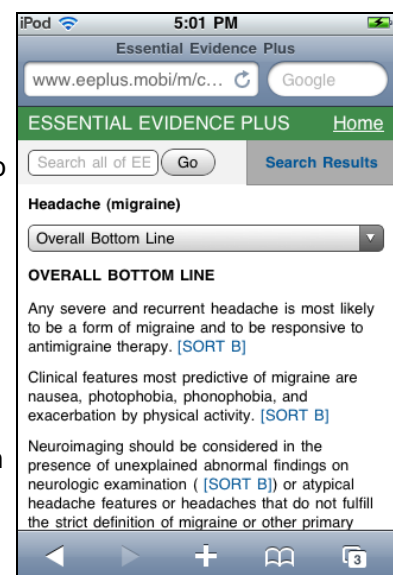
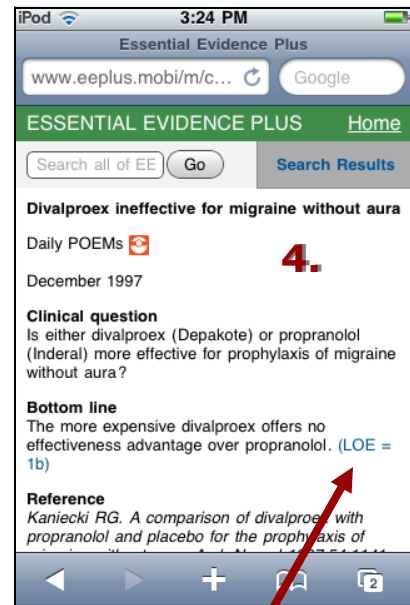
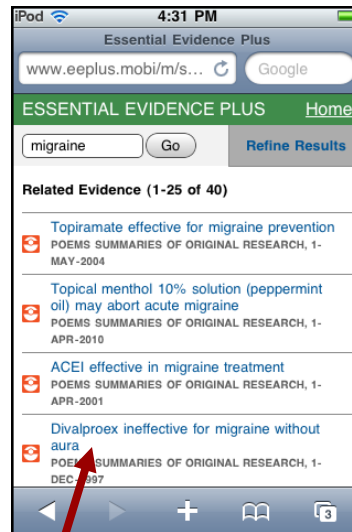
Essential Evidence

Essential Evidence is the unique, easy-to-use resource of Essential Evidence Plus. It comprehensively and concisely covers the most common conditions and diseases. It collects and synthesizes the best available evidence in one place. All content is richly hyper-linked to the other evidence-based medicine resources within Essential Evidence Plus including the decision support tools, diagnostic calculators, Cochrane Abstracts, POEMs, and practice guidelines. Continuously updated, Essential Evidence follows the latest developments in clinical medicine and brings evidence into practice.

Purpose: A quick, comprehensive evidence-based reference to assist clinicians with clinical questions concerning diagnosis and treatment at the point of care.

Example: Clinicians can use Essential Evidence to not only save time but more importantly improve health outcomes, efficiency, and treatment because it makes the best available evidence accessible in one place by topic.

Detailed Description: Essential Evidence Plus is designed to join the best available evidence in a single database. Essential Evidence summarizes the best available evidence on many common clinical topics, providing information about prevention, screening, symptoms, treatment, prognosis, and more.



Essential Evidence on Migraine

Decision Support Tools

These calculators are truly decision support tools in that they influence how a case is managed. Examples might include the Ottawa Ankle Rule calculator below that tells whether an x-ray is necessary for an ankle sprain or a calculator that assigns the NIH Stroke score.

The complete Essential Evidence Plus database is available on either the web, desktop or the mobile versions. Essential Evidence Plus has a large number of calculator like tools which can be incorporated into the decision making process of the clinical encounter. Let's look at each of these types of tools.

Decision Support Tools

More than 225 calculators are provided that are designed to help estimate the likelihood of a diagnosis, calculate a patient's risk for disease, estimate a prognosis, or calculate a drug dose.

Purpose: To support the clinical decision making of a healthcare professional by offering risk and probability assessments

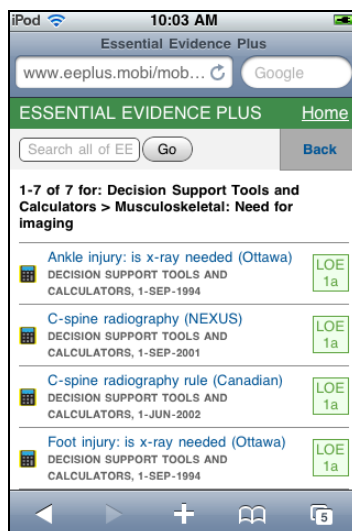
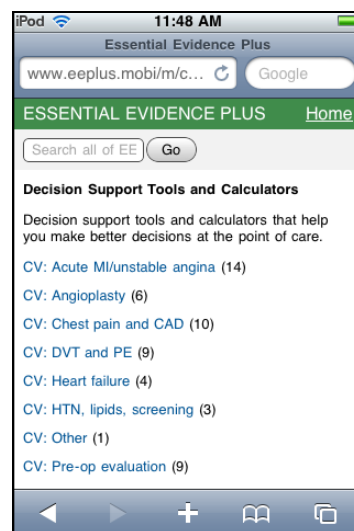
Example: The clinical decision rules can help evaluate patients with ankle sprains, (Ottawa Ankle Rule at right), estimate the risk of stroke in patients with atrial fibrillation, or assist in determining doses of drugs like warfarin.

Detailed Description: These clinical decision rules are created based on results of valid and relevant studies. Each calculator has a more information button that references the study and outlines its characteristics. Each calculator asks users to provide patient information and leads to a result that is specific for the patient.

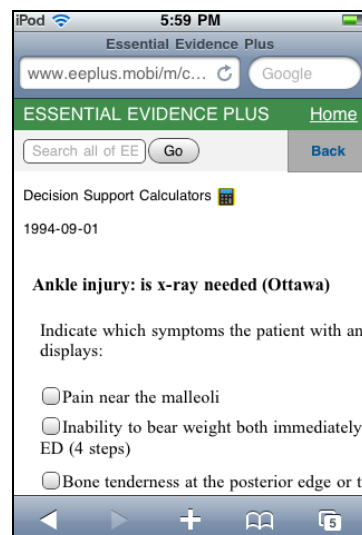
From http://www.infopoems.com/support/ProductManual/IR_Databases.pdf

Finding the Decision Support Tools

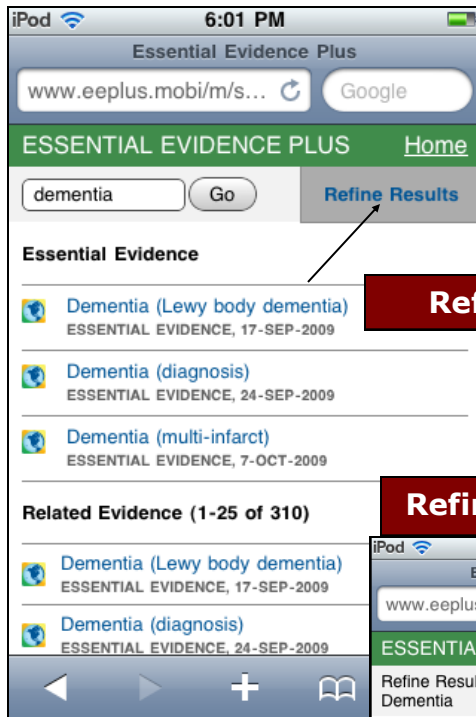
On the mobile device, pick **Decision Support Tools**. The categories are somewhat different from the systems that are used in the Browse screen. There are so many cardiovascular calculators that these have been divided up into ten separate categories. At right, see the Neurology calculators.



Musculoskeletal: Need for Imaging Section



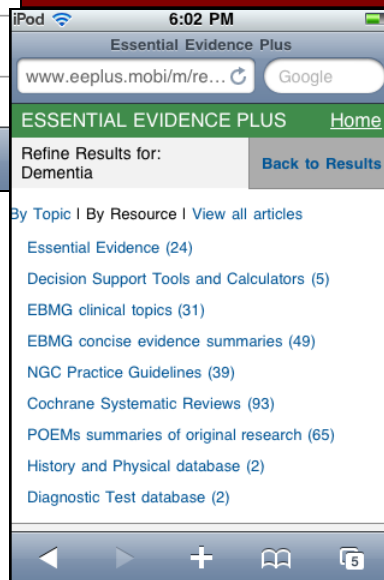
Ottawa Ankle Rule



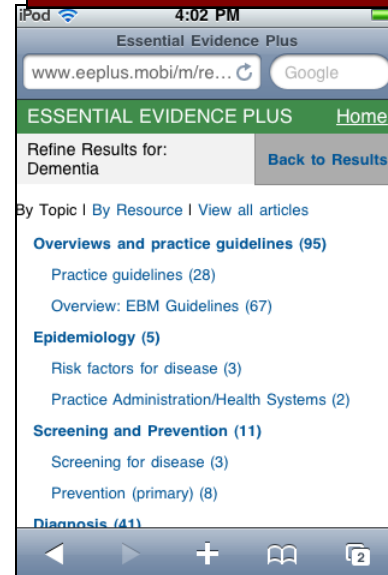
Dementia search

Refine Results

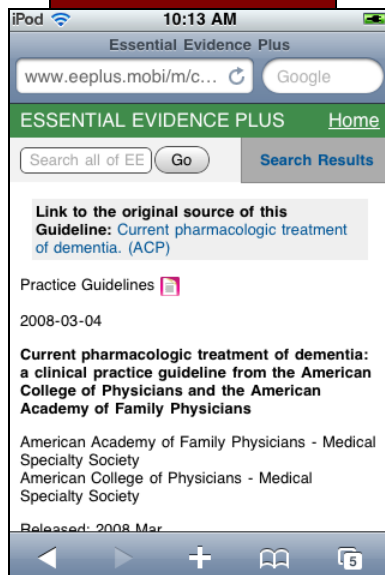
Refine by Resource



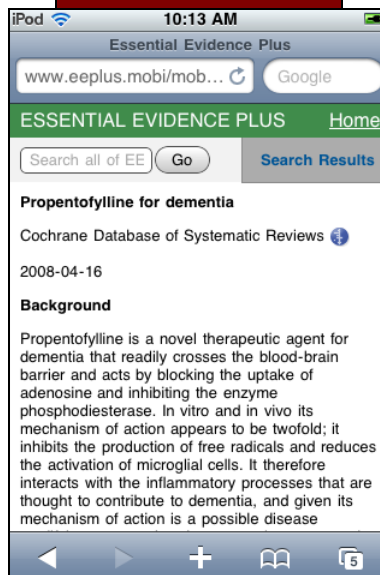
Refine by Topic



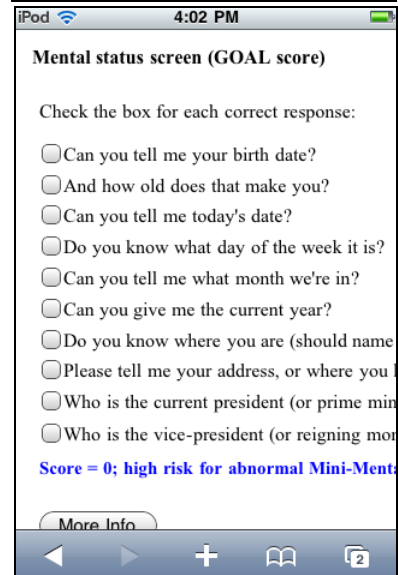
NGC Guideline



Cochrane



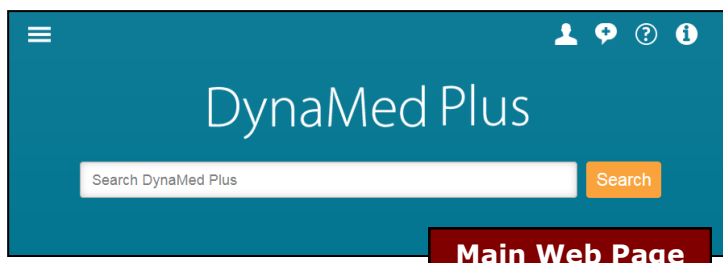
Decision Support Tools and Calculators



DynaMed Plus - Web Version

DynaMed Plus is an evidence-based reference designed to provide the most useful and current disease information at the point-of-care for health care professionals.

Information on diseases, drugs, procedures and clinical presentations are organized into categories for ease of use and quick answers to clinical questions. In addition, are images and graphics, the Micromedex drug database, MedCalc 3000 calculators and ICD9/ICD10 codes. *DynaMed Plus* provides citation links to the supporting articles for the given topic.



To find a topic, image or calculator, type a few words into the Search box.

- You now have two choices for searching:

1. Pick a topic from the drop down which will take you directly to the subject or
2. Use the **Search** function that will pull up all the resources that contain the word or phrase you typed. Search results are organized with images listed first, then calculators, followed by topics.

The following is an example of the **Search** feature using the term "diabetes risk".

TIP: Selecting the *DynaMed Plus* logo next to the search button takes you back to the homepage.

DynaMed Plus - Web Version

Each topic begins with a section called Overview and Recommendations which is a summary of the major content. Blue text are always hyperlinks to either definitions, other topics, or other places within the current topic.

EBSCO Health Calculators

DynaMed Plus mitral valve Search

Search Within Text

Overview and Recommendations

Background

Evaluation

Management

Related Summaries

General Information

Epidemiology

Etiology and Pathogenesis

History and Physical

Diagnosis

Treatment

Complications and Prognosis

Mitral valve prolapse (MVP)

Follow Print E-mail

Overview and Recommendations / Background

Background

- Mitral valve prolapse (MVP) is characterized by the superior displacement of 1 or both mitral leaflets ≥ 2 mm beyond the long-axis annular plane into the left atrium during left ventricular systole.
- There are 2 main types of MVP, [primary](#) and [secondary](#).
 - Primary mitral valve prolapse is usually idiopathic but may occur with certain genetic abnormalities.
 - Secondary mitral valve prolapse may occur in connective tissue disorders (such as Marfan syndrome), acute rheumatic valve disease, bacterial endocarditis, and acute myocardial ischemia.
- Nonspecific [symptoms](#) associated with MVP include atypical chest pain, palpitations, and shortness of breath.

Evaluation

- Mitral valve prolapse is [generally asymptomatic](#) unless progression to mitral regurgitation has occurred.
- Characteristic [physical exam](#) findings include a nonejection mid-to-late systolic click with or without a high-pitched mid-to-late systolic murmur, both heard best at heart apex, but such findings may warrant testing to rule out other valve abnormalities.
- Consider [transthoracic echocardiography](#) for diagnostic confirmation and ruling out other valve abnormalities.

Management

- Mitral valve prolapse without mitral regurgitation does not require treatment. (See also [Mitral regurgitation](#).)
- [Endocarditis prophylaxis](#) is not recommended for most patients with mitral valve prolapse.

For ease of finding answers to specific clinical questions, you have the ability to Search Within Text which will highlight all occurrences of the term and allow you to jump to the Next or Precious incidence of the term.

EBSCO Health Calculators

DynaMed Plus diabetes risk Search

Search Within Text

obesity

19 instance(s) of obesity found

Previous | Next

Related Summaries

Overview

Metabolic Risk Factors

Modifiable Lifestyle Factors

Demographic Factors

Other Conditions Associated with Diabetes

Medications

Environmental Toxins

Biomarkers Associated

Risk factors for diabetes ...

Follow Print E-mail

Updates

[+] Updated 2015 Sep 14 12:42:00 PM

Related Summaries

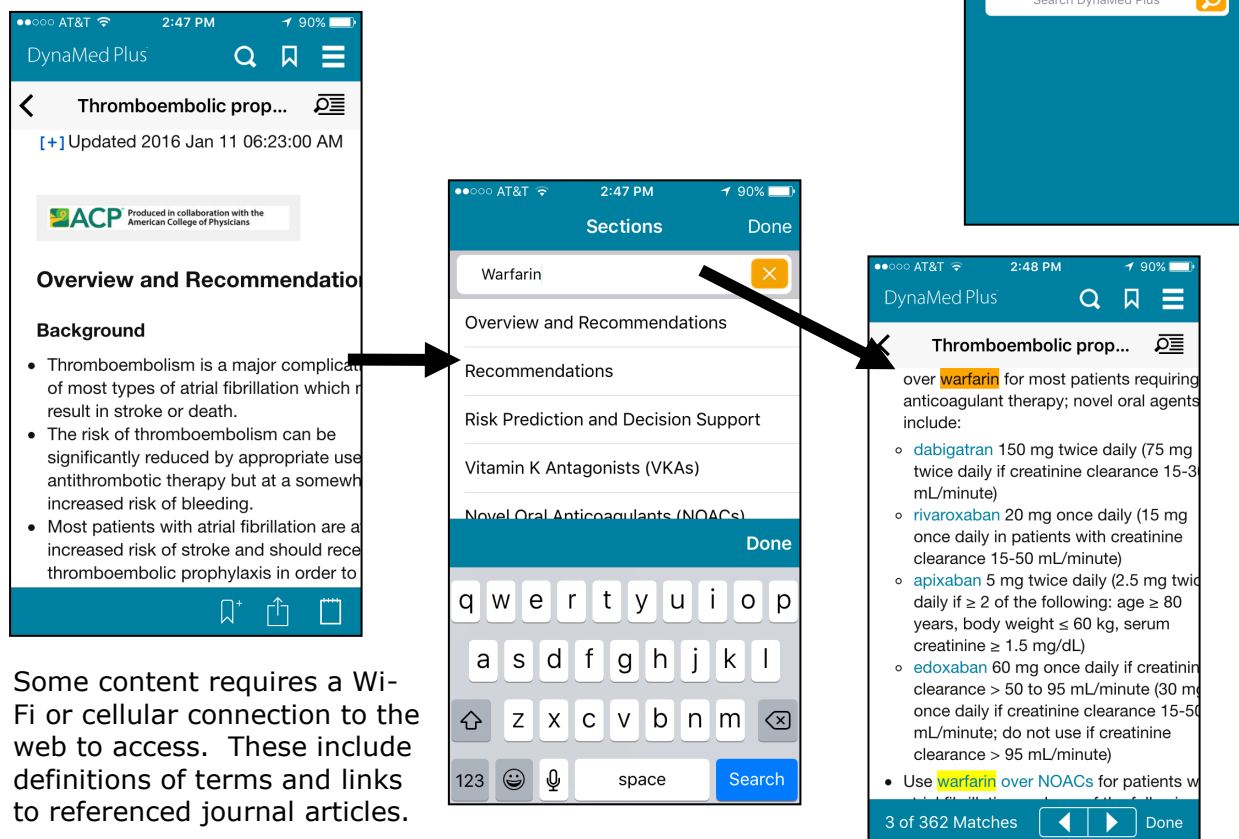
- Diabetes (list of topics)
- Diabetes mellitus type 2 in adults
- Metabolic syndrome in adults
- Prediabetes
- Obesity in adults

Overview

- metabolic conditions
 - [obesity](#)
 - [prediabetes](#)
 - [metabolic syndrome](#)
 - [polycystic ovary syndrome](#)
 - [gestational diabetes](#)
- modifiable lifestyle factors
 - [poor diet](#)

DynaMed Plus — MOBILE Version

The mobile version of DynaMed Plus contains all of the content that is on the web. The app is designed to update in the background. Search results are organized like the online version. Sections within topics are accessed by a button at the top right of the screen. You can *Search Within Text* in a topic for terms or phrases. Terms will be highlighted and navigation between terms is at the bottom of the screen.



Some content requires a Wi-Fi or cellular connection to the web to access. These include definitions of terms and links to referenced journal articles.

Reference links are embedded in the content which will direct you to the mobile PubMed listing for the article. Online, the Find@FSU button will appear, linking to the full text article. On the app, the button will not appear, but there are links to the full text articles which may work. Many of the journal sites are mobile-formatted.

PEPID Web Version



PEPID, which used to stand for "Portable Emergency Physician Information Database" when it was developed back in the '90s, is now a very comprehensive, highly respected reference that is available in a variety of formats for all specialties and types of providers. We have purchased the Clinical Rotation Companion, which is their top-of-the-line resource, and compares with Epocrates Essentials in its usefulness at the point of care. Here we will discuss the disease reference aspects of PEPID. We will emphasize the way that disease summaries are linked to drug information, images, and the evidence-based FPIN clinical inquiries.

From the library web page, click on the **PEPID** link in Quick Links list. You will see the main interface and Table of Contents in the middle, with navigation tabs at the top of the screen.

To find information on a disease or condition, type the first few letters of the condition in the **search** box. The alphabetical list will automatically advance to find the first letters you have typed. When you see the condition, click on it, such as **Otitis** at right. The TOC on ENT conditions will open. Find Otitis Media, and click on Diagnosis or Treatment depending on your clinical question.

The screenshot shows the PEPID web interface. At the top, there's a header with the PEPID logo and user information: "Hello, Florida State University User | Return to Classic View | How to Use | Support | Feedback | Logout". Below the header is a navigation bar with tabs: "Med Calcs", "DDx", "IV Compat", "Labs", "Pill ID", and "DTCO". A search bar on the left contains the text "otit". A dropdown menu shows a list of conditions starting with "Ot", with "Otitis" highlighted. To the right, the "PEPID Clinical Rotation Companion Platinum v. [16.0]" is displayed, featuring a "Table of Contents" with links to "BASIC PRINCIPLES", "CLINICAL ROTATIONS", "DRUG KNOWLEDGEBASE", "INTERACTIONS GENERAL", "MEDICAL CALCULATORS", "ILLUSTRATIONS", "LAB MANUAL", "WHAT'S NEW", and "WARNING". A specific section titled "Ear, Nose & Throat" is expanded, showing a list of conditions: "a. Acute Otitis Media" (with sub-links for "1. Diagnosis" and "2. Therapeutics"), "b. Chronic Otitis Media", "c. Chronic Suppurative Otitis Externa", "d. Otitis Media with Effusion", and "e. Otitis Externa" (with sub-links for "1. Diagnosis" and "2. Therapeutics"). Below this, a "Subsections" panel on the left lists various topics like "Background", "Pathophysiology", "Organisms", "Risk Factors", "Higher Risk", "Diagnostics", "History", "Physical Exam", "Dx Tests", "Dx Criteria", and "Differential Dx", each with a right-pointing arrow. The main content area is titled "Otitis Media" and contains a section for "Acute Otitis Media: Pathophysiology & Diagnosis". It includes a link to "See also Treatment, Otitis externa" and a "Background" section with "1. ICD-9 Code(s)" and "2. Definition". The definition lists criteria: "Presence of middle ear effusion with rapid onset (< 48 hr) AND Presence of one or more of the following: Distinct otalgia, otorrhea, irritability, fever". A "Pathophysiology" section follows with "1. Incidence/prevalence", listing: "Peak incidence: 6-18 mo", "Common in children < 4 yo", "Uncommon after age 7", and "2/3 of children < 1 yo have at least one episode".

PEPID Web Version (continued)

Here is the Treatment section of the Otitis Media monograph. Notice that the drugs are highlighted and underlined. These are linked to the extensive Drug Reference section of PEPID. We will look at those links in the Mobile version. However, here note the links to the Evidence-Based Inquiry.

Subsections	Otitis Media: Treatment
Acute Tx	Acute Treatment
- Empiric Tx	1. Antibiotics are not necessary to treat uncomplicated acute otitis media in an otherwise healthy child (Go to Evidence-Based Inquiry)
-- No Recent Tx	2. Consider observation without antibiotics for 48-72 hr if:
-- Recent Tx	o Child 6 mo to 2 yo only if:
- Clinical Failure	■ Diagnosis is uncertain
- Less Effective Abx	■ Child otherwise healthy
- Prophylaxis	■ Sx not severe
Follow Up	o Child >2 yo
- ENT Referral	■ Otherwise healthy, and symptoms not severe
- Admit	3. Empiric treatment
Prevention	o No evidence supports any of the commonly used antibiotic regimens over another (Go to Evidence-Based Inquiry)
Evidence-Based Inq	o Otolgia Analgesia:
	■ Oral
	■ Acetaminophen +/- ibuprofen for fever & pain control
	■ Topical anesthetics
	■ Useful option for acute ear pain due to otitis media or otitis externa (Go to PURL)
	o No antibiotics in past month
	■ Amoxicillin : (Go to Evidence-Based Inquiry)
	■ First-line choice (Go to Evidence-Based Inquiry)
	■ Regular dose: 40 mg/kg/day div BID-TID
	■ High-dose: 80-90 mg/kg/day div q12 hr or q8 hr PO (>2 yo) , no Otolgia

Otitis Media: Treatment
Evidence-Based Inquiry
1. If a child with acute otitis media is treated with antibiotics, what is the proper duration of therapy?
2. Does Prevnar vaccine change the incidence of otitis media?
3. What treatment options for pediatric acute otitis media are safe and effective?
4. Should you use antibiotics to treat acute otitis media in children?
5. Does pneumococcal conjugate vaccine prevent otitis media?
6. In children with acute otitis media (AOM), when are antibiotics warranted and what is the appropriate duration of treatment?
7. Are oral steroids effective in reducing hearing loss and improving language development in children with otitis media with effusion?

Clicking on the link will jump down to the Evidence-Based Inquiries in FPIN on otitis media. Selecting the one shown will pull up the summary of the evidence on treatment of OM shown below..

What treatment options for pediatric acute otitis media are safe and effective?

Summary

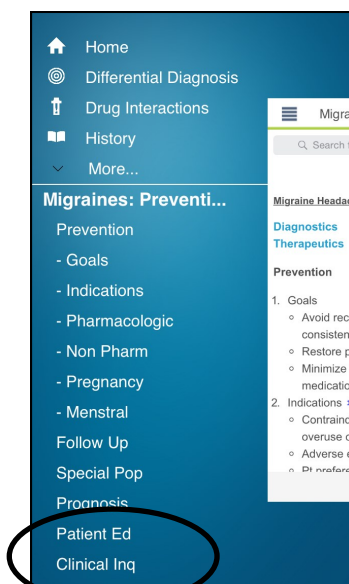
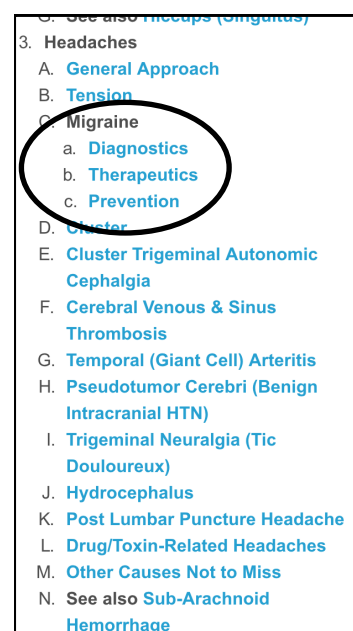
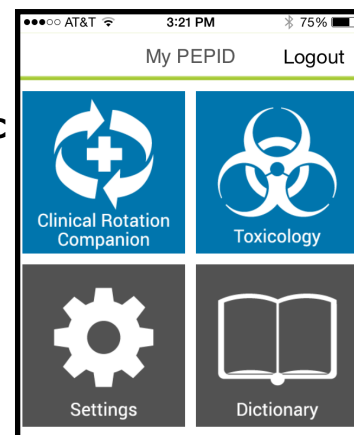
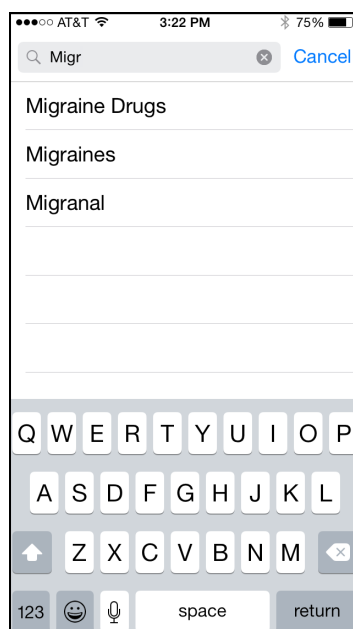
1. Safe treatment options include immediate administration of antibiotics or analgesics alone
 - o Although treating with antibiotics right away may increase the rate of clinical improvement, antibiotic use increases the risk of vomiting, diarrhea, and rash
 - o Many different antibiotics may be effective for treatment of acute otitis media (AOM), however, a recent guideline from the AAP and the AAFP recommends amoxicillin as the first-line choice
 - o Longer antibiotic use reduces the risk of treatment failure in the first 20 days
 - o Both ibuprofen and acetaminophen reduce earache

Evidence

1. The evidence reviewed here evaluates the overall efficacy of antibiotics compared with nonantibiotic treatment, the comparative efficacy of different antibiotics, optimal treatment length, and pain control in children with AOM
2. **TREATMENT: IMMEDIATE, DELAYED, OR NONE**
 - o An evidence report/technology assessment and an evidence review have addressed the question of AOM treatment in children ([1](#), [2](#))

PEPID Mobile Version

The Mobile version of PEPID is very similar to the Web version. To get to the Medical Content, when PEPID opens, select the **CRC Platinum Suite**. Type the first few letters of the condition you are looking for and the Index will jump to the closest word. Tap the condition. The Table of Contents will come up. Select the specific condition. In this example, Migraine Diagnosis, Treatment or Prevention. The navigation pane for the section retracts from the right with a little arrow. Internal links are imbedded to drugs and other topics.



Note the links to Clinical Inquiries and Evidence Based Inquiries on the navigation pane

