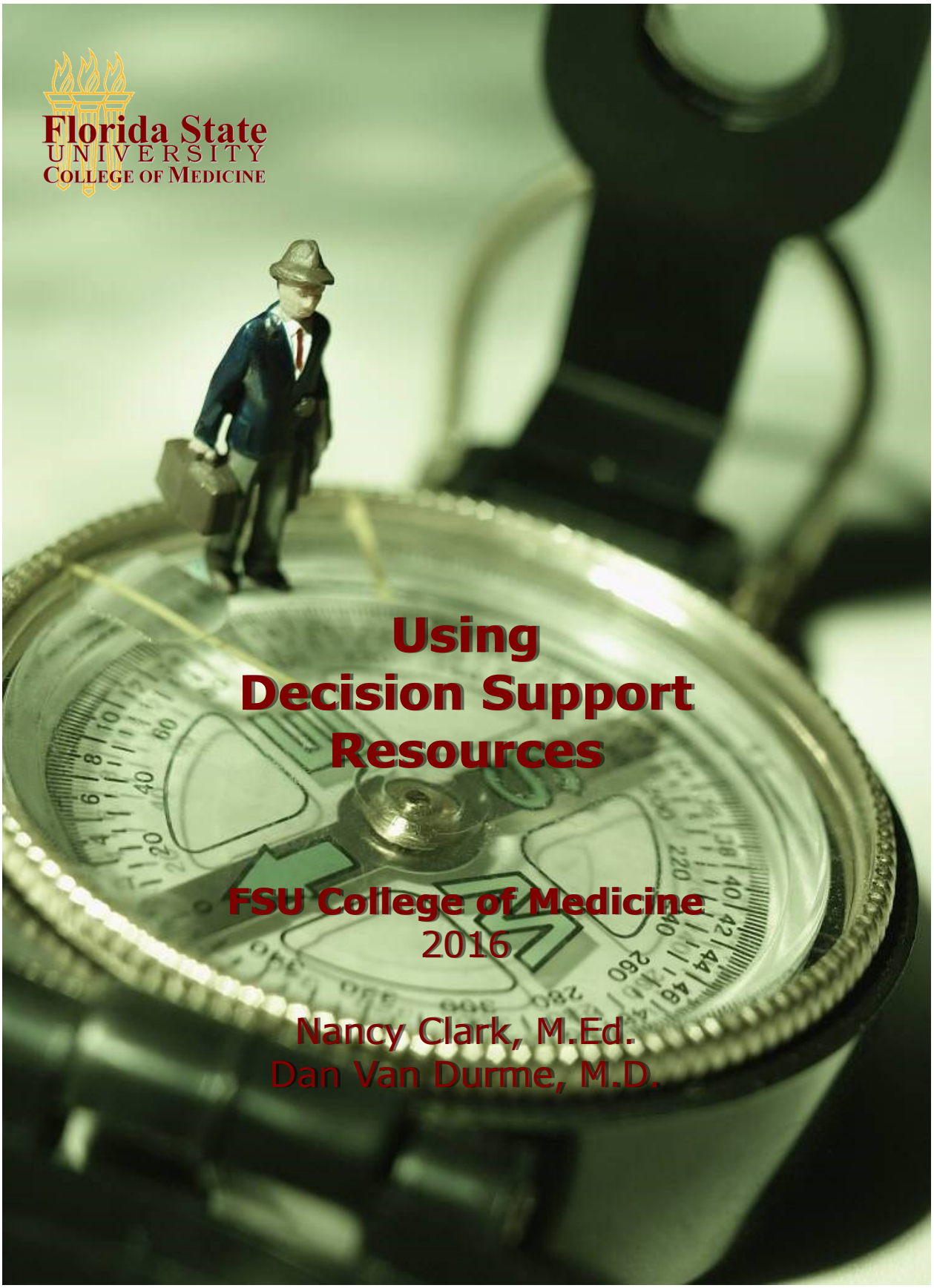
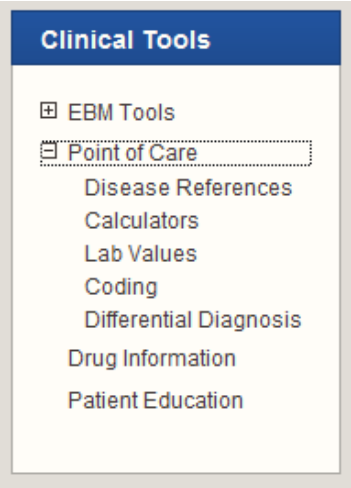

Florida State
UNIVERSITY
College of Medicine
Using
Decision Support
Resources
FSU College of Medicine
2016
Nancy Clark, M.Ed.
Dan Van Durme, M.D.

Using Decision Support Resources

Table of Contents



Access each of the above subscription resources thru the FSU College of Medicine Web site:

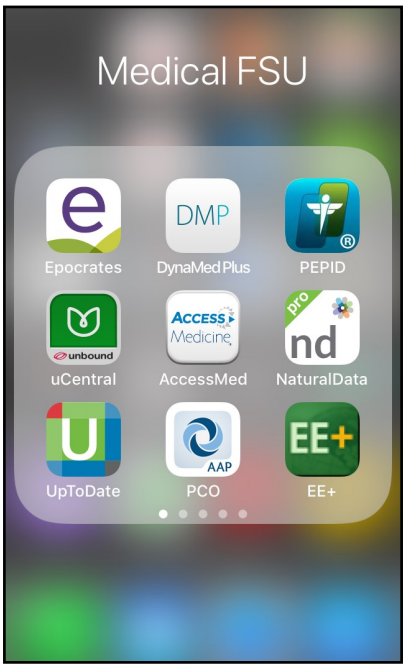
www.med.fsu.edu/library

Use EZProxy from off campus.

This handout was designed for FSU College of Medicine faculty and students to assist them in using the extensive resources of the Maguire Medical Library for decision support. Exercises for practice are included.

Point of Care (POC) Decision Support Resources

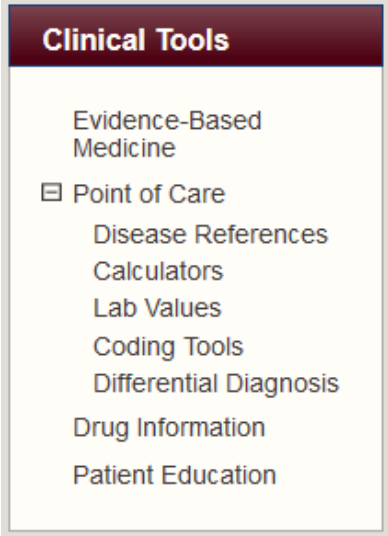
For years the medical student, resident and practicing physician relied on a white coat stuffed with notes and manuals to use as point of care quick references. By the end of the 20th century, these had been largely replaced by mobile technology: handheld devices loaded with much more information that could ever be stuffed into the pockets of a white coat.



iPhone loaded with medical software

In the last 10 years, these handheld devices have morphed from low memory, hard to load PDAs like the Palm Pilot and PocketPC to multi-function, large capacity smartphones and tablets. Those physicians who have the luxury of an iPad easily at hand while seeing patients have also the resources of the web to call on to answer questions at the point of care.

The library web site has organized their clinical resources to reflect the types used by physicians on a daily basis. We have developed faculty development workshops to address each of there types of resources: Evidence based medicine tools, drug resources, patient education resources, and point of care resources.



Screenshot of Clinical Tools on the Medical Library web page.

This handout supports the content covered in our Point of Care Decision Support workshop and covers how to use most of the resources listed under Point of Care on the Maguire Medical Library website. These resources can be broken down into the following categories:

- **Differential Diagnosis Generators**
- **Disease Quick References**
- **Medical Calculators**
- **Laboratory resources**

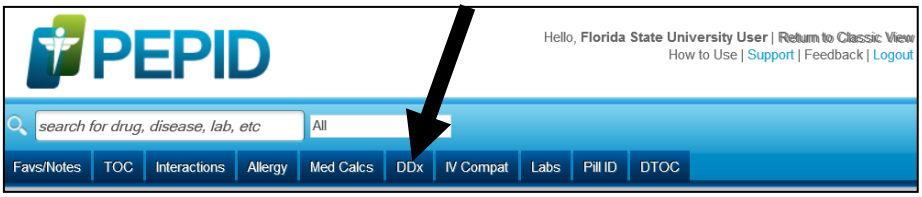
Currently, the subscription resources covered include Epocrates Plus and Epocrates Online, PEPID, Essential Evidence Plus, Dynamed, Pediatric Care Online, the multiple resources in uCentral and Access Medicine. Both PEPID and Epocrates include all of the tools listed above, plus drug information. There are some nice, free resources that need to be mentioned, like Medscape's app.

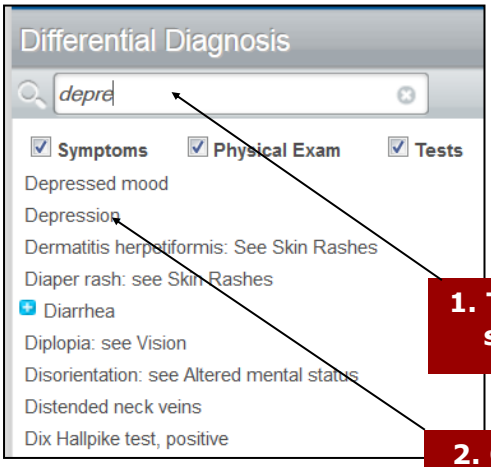
PEPID DDX— Online and Mobile

This feature of PEPID lets you enter symptoms, labs and findings and generates a differential with the possibilities given a score from a high of 5 to a low of 1.

PEPID Online

From the library web site, follow the link to PEPID. Click on the DDX tab on the tool bar.

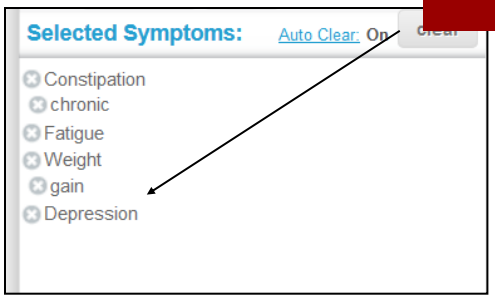




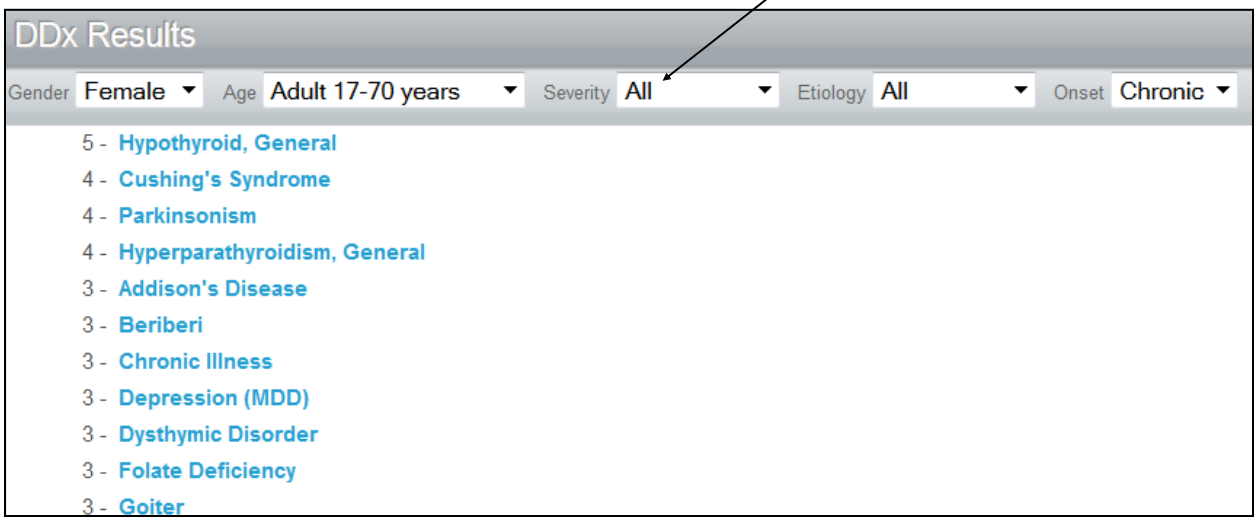
One at a time, enter the first few letters of your symptoms, findings or labs, then click on the appropriate choice adding them to the bottom half of the tool. The diagnoses will pop up as you add terms. These are ranked from most likely (5) to least likely (1).

1. Type in first few letters of symptom, finding or lab

2. Click appropriate term to add to bottom



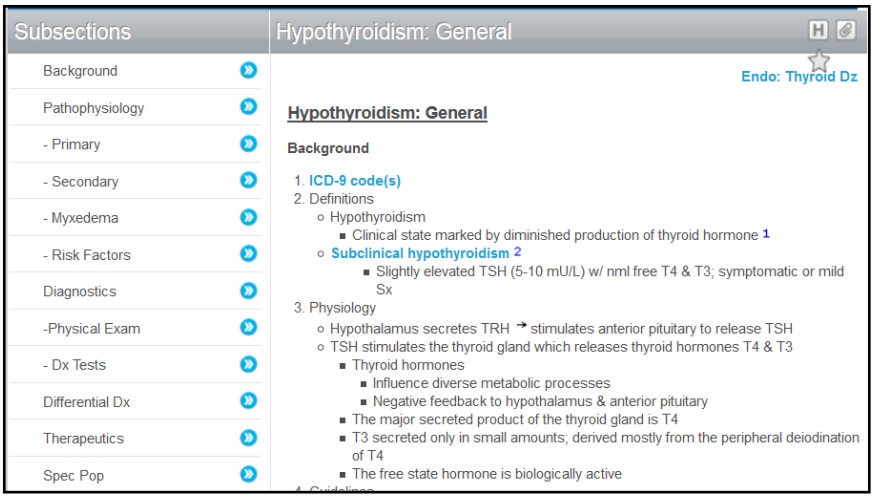
Results can be filtered by Gender, age group, severity, etiology and onset



PEPID DDX— Online and App

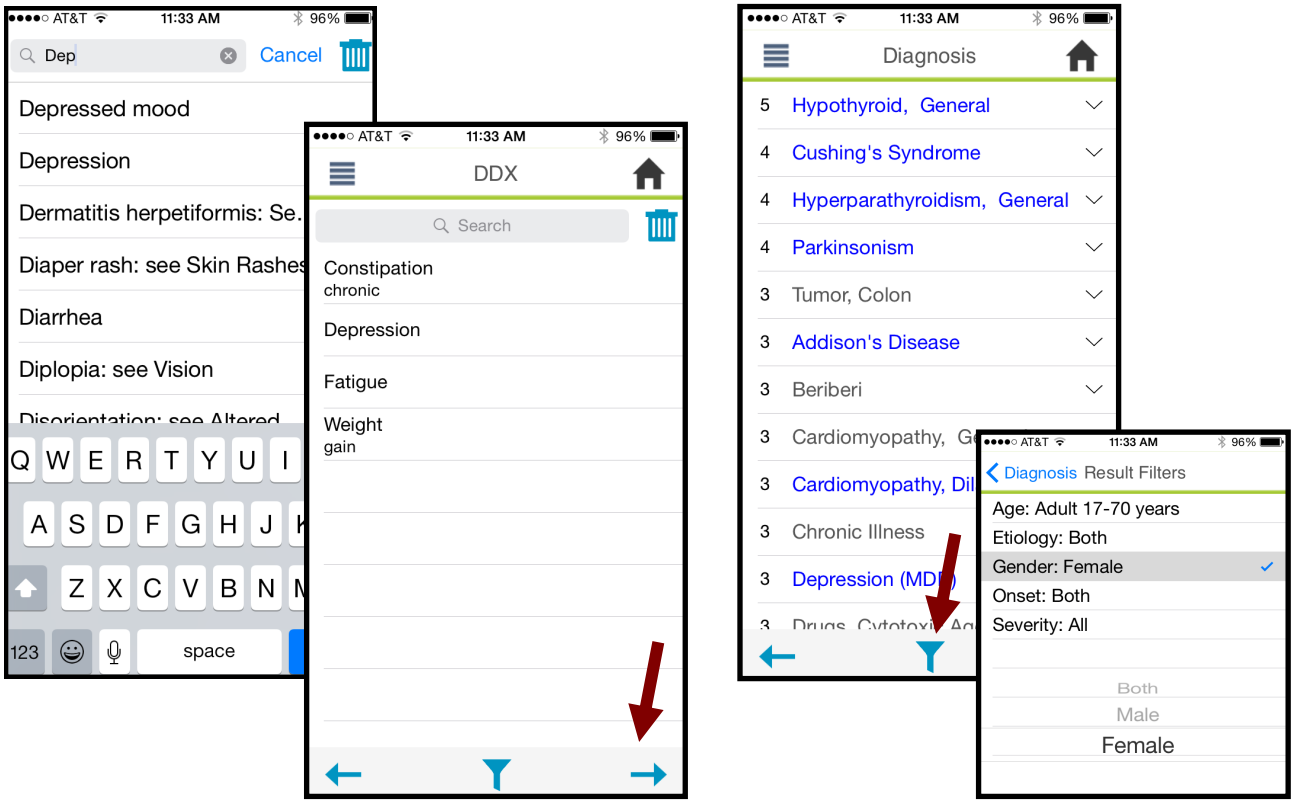
PEPID Online continued

Click on a diagnosis in the list to bring up the disease monograph.



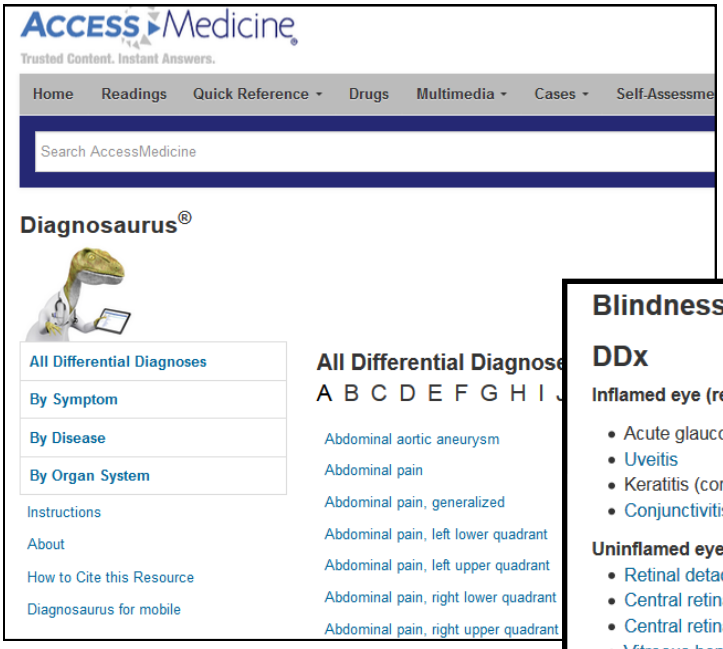
PEPID MOBILE iOS or Android

On the mobile device, run PEPID, choose the **Clinical Rotation Companion** from the first page, then click the **DDX** icon. A very similar interface to the web comes up. Type the first few letters of your symptoms, click the appropriate term to add it to the list. Once all the symptoms, findings and labs are added, click **Right Arrow** to get the list. Items in the differential are assigned a numerical score from 5, the most likely, to 1, the least likely. You tap the disease to see the disease monograph. To Filter by Age, gender, etc. click the Filter (funnel) symbol at the center bottom.

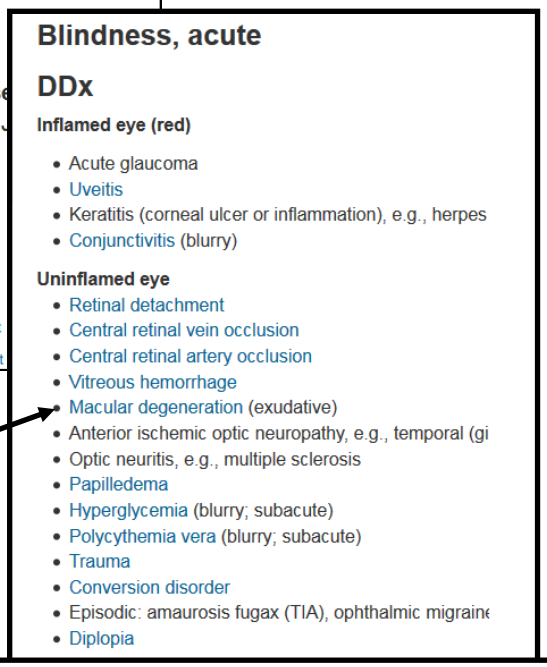


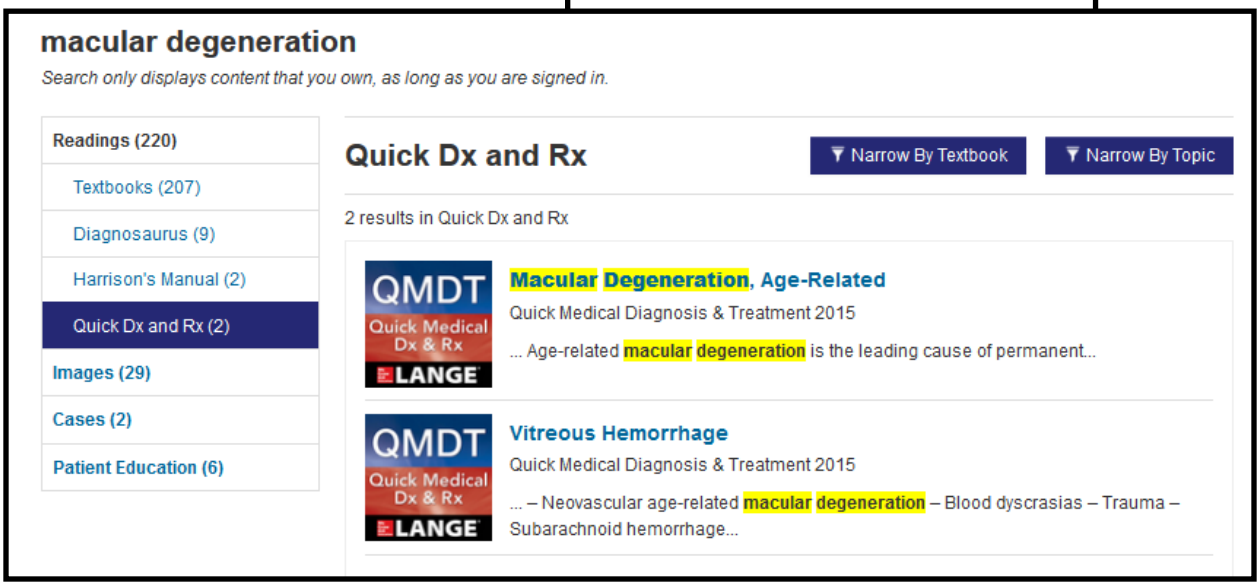
Diagnosaurus — Online and on the iPhone

Diagnosaurus is a very simple quick reference that provides 1000 differential diagnoses by symptom, disease or system. It is available online in **Access Medicine** and in the **Access Medicine app. Access Medicine** can be reached in the **Quick Links** dropdown on the Medical Library web page.

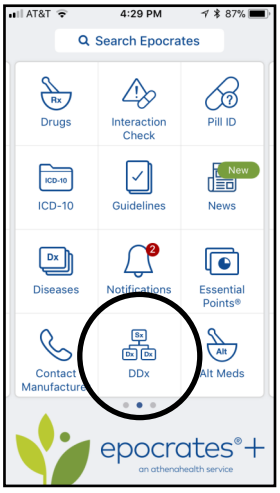


Links are provided in the lists of possible diagnosis, which search the content of the resources in Access Medicine, which includes most of the McGraw-Hill textbooks, a Quick Dx reference, as well as patient ed materials.



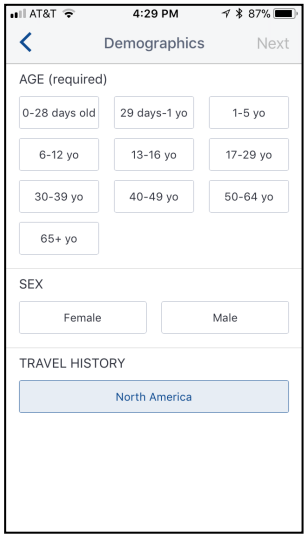


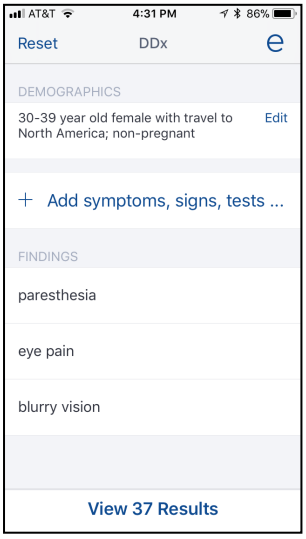
Epocrates DDX– App only



On the mobile device, run **Epocrates**, then click the **DDX** icon. As the icons can be moved around, you may need to swipe to find it on the next page.

Unlike PEPID, you start an Epocrates DDx by selecting the age, gender and pregnancy status of the patient, and have the option to include any recent travel history. Then y ou click Next at the top right of the screen to proceed to entering symptoms.



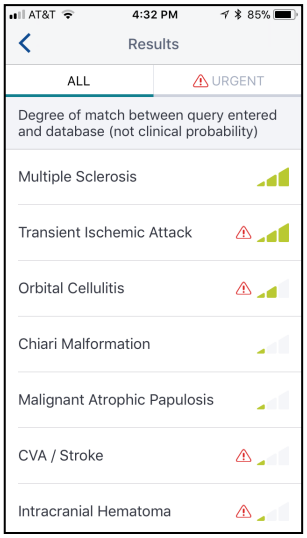


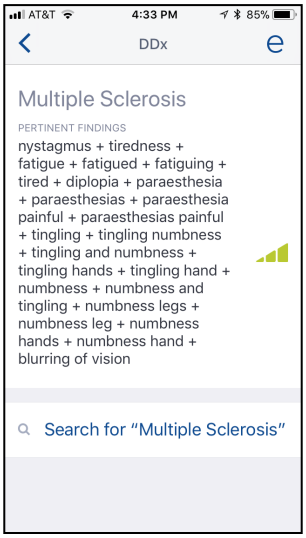
Type the first few letters of your symptoms, click the appropriate term to add it to the list. Continue adding symptoms until finished. The number of results will be updated at the bottom of the screen as you add symptoms, labs or findings. Click on **View ## Results** when you are finished.

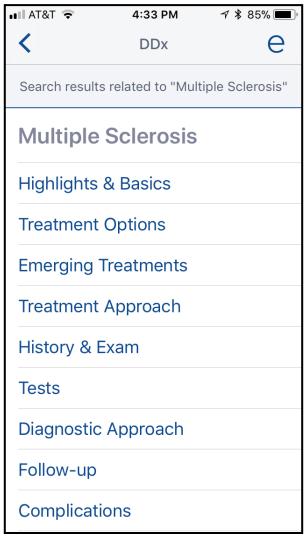
The Differential will come up in order of likelihood.

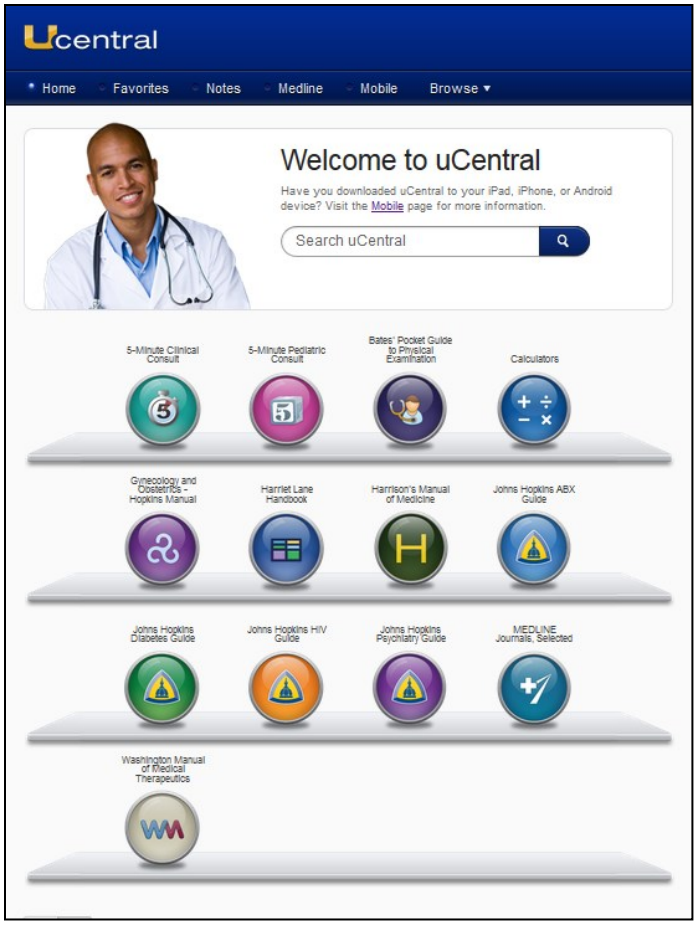
Click on a diagnosis in the list to bring up the disease with a list of pertinent findings.

At the bottom of the screen is a link to bring up the condition monograph in the Disease section of Epocrates.





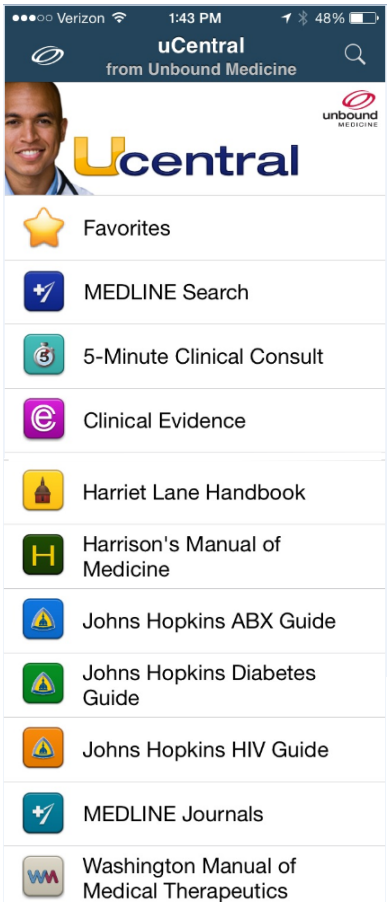




uCentral — Online and App

uCentral is the online and mobile interface created by Unbound Medicine, Inc. The CoM Medical Library subscribes to many excellent resources with this company because of the multiplatform options and excellent interfaces. We will be adding more as time goes on.

Currently (Summer 2016) we subscribe to the resources pictured at left and below in **uCentral.**



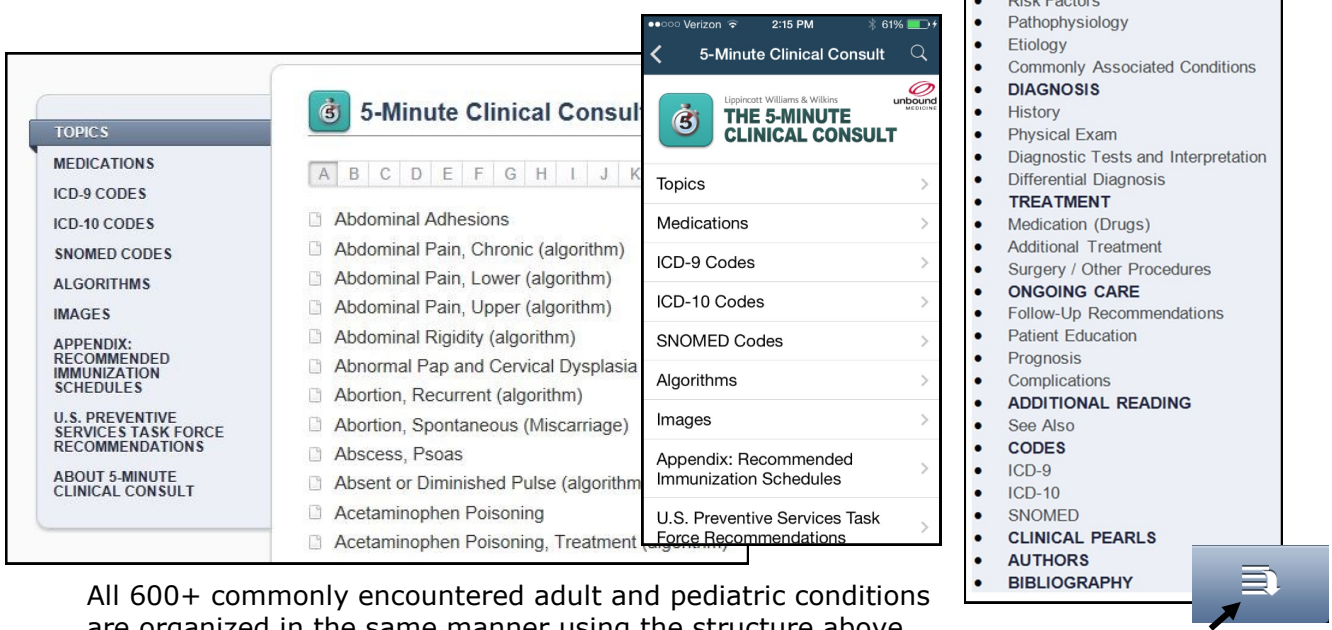
5-Minute Clinical Consult (5MCC) helps diagnose, treat, and follow up on over 600 medical conditions seen in everyday practice. 5MCC 2014 is organized in a proven, rapid-access format with concise, action-oriented entries, so you can answer questions fast and provide premium care to your patients. 5MCC also includes 200 pediatric topics from the latest edition of 5-Minute Pediatric Consult.

Harrison's Manual of Medicine. Derived from the best-selling internal medicine reference in the world, Harrison's Principles of Internal Medicine, this popular reference delivers fast, to-the-point guidance on the clinical problems seen in everyday practice. It focuses on diagnosis and therapy with an emphasis on patient care. It offers high-yield coverage of etiology, signs and symptoms, physical examination, laboratory findings, and practice guidelines.

The **Washington Manual of Medical Therapeutics** provides residents and senior medical students on inpatient medicine rotations practical clinical recommendations in an easy to digest format. This application streamlines access to clear information outlining general principles, diagnosis, and extensive treatment options for hundreds of common medical conditions. Tables and charts have been optimized for easy viewing on any of your mobile devices.

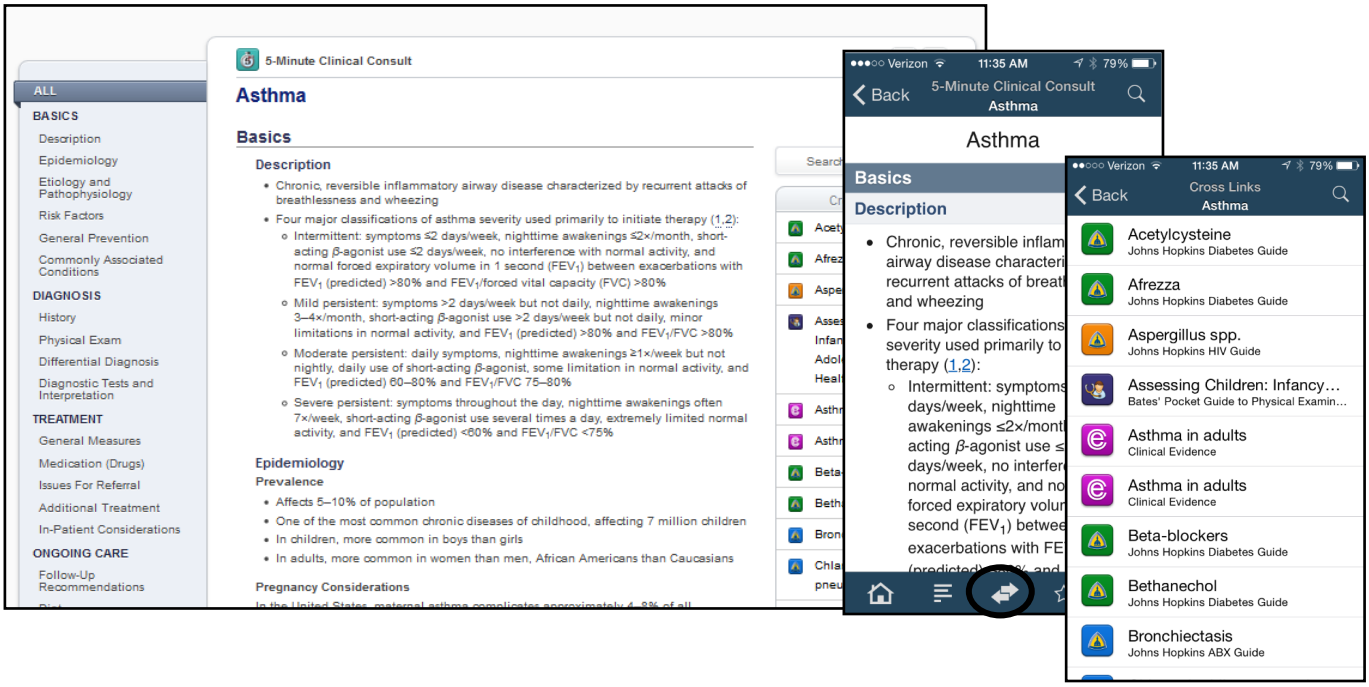
5 Minute Clinical Consult (5MCC) — Online and on the iPhone

We will focus on this resource because of the utility of the resource in the uCentral interface. The navigation is simple yet effective.



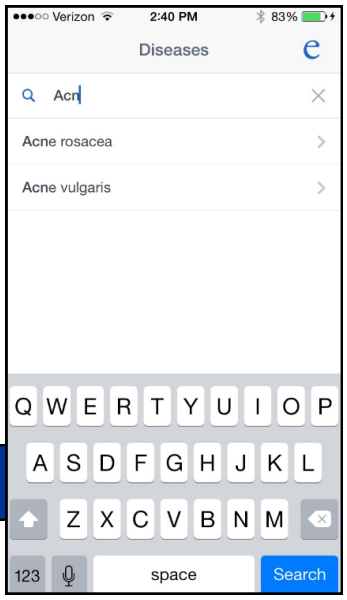
Tap to pull up sections on mobile version

All 600+ commonly encountered adult and pediatric conditions are organized in the same manner using the structure above right which makes it easy to navigate to the needed information in a well built clinical question. Topics are cross-linked with similar or related topics in other uCentral Resources, as shown in the Asthma monograph below. There are also algorithms, images, and sufficient coding information to classify this as a coding tool.



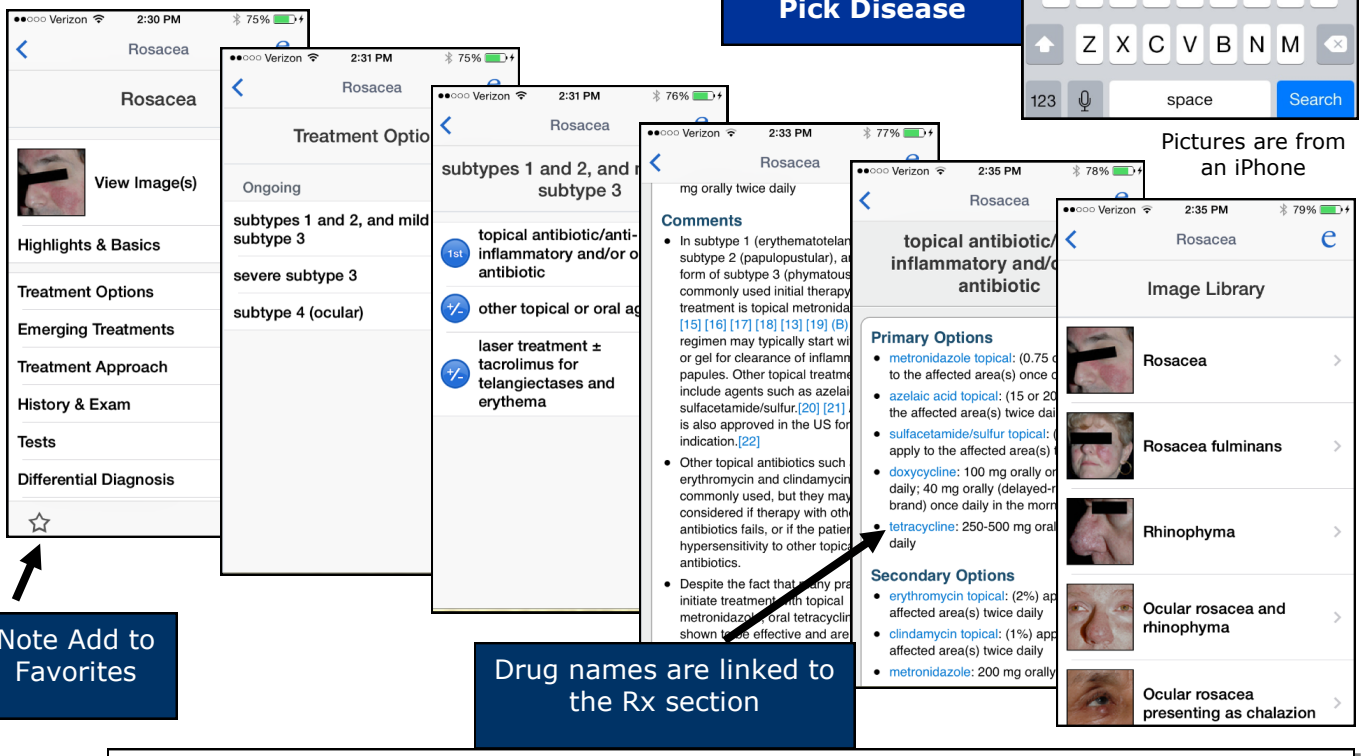
Epocrates Diseases Mobile

Epocrates Essentials includes a disease quick reference which contains the content from BMJ that has evidence-based recommendations and nice images. The Epocrates developers have made it highly convenient in that it links drugs to the Rx section so that a series of questions on one topic can be answered in a minimum number of taps. The main index will feel very familiar. The iPhone version has a lot of moving forward and going back. The pictures are not actually stored on the iPhone. They are pulled from the web, so you need an internet connection, either 3G or wifi to see the pictures.



Pick Disease

Pictures are from an iPhone



Note Add to Favorites

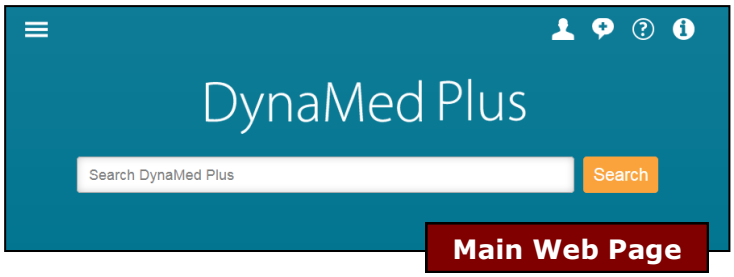
Drug names are linked to the Rx section

Sections List

- **Highlights & Basics**—description, genetics, incidence and prevalence, predominate age, risk factors, age-related factors, complications, prognosis, associated conditions.
- **Tx Options—**setting general measures, surgical measures, activity/diet, patient education, medications, prevention.
- **Emerging Treatments**
- **Treatment Approach**
- **Hx/Exam**
- **Tests**
- **Differential Diagnosis**
- **Diagnostic Approach**
- **Follow-Up**
- **Citations**
- **Image Library**

Notes — There is a little icon in the bottom right corner that allows you to annotate the monograph

DynaMed Plus – Web Version

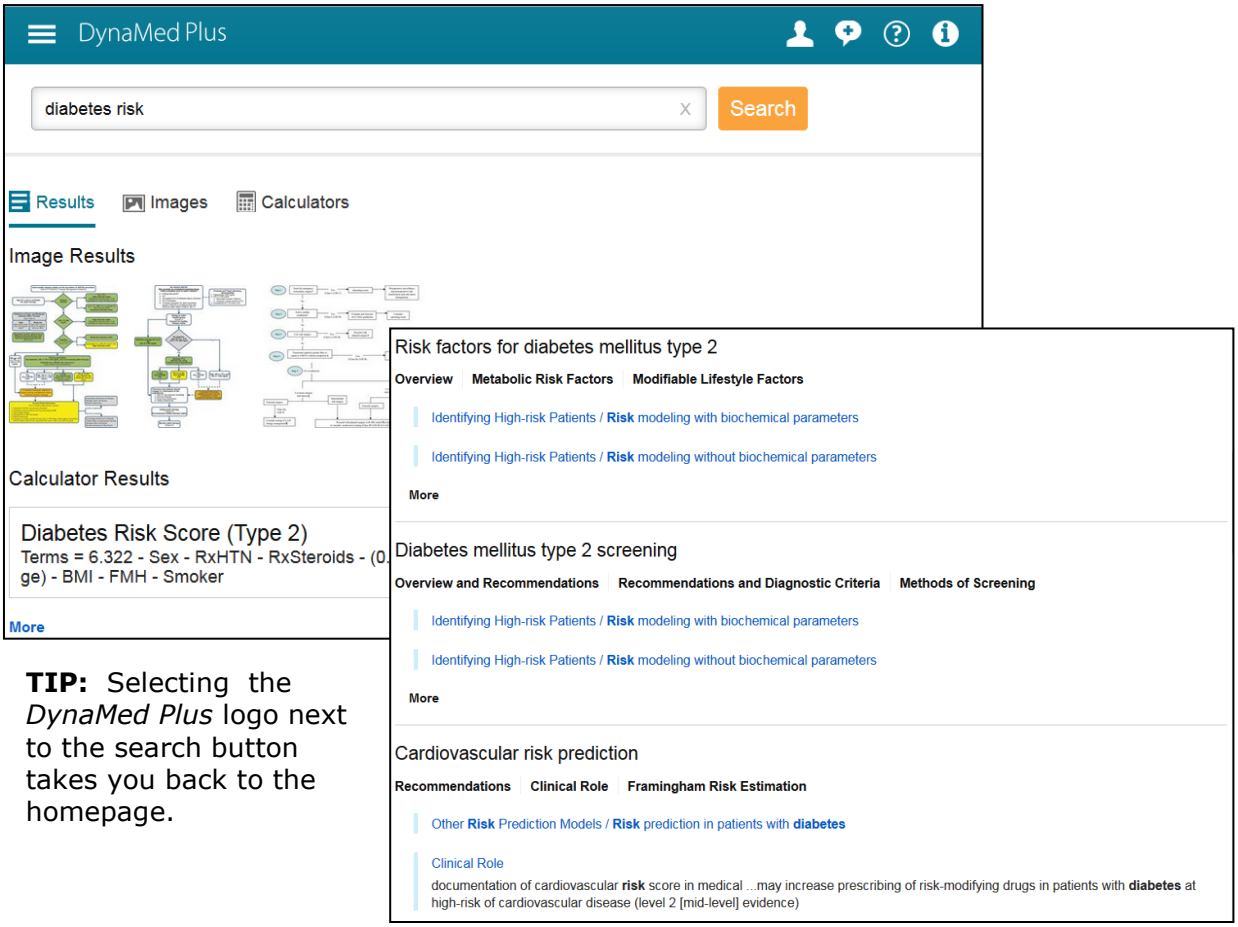


DynaMed Plus is an evidence-based reference designed to provide the most useful and current disease information at the point-of-care for health care professionals. Information on diseases, drugs, procedures and clinical presentations are organized into categories for ease of use and quick answers to 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.

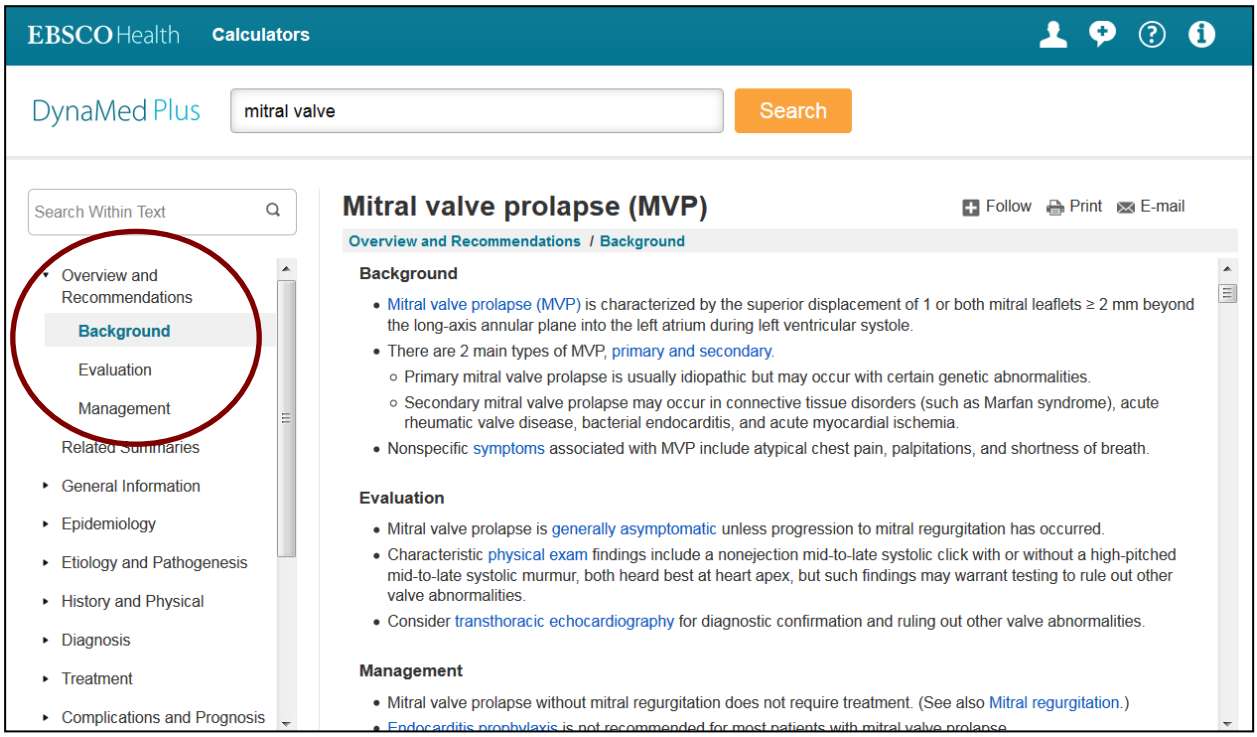
The following is an example of the **Search** feature using the term "diabetes risk".



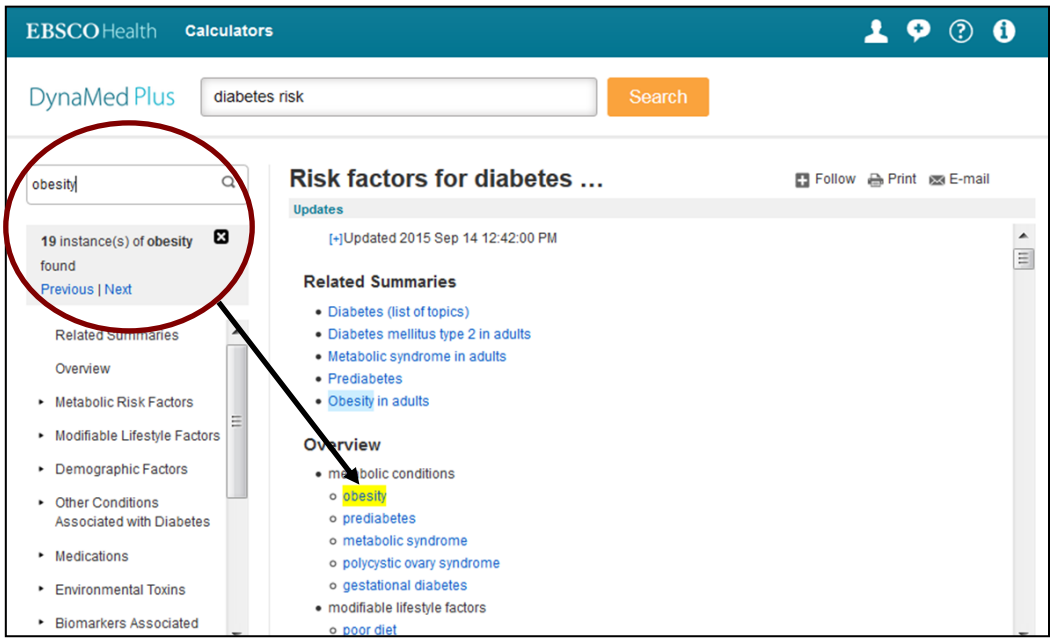
TIP: Selecting the *DynaMed Plus* logo next to the search button takes you back to the homepage.

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.

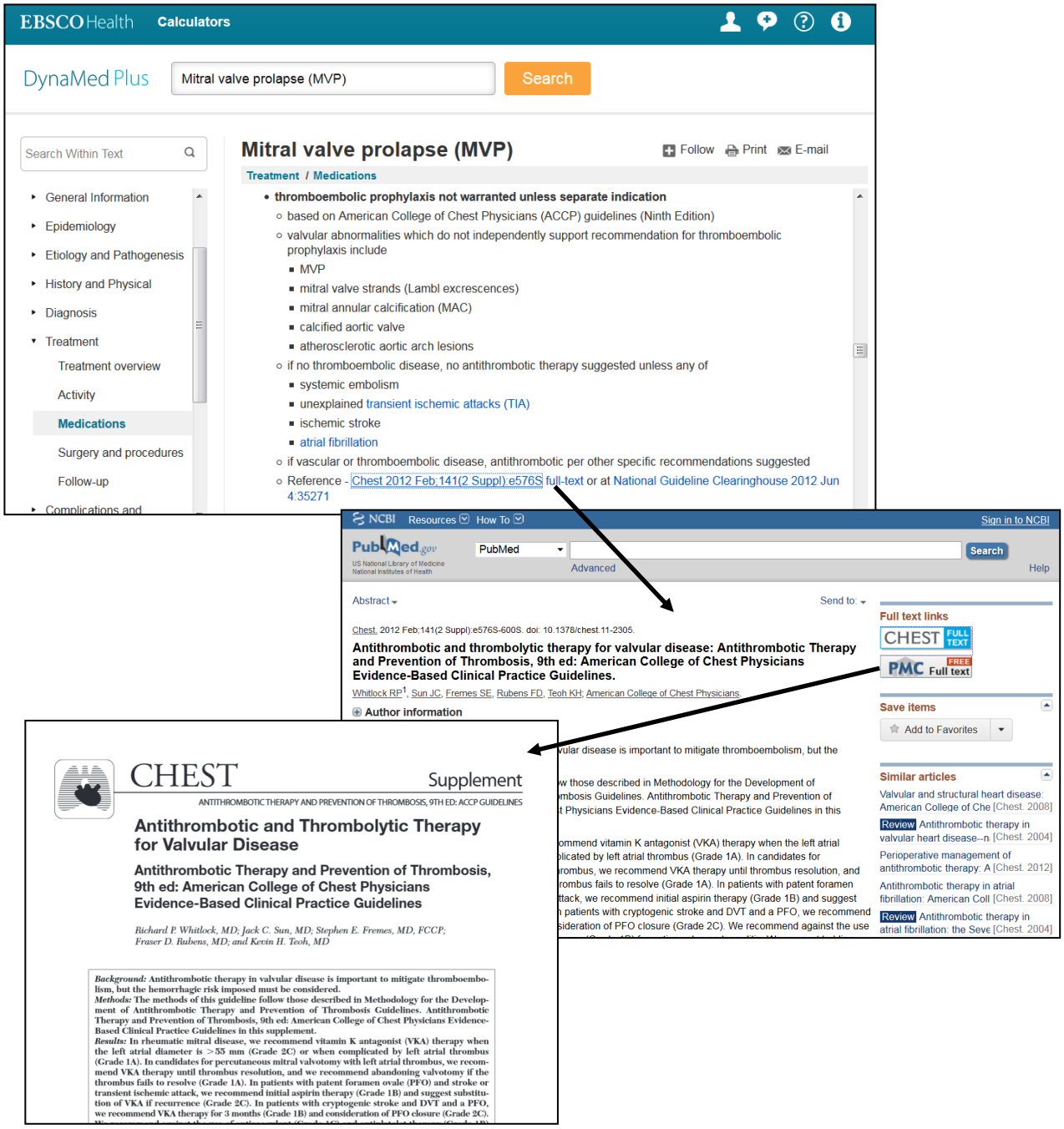


For ease of finding answers to specific clinical questions, you have the ability to Search Within Text which will highlight all occurrences of the term and allow you to jump to the Next or Precious incidence of the term.



DynaMed Plus – Web Version

Following citation links to the original articles thru PubMed
All article reviews are graded with either a Level of Evidence or Strength of Recommendation, and linked to the original article citation in PubMed (see below). If you should have any problems or issues obtaining an article, contact the Maguire Medical Library, (850) 644-3883 for assistance.



DynaMed Plus Online Exercises for Practice

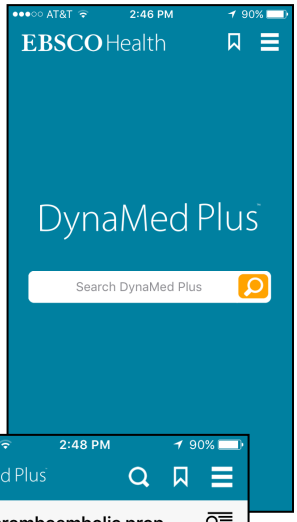
1. A 65 year old Jewish woman is worried that she may get Parkinson's Disease because her father was diagnosed with it when he was 65. He was a heavy smoker. She does not smoke or drink alcohol or coffee. What do you tell her?

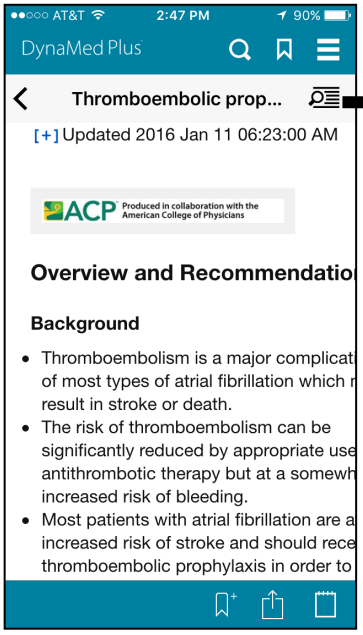
2. What might she do to help prevent Parkinson's Disease?

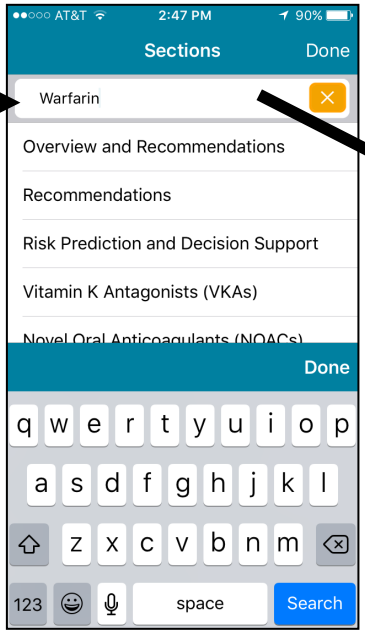
3. Can you give her any information to take home with her?

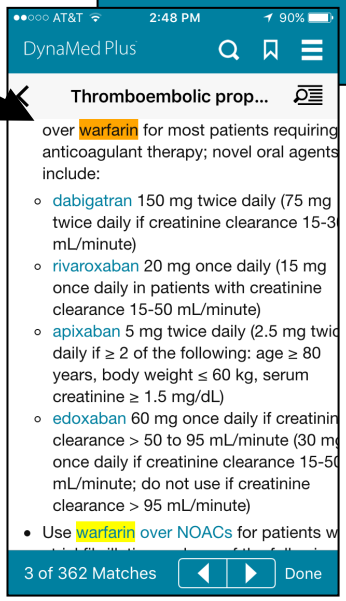
DynaMed Plus — MOBILE Version

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.

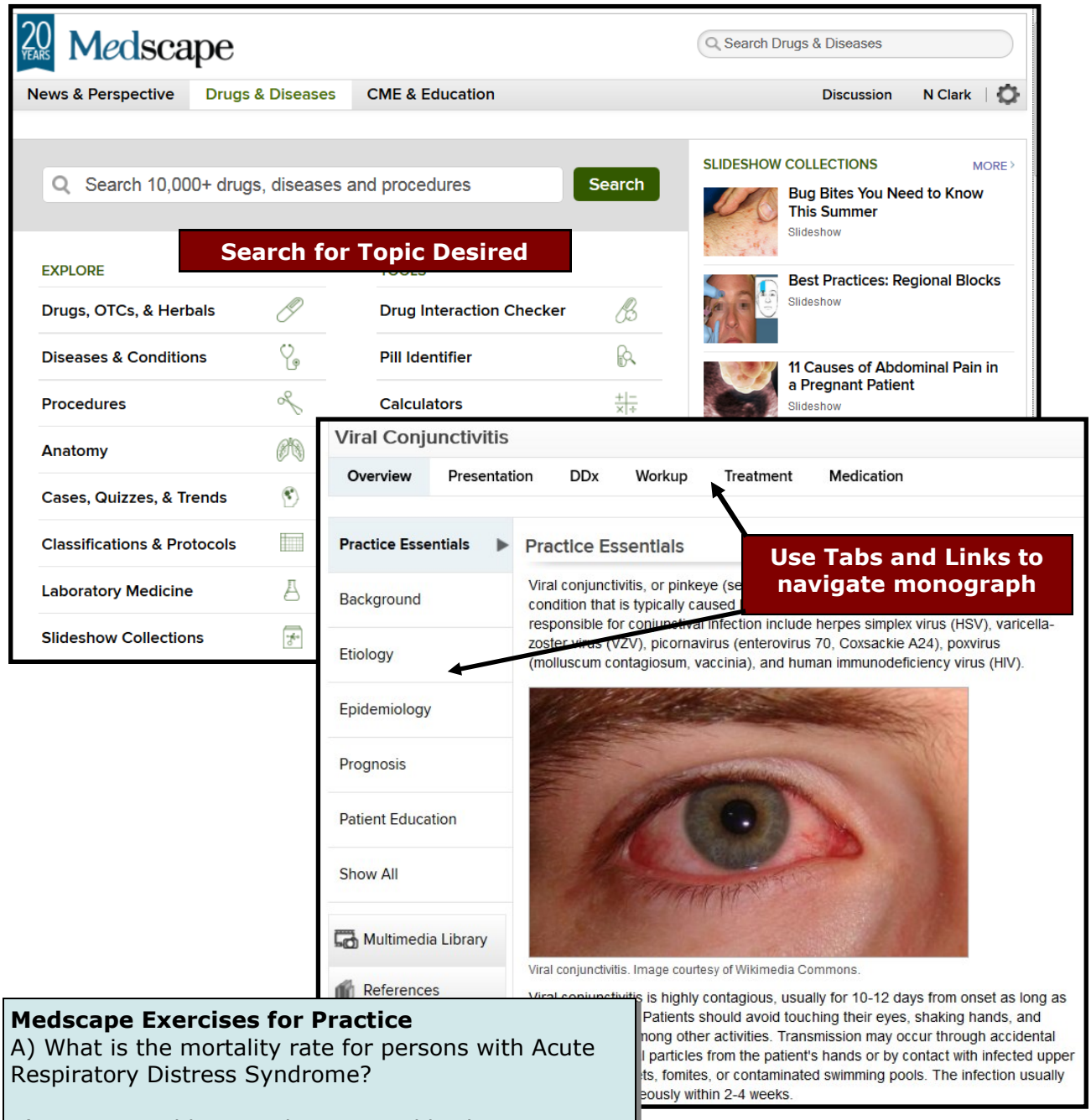
Reference links are embedded in the content which will direct you to the mobile PubMed listing for the article. Online, the Find@FSU button will appear, linking to the full text article. On the app, the button will not appear, but there are links to the full text articles which may work. Many of the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

DynaMed Plus Mobile Exercise for Practice

What is the prognosis for a 60 y/o female with Stage IV metastatic breast cancer?

Medscape Reference Website

While not the most current, evidence-based disease reference, the disease references in Medscape, which used to be called eMedicine, are very popular with students because the content will show up in a Google search. The site contains a nice collection of images.



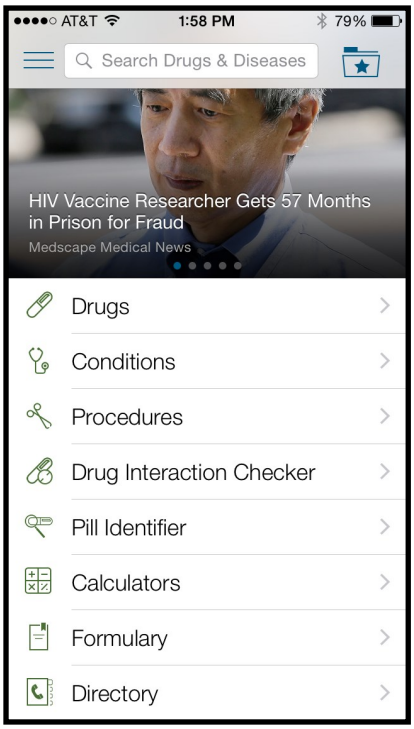
Medscape Exercises for Practice

A) What is the mortality rate for persons with Acute Respiratory Distress Syndrome?

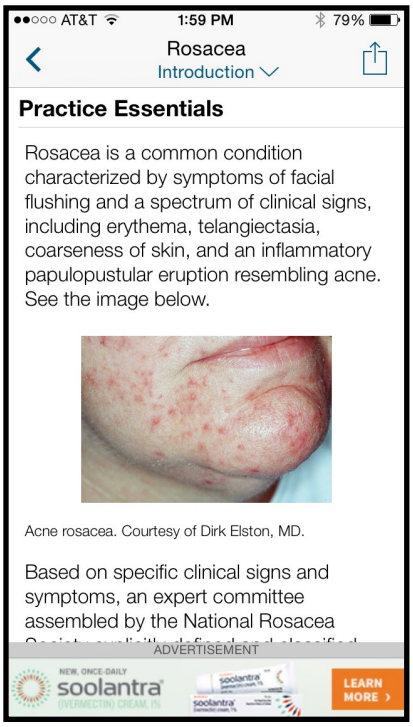
B) A 55 year old man is having trouble sleeping at night. He wants to know if there is a particular medicine he should take as he has seen quite a few advertised on the television.

Medscape App (disease information)

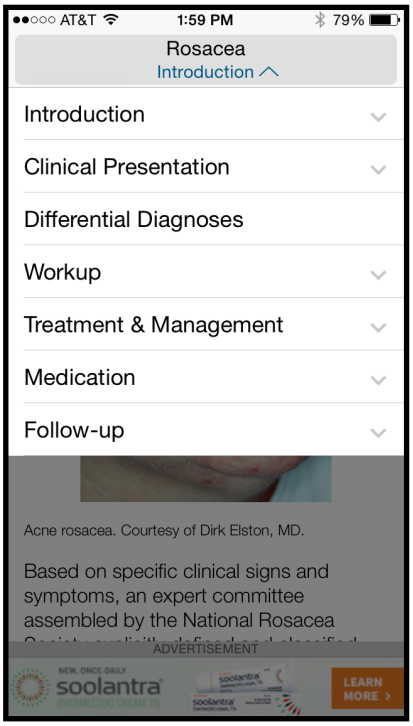
Medscape is also available as a free resource on mobile devices. In addition to the disease content from eMedicine, it contains a drug reference, interaction checker, and procedures section that is unique. You should use the Search feature to find the condition desired because tapping on Diseases and Conditions brings up a list of specialties.



The disease reference is organized into the following categories: clinical presentation, differential, workup, treatment & medications, medications, and follow-up. Under Workup, if there are histological findings, imaging studies and such, there are sometimes images. Look for Media Gallery which will contain all the images from that condition.



The sections are accessed by touching the link under the condition name at the top center.

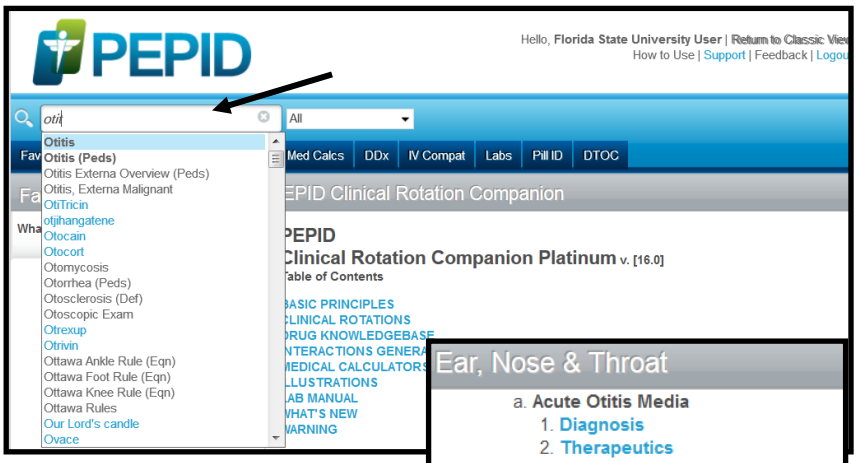


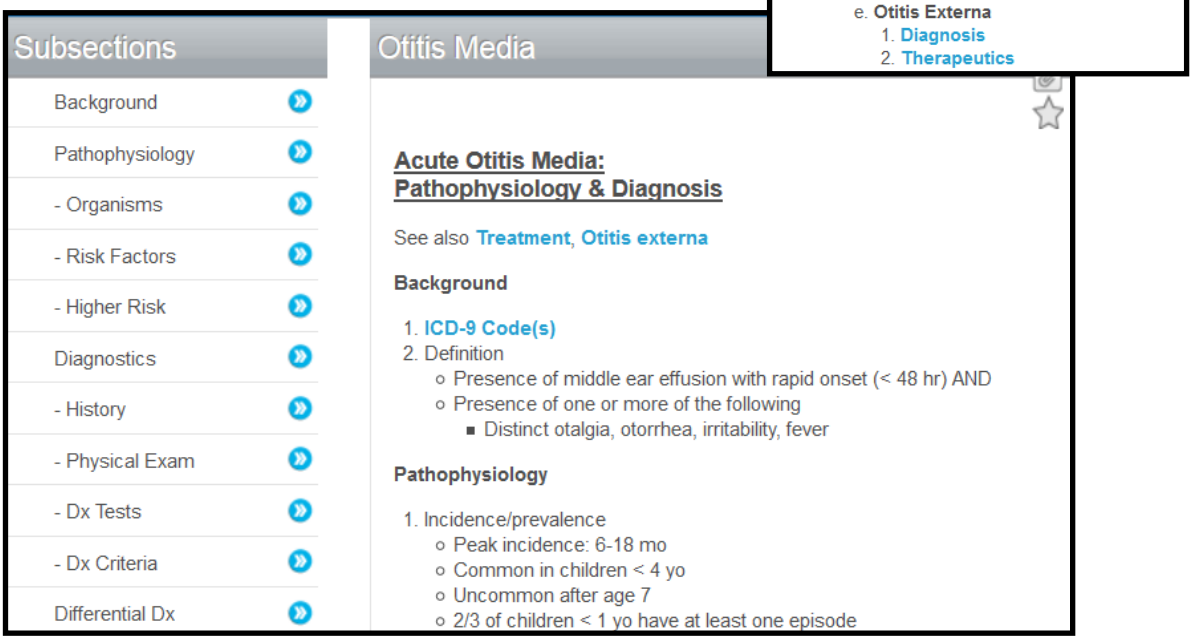
PEPID Web Version

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.

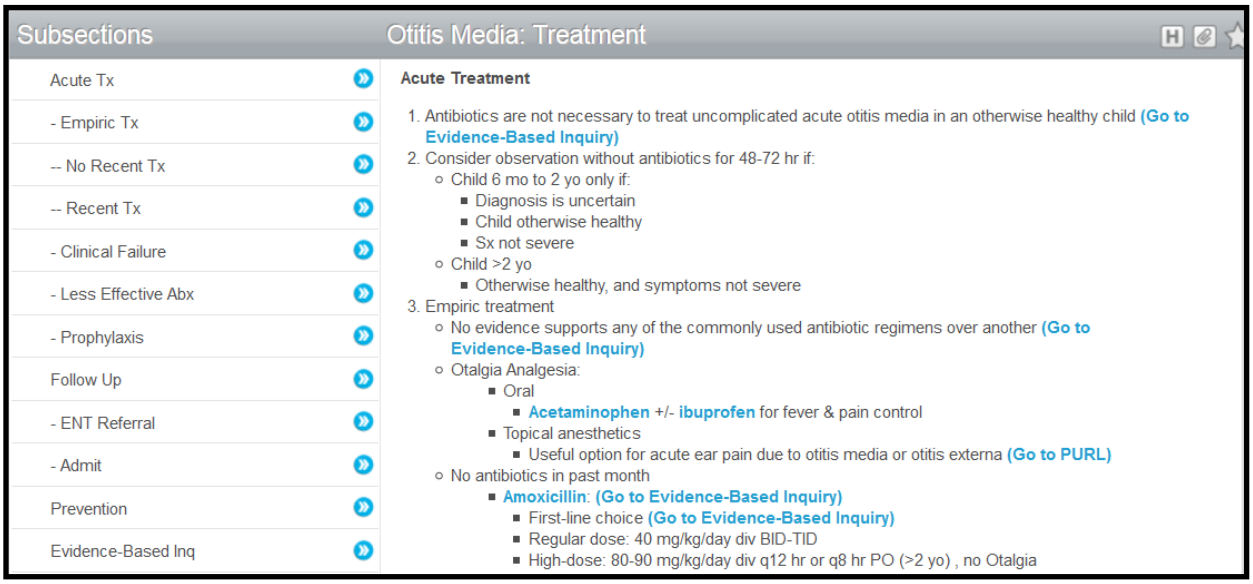
To find information on a disease or condition, type the first few letters of the condition in the **search** box. The alphabetical list will automatically advance to find the first letters you have typed. When you see the condition, click on it, such as **Otitis** at right. The TOC on ENT conditions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





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.



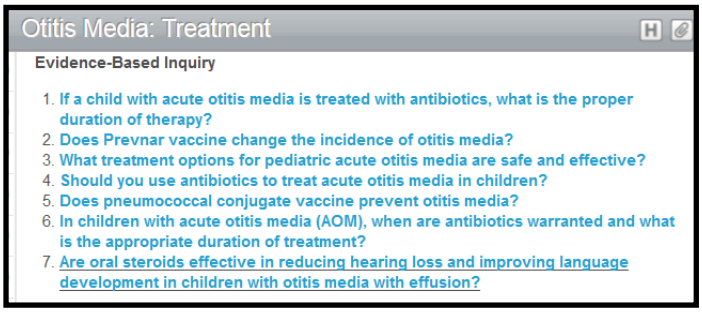
Subsections

- Acute Tx
- - Empiric Tx
- -- No Recent Tx
- -- Recent Tx
- - Clinical Failure
- - Less Effective Abx
- - Prophylaxis
- Follow Up
- - ENT Referral
- - Admit
- Prevention
- Evidence-Based Inq

Otitis Media: Treatment

Acute Treatment

1. Antibiotics are not necessary to treat uncomplicated acute otitis media in an otherwise healthy child **(Go to Evidence-Based Inquiry)**
2. Consider observation without antibiotics for 48-72 hr if:
   - Child 6 mo to 2 yo only if:
     - Diagnosis is uncertain
     - Child otherwise healthy
     - Sx not severe
   - Child >2 yo
     - Otherwise healthy, and symptoms not severe
3. Empiric treatment
   - No evidence supports any of the commonly used antibiotic regimens over another **(Go to Evidence-Based Inquiry)**
   - Otalgia 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)**
   - 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 Otalgia

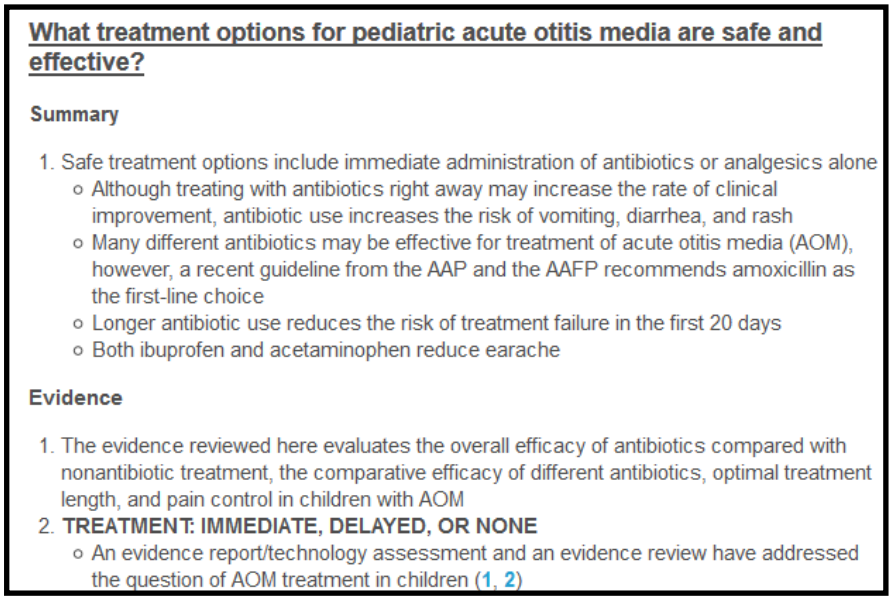


Otitis Media: Treatment

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

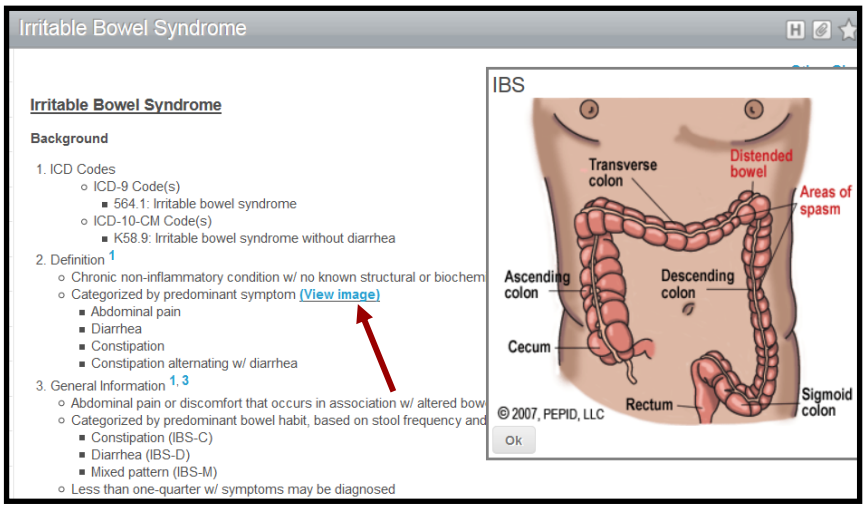
1. Safe treatment options include immediate administration of antibiotics or analgesics alone
   - Although treating with antibiotics right away may increase the rate of clinical improvement, antibiotic use increases the risk of vomiting, diarrhea, and rash
   - Many different antibiotics may be effective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

Evidence

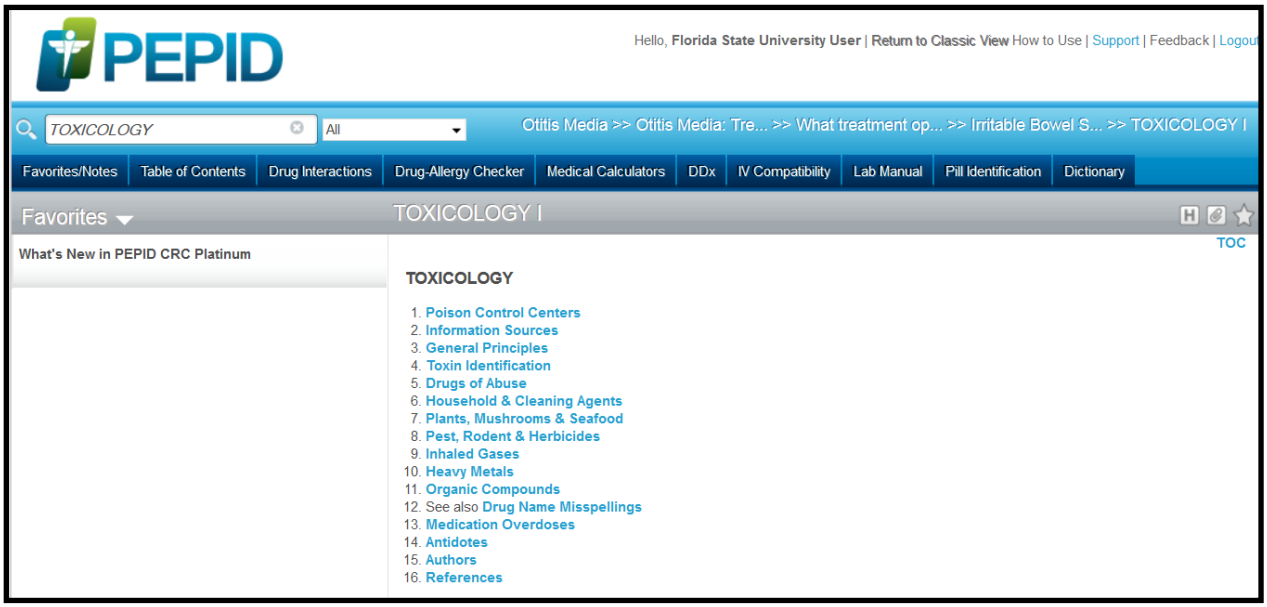
1. The evidence reviewed here evaluates the overall efficacy of antibiotics compared with nonantibiotic treatment, the comparative efficacy of different antibiotics, optimal treatment length, and pain control in children with AOM
2. **TREATMENT: IMMEDIATE, DELAYED, OR NONE**
   - An evidence report/technology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

PEPID Web Version (continued)

PEPID includes **illustrations** including Clinical Anatomy, Examination, Rhythm Strips, Women's Health & Obstetrics, Anesthesia / Blocks, Airway, Trauma, Procedures and other images. Look for the View Image link to pull up images in the medical content or use the **Table of Contents** to see all **Illustrations**.



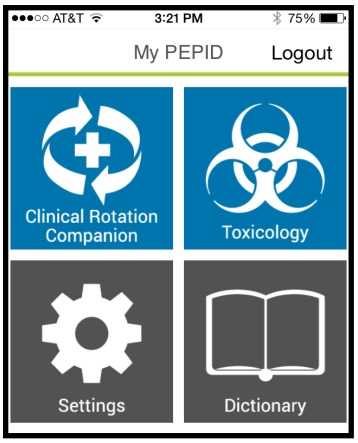
Navigation of PEPID

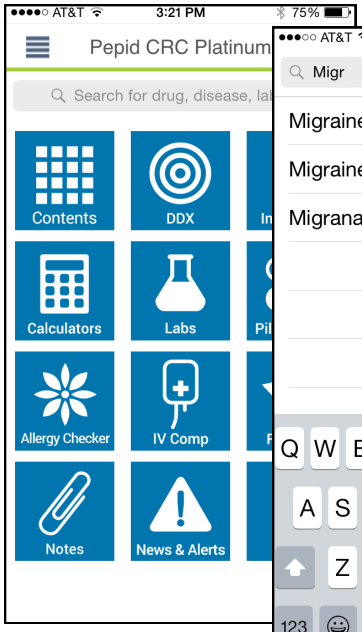


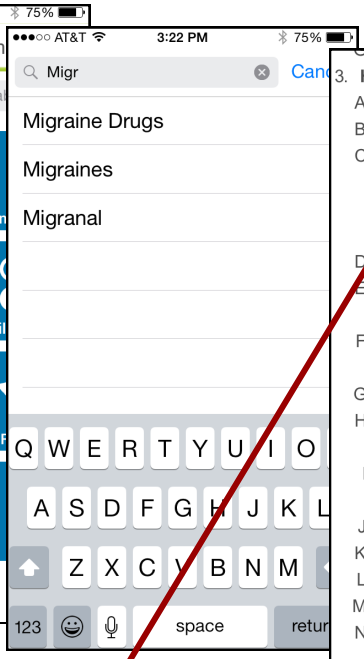
PEPID has a medical dictionary accessed from the last tab on the navigation bar. Because it was originally designed to be an emergency reference, there is also extensive information like the section on Toxicology (above), and protocols for ACLS, ATLS, and PALS. Search for these like you would any disease or drug.

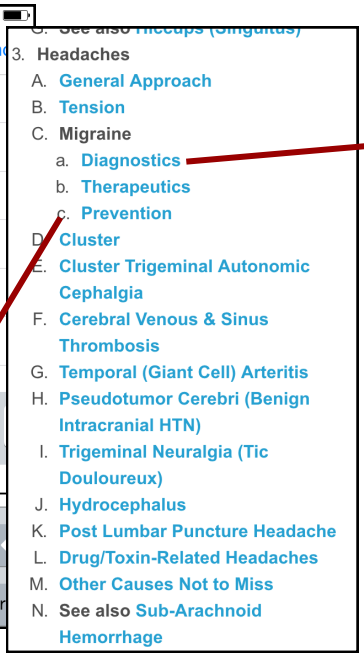
PEPID Mobile Version

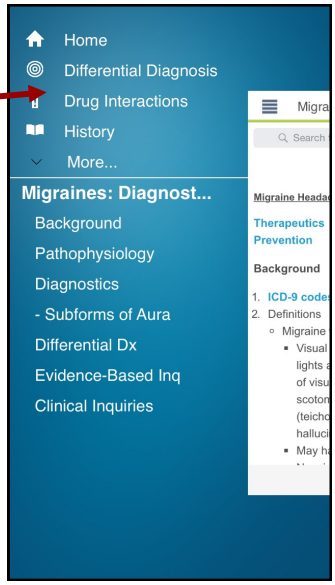
The Mobile version of PEPID is very similar to the Web version. To get to the Medical Content, when PEPID opens, select the **CRC Platinum Suite**. Type the first few letters of the condition you are looking for and the Index will jump to the closest word. Tap the condition. The Table of Contents will 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.

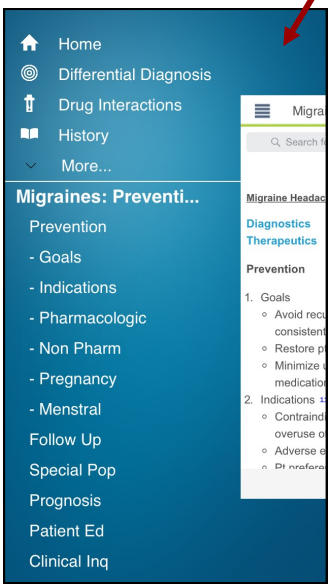


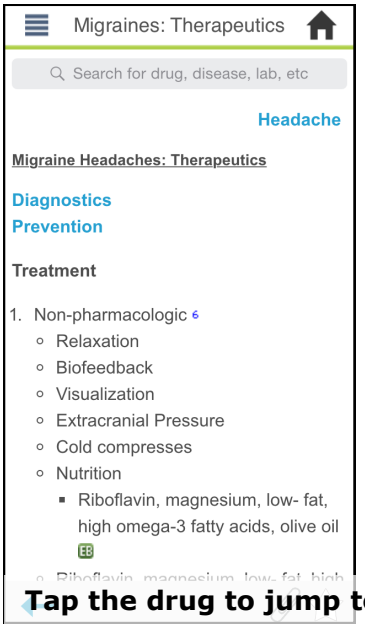


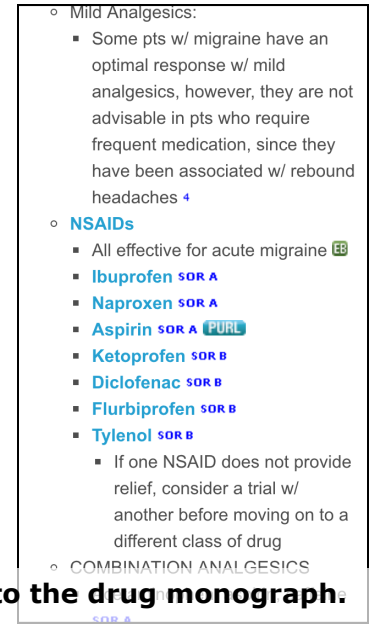








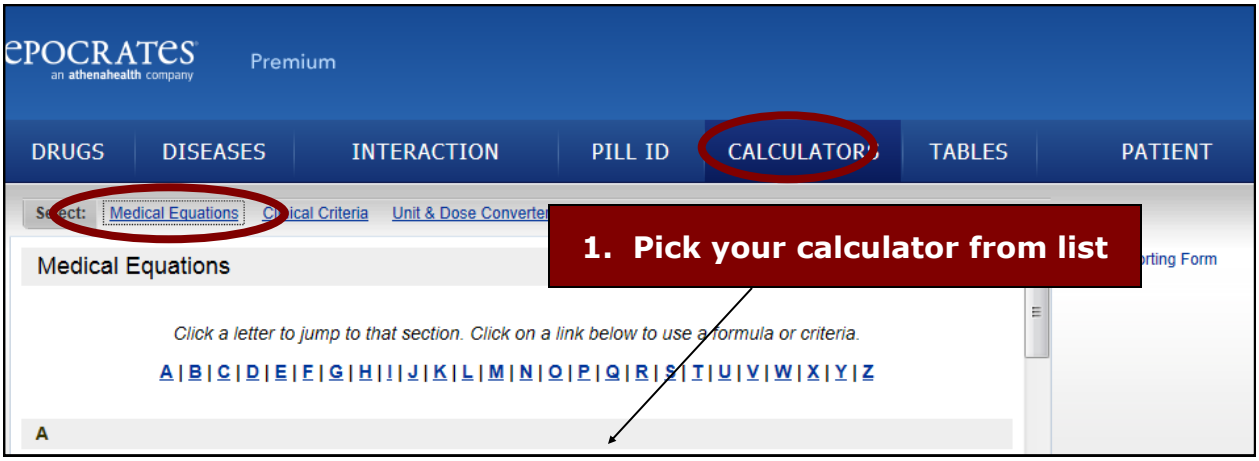


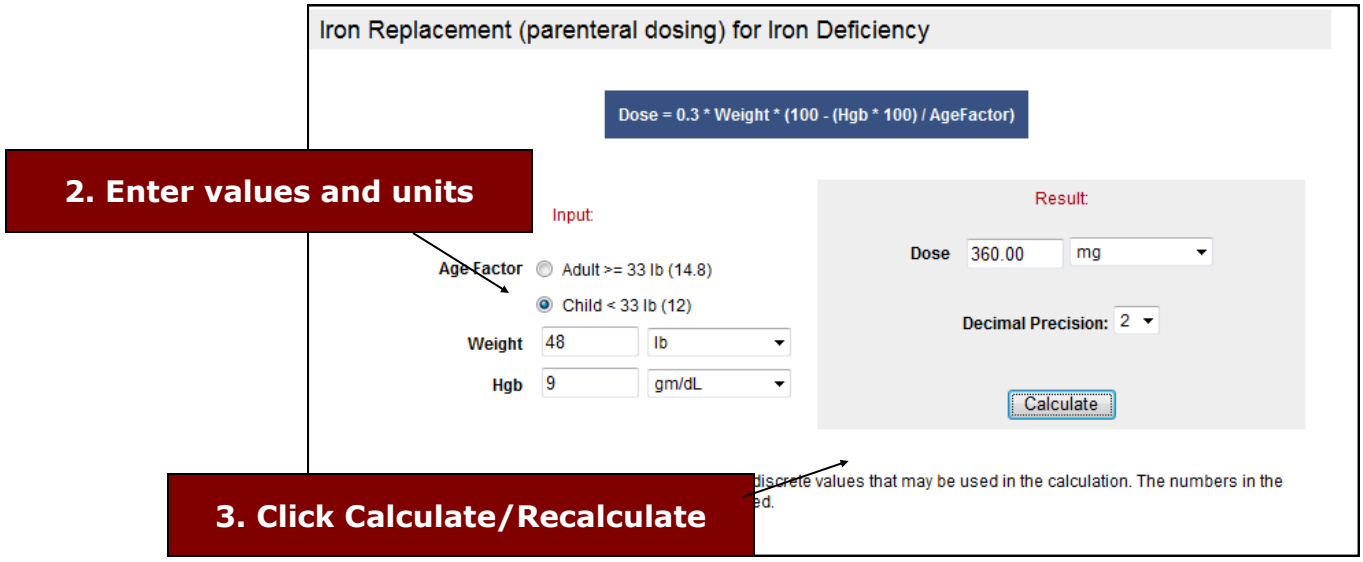


Tap the drug to jump to the drug monograph.

Epocrates Online and Dynamed Plus — MedCalc 3000 Medical Equations

Epocrates and Dynamed Plus features an impressive collection of medical calculators produced by MedCalc3000. These are not available on the Mobile version of Epocrates, but are in Dynamed Plus. Instead the Epocrates App has a the MedMath calculators which have been available free for the PDA for years. MedCalc has unit and dose converters as well as calculators that it calls Medical Equations. See the next page for a list of these Medical Equations.





The same **MedCalc3000** calculators that are in **Epocrates Online** can also be found in **Dynamed** online, **Medscape, MerckMedicus, Facts and Comparisons** online, Up-To-Date, and a number of other commonly used medical resources. **Dynamed Plus** lists calculators in their Search Results. Epocrates does not.

Exercises for Practice

What is the predicted peak flow for a 60 year old woman with asthma? She is 5'2".

Epocrates Online and Dynamed Plus MedCalc Medical Equation Calculators

A-a Gradient
a/A Ratio
AaPO2 Correction for FIO2
Absolute Lymphocyte Count
Absolute Neutrophil Count
Absolute Reticulocyte Count
Allowable Blood Loss
Amikacin Dosing q24hr (also Kanamycin and Streptomycin)
Amikacin Dosing to Produce Desired Peak and Trough Levels
Amikacin Level Prediction from Maintenance Dosing
Amikacin Steady State Dosage Adjustment
Aminoglycoside Clearance Estimate
Amortization of Student Loans
Anion Gap Delta Delta Gradient Multicalc®
Anion Gap Delta Delta Ratio Multicalc®
Anion Gap in Hypoalbumin States
Anion Gap
Ascites Albumin Gradient
Basal Energy Expenditure (Harris-Benedict estimation)
Bayesian Statistics I MultiCalc®
Bayesian Statistics II MultiCalc®
Benefit Increase / Number Needed to Treat Multicalc®
Bicarbonate Deficit
Blood Pressure Percentiles for Boys (2 - 17 years)
Blood Pressure Percentiles for Girls (2 - 17 years)
Body Mass Index (Quetelet's index)
Body Mass Index Percentiles for Boys (2 - 20 years)
Body Mass Index Percentiles for Girls (2 - 20 years)
Body Surface Area (Du Bois Method)
Body Surface Area (Mosteller, square root method)
Burn Injury Fluid Resuscitation (Brooke estimate)
Burn Injury Fluid Resuscitation (Demling dextran estimate)
Burn Injury Fluid Resuscitation (Evans estimate)
Burn Injury Fluid Resuscitation (Modified Brooke crystalloid estimate)
Burn Injury Fluid Resuscitation (Slater estimate)
Burn Injury Fluid Resuscitation, Adult (Parkland crystalloid estimate)
Calcium Correction in Hypoalbuminemia (SI units)
Calcium Correction in Hypoalbuminemia
Carbon Dioxide Production
Carboplatin AUC Dose Calculation (Calvert formula)
Cardiac Output MultiCalc®
Cardiac Output
Chi Square Analysis
Closing Capacity to Total Lung Volume Capacity
Closing Capacity
Closing Volume to Vital Capacity Ratio
Confidence Interval of a Binomial Proportion
Confidence Interval of a Difference Between Proportions
Confidence Interval of a Ratio of Proportions
Confidence Interval of a Ratio of Ratios
Confidence Interval of a Survey
Creatinine Clearance (measured)
Creatinine Clearance (measured, SI units)
Creatinine Clearance by Mass
Creatinine Clearance Estimate by Cockcroft-Gault Equation (SI units)
Creatinine Clearance Estimate by Cockcroft-Gault Equation
Creatinine clearance estimate for changing serum creatinine
Creatinine Kinetics Multicalc®
CSF IgG Index
CSF Protein Concentration Correction in Blood Contaminated CSF
CSF WBC Correction in Blood Contaminated CSF
Digitalis Body Load
Dose Adjustment for Body Surface Area
Dose Driven IV-Drip Rate Calculator
Epidural Formulation Compounding Calculator
Epoprostenol (Flolan) Infusion Rate Calculator
Estimated Blood Volume
Estimated Date of Delivery (EDD) Pregnancy Calculator
False Negative Rate from Sensitivity and Prevalence
False Negative Ratio from Sensitivity and Prevalence
False Positive Rate from Specificty and Prevalence
False Positive Ratio from Specificity and Prevalence
Fractional Excretion of Amylase (Amylase to creatinine clearance ratio)
Fractional Excretion of Sodium (SI units)
Fractional Excretion of Sodium
Fractional Excretion of Urate
Friedewald Equation for Low Density Lipoprotein (LDL)
Friedewald Equation for Low Density Lipoprotein (LDL, SI units)
Functional Residual Capacity
Gentamicin Dosing q24hr
Gentamicin Dosing to Produce Desired Peak and Trough Levels
Gentamicin Level Prediction from Maintenance Dosing
Gentamicin Steady State Dosage Adjustment
Gestational Age from Estimated Date of Delivery (EDD)
Glomerular Filtration Rate Estimate by Quadratic Equation
Glomerular Filtration Rate Estimate by Schwartz Formula
Glomerular Filtration Rate Estimate by the Abbreviated MDRD Study Equation (SI units)
Glomerular Filtration Rate Estimate by the Abbreviated MDRD Study Equation
Glomerular Filtration Rate Estimate by the MDRD Equation (SI units)
Glomerular Filtration Rate Estimate by the MDRD Equation
Gorlin Formula for Valve Area
Height for Age Percentiles for Boys (2 - 20 years)
Height for Age Percentiles for Girls (2 - 20 years)
Height Potential Prediction by Mid-parental Height
Hemoglobin A1C Estimation from Mean Plasma Glucose
Hemoglobin A1C to Mean Plasma Glucose Estimation
Henderson-Hasselbach Equation
Hepatitis C Fibrosis Prediction Score
HOMA Formula: Homeostasis Model Assessment of Insulin Resistance
Housestaff Activity Index
Hyponatremia Correction Infusate Rate
Ideal Body Weight Percentage
Ideal Body Weight
IME Adjusted Ratio for Medical Education Medicare Payments to Teaching Hospitals
In-Flight PaO2 Estimation (using PFT's)
In-Flight PaO2 Estimation
Infant Head Circumference for Age Percentiles (< 36 months)
Infant Length for Age Percentiles (< 36 months)
Infant Weight for Age Percentiles (< 36 months)
Infant Weight for Length Percentiles (< 36 months)
Inspiratory Capacity
International Normalized Ratio of Prothrombin Time (INR)
Iron Replacement (parenteral dosing) for Iron Deficiency
IV Drip Maintenance Rate Calculator
Kappa Measurement of Inter-observer Agreement MultiCalc®
Kappa Measurement of Inter-observer Agreement: Bennett's Kappa
Kappa Measurement of Inter-observer Agreement: Cohen's Kappa
Kappa Measurement of Inter-observer Agreement: Scott's Kappa
Kt/V Dialysis Dose Barth Formula
Kt/V Dialysis Dose Basile Formula
Kt/V Dialysis Dose Daugirdas Formula
Kt/V Dialysis Dose Formulae MultiCalc®
Kt/V Dialysis Dose Jindal Formula
Kt/V Dialysis Dose Kerr Formula
Kt/V Dialysis Dose Keshaviah Formula
Kt/V Dialysis Dose Lowrie Formula
Lean Body Weight (Female)
Lean Body Weight (Male)
Lean Body Weight Based on Creatinine Production
Likelihood Ratio MultiCalc®
Likelihood Ratio of Negative from Raw Data
Likelihood Ratio of Positive from Raw Data
Lung Age Estimation for Smoking Cessation Counseling
Lung Volume Multicalc®
Maintenance Fluid Calculation for Children
Mean Corpuscular Hemoglobin Concentration
Mean Corpuscular Hemoglobin
Mean Corpuscular Volume
Mean Vascular Pressure (systemic or pulmonary)
MELD Score for End-Stage Liver Disease (NOT appropriate for patients under the age of 12)
MELDNa Score for End-Stage Liver Disease (NOT appropriate for patients under the age of 12)
Nasal Canula Oxygen Fractional Inspired O2 (FIO2) Estimate
Negative Predictive Value from Raw Data
Negative Predictive Value of a Test
Normal Range for Body Weight
Number Needed to Harm (NNH) from Odds Ratio (OR) and Patient Expected Event Rate (PEER)
Number Needed to Treat (NNT) from Odds Ratio (OR) and Patient Expected Event Rate (PEER)
Odds from Probability

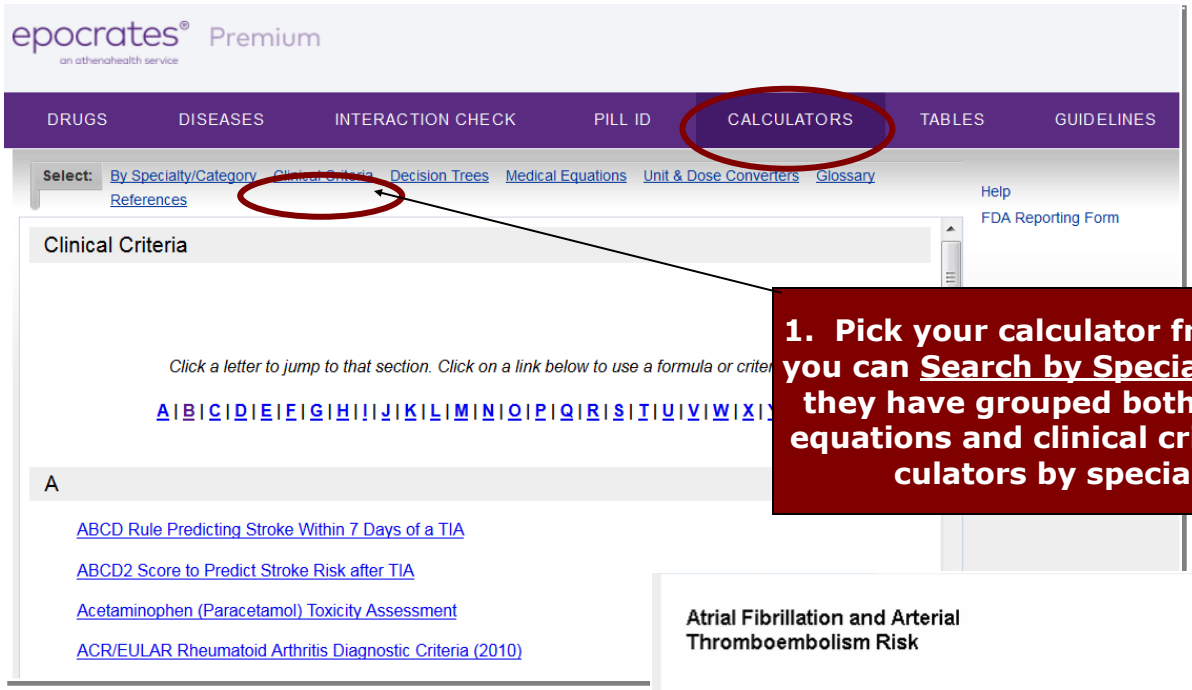
Epocrates Online and Dynamed Plus MedCalc Medical Equation Calculators

Odds Ratio and Relative Risk
Osmolal Gap Calculator (SI units)
Osmolal Gap Calculator
Osmolality Estimator (serum)
Osmolar Clearance
Overall Accuracy of a Test from Raw Data
Overall Accuracy of a Test from Sensitivity, Specificity and Prevalence
Oxygen Consumption
Oxygen Content of Arterial Blood
Oxygen Content of Venous Blood
Oxygenation Index (OI)
paO2 / FIO2 Ratio (for MODS Calculation)
PaO2 Correction for FIO2
Peak Expiratory Flow Prediction
Peak Expiratory Flow Variability in Asthma
PELD Score for End-Stage Liver Disease (patients less than 12 years old)
PFT Adjusted Predicted Values for Men MultiCalc®
PFT Adjusted Predicted Values for Women MultiCalc®
PFT Predicted Values for Boys MultiCalc®
PFT Predicted Values for Girls MultiCalc®
PFT Predicted Values for Men MultiCalc®
PFT Predicted Values for Women MultiCalc®
Phenytoin Free (Unbound) Drug Level (Adjusted for Hypoalbuminemia)
Phenytoin Total Drug Level (Adjusted for Hypoalbuminemia and Renal Function)
Pneumothorax Degree of Collapse
Positive Predictive Value from Raw Data
Positive Predictive Value of a Test
Post Test Odds from Pre Test Odds and Likelihood Ratio MultiCalc®
Post Test Odds of a Negative from Raw Data
Post Test Odds of a Negative Result from Sensitivity Specificity and Prevalence
Post Test Odds of a Positive from Raw Data
Post Test Odds of a Positive Result from Sensitivity Specificity and Prevalence
Post Test Probability from Likelihood Ratios and Multiple Test Results
Post Test Probability from Pre Test Probability, Sensitivity and Specificity
Pre Test Odds from Prevalence
Pre Test Odds from Raw Data
Pregnancy Gestation by LMP and Ultrasound Biometry
Pressure Adjusted Heart Rate (For MODS calculation)
Prevalence of a Finding or Disease from Test Data
Probability from Odds
Protein Bound Calcium
Protein Catabolic Rate (normalized PCR)
Protein Catabolic Rate
Pulmonary Vascular Resistance
Pulse Pressure Variation (percentage)
QT Interval Correction (EKG)
QUICKI Formula for Insulin Resistance
Red Blood Cell Volume by Radionucleotide Dilution
Renal Failure Index
Residual Renal Function in Hemodialysis Patients (Kru)
Residual Volume to Total Lung Capacity Ratio
Respiratory Quotient
Reticulocyte Production Index
Right to Left Shunt Fraction Qs/Qt
Risk Increase / Number Needed to Harm Multicalc®
Risk Reduction / Number Needed to Treat Multicalc®
Sensitivity of a Test
Serum Sodium Concentration Change Considering Infused and Excreted Cations
Sodium Change in Hyperlipidemeia
Sodium Change in Hyperproteinemia
Sodium Correction in Hyperglycemia
Sodium Deficit in Hyponatremia
Specificity of a Test
Stool Osmolal Gap
Survey Sample Size with Population Correction
Survey Sample Size
Systemic Vascular Resistance
Systolic Pressure Variation (percentage)
Time Averaged Concentration of Urea in Hemodialysis
TIPS Risk predictor / Survival predictor (Transjugular Intrahepatic Portosystemic Shunt)
Tobramycin Dosing to Produce Desired Peak and Trough Levels
Tobramycin Level Prediction from Maintenance Dosing
Tobramycin Steady State Dosage Adjustment
Total Body Water (BIA formula)
Total Body Water Estimation Based on Weight Alone
Total Body Water in Men (Humes-Weyer formula)
Total Body Water in Men (Johansson formula)
Total Body Water in Men (Lee formula)
Total Body Water in Men (Watson formula)
Total Body Water in Women (Humes-Weyer formula)
Total Body Water in Women (Johansson formula)
Total Body Water in Women (Lee formula)
Total Body Water in Women (Watson formula)
Total Daily Energy Requirement Estimate
Total Lung Capacity
Transferrin Saturation
Transtubular Potassium Gradient at CCD
True Negative Ratio from Specificity and Prevalence
Urea Reduction Percentage in Hemodialysis (PRU)
Urea Reduction Ratio in Hemodialysis (URR)
Urinary Protein Excretion Estimation
Vancomycin Dosing to Produce Desired Peak and Trough Levels
Vancomycin Level Prediction from Maintenance Dosing
Vancomycin Steady State Dosage Adjustment
Ventilation Index
Very Low Density Lipoprotein (VLDL)
Vital Capacity
Volume of Distribution of Urea
Water Deficit in Hypernatremia
Weight Based Dosage Calculator
Weight for Age Percentiles for Boys (2-20 years)
Weight for Age Percentiles for Girls (2-20 years)
Weight for Height Percentiles for Boys (77-121 cm tall)
Weight for Height Percentiles for Girls (77-121 cm tall)
WHO Assessment of Malnutrition in Boys 0 to 2 Years Old
WHO Assessment of Malnutrition in Boys 2 to 5 years Old
WHO Assessment of Malnutrition in Girls 0 to 2 Years Old
WHO Assessment of Malnutrition in Girls 2 to 5 years Old
Winter's Formula for Expected PCO2
Z Score to Percentile Estimation

Consider highlighting calculators that might be useful to you

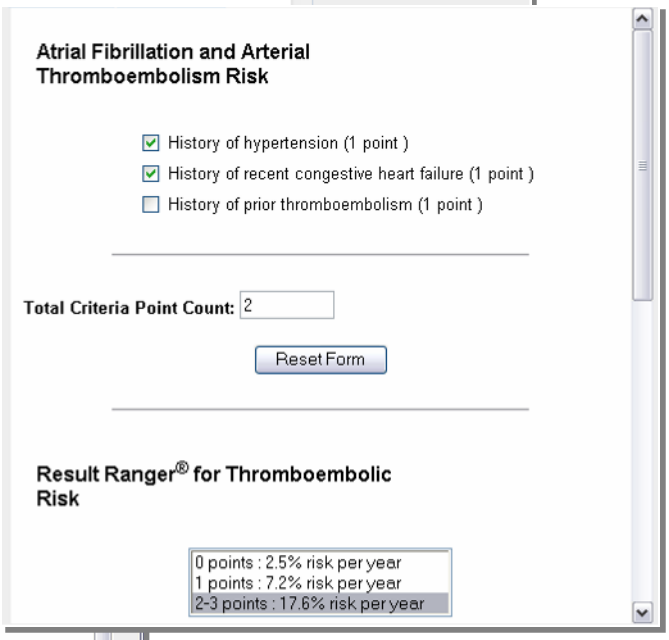
Epocrates, Dynamed Plus and UTD— EBMcalc Clinical Criteria Calculators

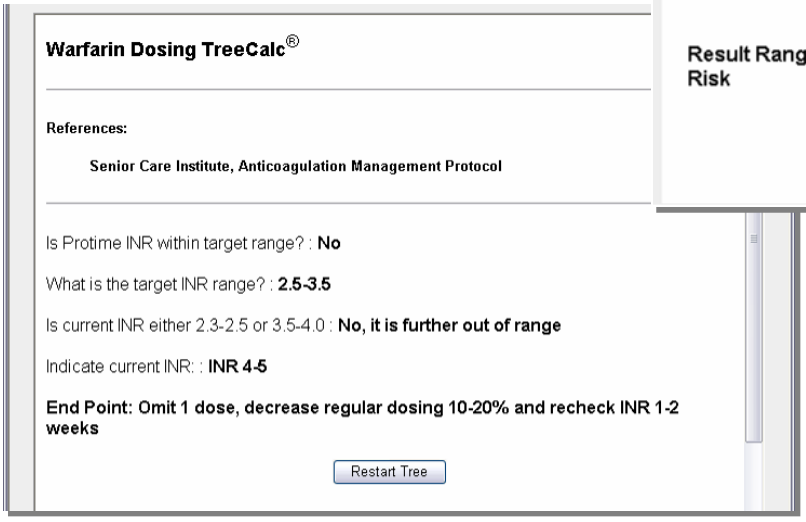
The EBMcalc Clinical Criteria Calculators include diagnostic, risk, and other decision support calculators based on criteria and numbers. The full list of these follows on the next page.



1. Pick your calculator from list or you can Search by Specialty where they have grouped both medical equations and clinical criteria calculators by specialty.

Examples presented here are the Atrial Fibrillation and Arterial Thromboembolism Risk calculator at right, and the Warfarin Dosing Tree Calculator below.





Exercise for Practice
A 40 year old woman has just had a mastectomy. She had a grade 1 tumor, no lymph nodes and no lymphatic or vascular invasion. What is her Breast Cancer Recurrence risk?

Epocrates Online and Dynamed Plus— MedCalc Clinical Criteria Calculators

Acetaminophen (Paracetamol) Toxicity Assessment
Activity Score for Nursing Home Patients
AIDS Progression Estimate While on Anti Viral Rx
Alcoholic Liver Disease Combined Index (Clinical and Laboratory -- CCLI) Criteria for One Year Mortality Prognosis
Alcoholic Liver Disease: Criteria for One Year Mortality Prognosis
Androgen Deficiency in Aging Males (ADAM) Screener
Anthrax Screening for Exposed Patients TreeCalc®
Aortic Stenosis and Valve Replacement Prediction TreeCalc®
APACHE II Scoring System and Mortality Estimates (Acute Physiology and Chronic Health Disease Classification System II)
APACHE II Scoring System by Diagnosis
Apgar Score
Arterial Blood Gas Interpretation TreeCalc®
Asthma Hospitalization One Year Risk TreeCalc®
Atrial Fibrillation and Arterial Thromboembolism Risk
Atrial Fibrillation CHADS(2) Score for Stroke Risk
Atrial Fibrillation Five Year Risk of Stroke or Death
Atrial Fibrillation Five Year Risk of Stroke
Autoimmune Hepatitis Diagnostic Criteria
Bacterial Meningitis Score for Children
Barrett Esophagus Progression Risk TreeCalc®
Behcet's Syndrome International Study Group Criteria
Behcet's Syndrome Japanese Ministry of Health and Welfare Criteria
Benign Positional Vertigo Decision TreeCalc®
Bleeding Risk (any bleeding complication) on Warfarin Therapy
Bleeding Risk (major complication) on Warfarin Therapy
Bleeding Risk Index for Warfarin Therapy
BODE Index for COPD Survival Prediction
Bowel Obstruction Diagnosis: Utility of X-ray
Breast Cancer Recurrence Risk After Mastectomy (simple)
Canadian Head CT Rule for Minor Head Injury
Cardiac Risk Index for AAA Surgery (Lee)
Cardiac Risk Index for Abdominal Surgery (Lee)
Cardiac Risk Index for Non-AAA Vascular Surgery (Lee)
Cardiac Risk Index for Orthopedic Surgery (Lee)
Cardiac Risk Index for Thoracic Surgery (Lee)
Cardiac Risk Index in Noncardiac Surgery (Detsky et. al.)
Cardiac Risk Index in Noncardiac Surgery (Goldman, et. al.)
Cardiac Surgery Risk Assesment Scale (UPMC Shadyside Hospital, 2002)
Carpal Tunnel Syndrome Bivariate Decision TreeCalc®
Carpal Tunnel Syndrome Multivariate Decision TreeCalc®
Cesarean Section Delivery Probability Among Nulliparous Women TreeCalc®
Cesarean Section Delivery Probability Among Parous Women TreeCalc®
Child Turcotte Pugh Classification for Severity of Liver Disease (SI units)
Child Turcotte Pugh Classification for Severity of Liver Disease
Chronic Fatigue Syndrome Diagnostic Criteria
CIWA-Ar Clinical Institute Withdrawal Assessment for Alcohol Scale
Clock Drawing Task (Cognitive Impairment Screening)
Cognitive Impairment Screening with 6 Questions
Community-Acquired Pneumonia Severity Index (PSI) for Adults
Conjunctivitis Agent Prediction (bacterial or other)
CURB Pneumonia Severity Score
CURB-65 Pneumonia Severity Score
Depression (any) Screening by a Two Item PHQ-2
Depression (major) Screening by a Two Item PHQ-2
Diabetes Risk Score (Type 2)
Diabetes Screening TreeCalc®
Diabetes Type Predictor TreeCalc®
DVT Probability: Ambulatory Score System (Constans, 2003 paper)
DVT Probability: Kahn Score System
DVT Probability: St. Andre Score System
DVT Probability: Wells Score System
Ectopic Pregnancy Risk Estimation TreeCalc®
Ehlers-Danlos Syndrome IV (vascular type) Diagnostic Criteria
ELBW Infant Prognosis Prediction
Endocarditis Diagnostic Criteria -- Duke Criteria
Epworth Sleepiness Scale (ESS)
Esophageal Varices: Prediction from Platelet Count to Spleen Diameter Ratio
EuroSCORE for Cardiac Surgery Risk Assessment (additive version)
Fall Risk in Elderly Hospitalized Patients
Fear Avoidance Beliefs Questionaire (FABQ) about Physical Activity
Fear Avoidance Beliefs Questionaire (FABQ) about Work
Fracture Index WITH known Bone Mineral Density (BMD)
Fracture Index WITHOUT known Bone Mineral Density (BMD)
Framingham 10 Year Coronary Risk Prediction by LDL (1998 paper)
Framingham 10 Year Coronary Risk Prediction by Total Cholesterol (1998 paper)
Framingham 10 Year Risk of General Cardiovascular Disease (2008 paper)
Gail Model for 5 Year Risk of Breast Cancer (1999 paper)
Gail Model for 5 Year Risk of Breast Cancer in Black Women (2007)
Gail Model for Predicting Individual Breast Cancer Risk (1989 Paper)
Geriatric Depression 1 Item Screener
Geriatric Depression 4 Item Scale
Geriatric Depression Scale
Glasgow Coma Scale
GRACE Score for Acute Coronary Syndrome Prognosis
Gurd's Diagnostic Criteria for Fat Embolism Syndrome
Hepatitis C Cirrhosis Probability
Hepatitis C Outcome TreeCalc®
Hepatitis Discriminant Function for Corticosteroid Rx in Alcoholic Hepatitis
Inferior Wall M.I. in Vector and Scalar Electrocardiography
Inferior Wall Myocardial Infarction Diagnosis TreeCalc®
Influenza Diagnosis and Treatment TreeCalc®
Intracranial Bleeding Risk from Thrombolytic Therapy of MI
Irritable Bowel Syndrome Diagnostic Criteria (Manning Criteria)
Jones Criteria for Diagnosis of Rheumatic Fever
Kawasaki Disease Diagnostic Criteria
Left Atrial Thrombus Resolution in Mitral Stenosis Patients on Anticoagulation (for up to 34 months)
Left Bundle Branch Block in Vector and Scalar Electrocardiography
Left Ventricular Capture Loss in Resynchronization Biventricular Pacing TreeCalc®
Left Ventricular Hypertrophy in Vector and Scalar Electrocardiography
Low Back Pain Evaluation TreeCalc®
Lower GI Bleeding and Risk of Severe Bleeding
Lung Cancer One Year Risk Estimation (for smokers 50-75 years old)
M.I. Criteria for Likelyhood in Chest Pain with LBBB
M.I. Prediction Decision TreeCalc®
MEDS Score: Mortality in ER Sepsis
Metabolic Syndrome Criteria (AACE 2003)
Metabolic Syndrome Criteria (AHA/NHLBI 2005))
Metabolic Syndrome Criteria (ATP III)
Metabolic Syndrome Criteria (EGIR)
Metabolic Syndrome Criteria (IDF 2005)
Metabolic Syndrome Criteria (WHO 1998)
Migraine Screener
Migraine With Aura Diagnostic Criteria
Migraine Without Aura Diagnostic Criteria
MODS Score: Multiple Organ Dysfunction
Mortality After Hospitalization in Older Adults (SI units)
Mortality After Hospitalization in Older Adults
Multiple Myeloma Diagnostic Criteria
Mycoplasma Pneumoniae Prediction TreeCalc®
Mycoplasma Pneumoniae Prediction in Children with Pneumonia
Myelodysplastic Syndrome International Prognostic Scoring System
NASH Fibrosis Risk (Nonalcoholic Steatohepatitis) TreeCalc®
Neurofibomatosis Type 2 Diagnostic Criteria (1987 NIH)
Neurofibomatosis Type 2 Diagnostic Criteria (1991 NIH)
Neurofibromatosis Type 1 Diagnostic Criteria
New Orleans Head CT Criteria
Newborn Hyperbilirubinemia Assessment

Epocrates Online and Dynamed Plus— MedCalc Clinical Criteria Calculators

NIH Stroke Score
Non Q Wave Myocardial Infarction Prediction
Nonbiliary Cirrhosis Prognostic Criteria for One Year Survival
Norton Scale to Stratify Risk of Pressure Sores
Obesity Management Guidelines, National Institutes of Health / NHLBI TreeCalc®
Omeprazole Therapeutic Gain (over placebo) in Dyspepsia
Omeprazole Therapeutic Index in Dyspepsia
Osteoporosis Risk Assessment by Composite Linear Estimate (ORACLE score)
Osteoporosis Risk Assessment Index (ORAI)
Osteoporosis Risk SCORE (Simple Calculated Osteoporosis Risk Estimation)
Osteoporosis Self Assessment Tool for Men
Osteoporosis Self Assessment Tool for Women
Oswestry Disability Index Version 1
Oswestry Disability Index Version 2
Ottawa Ankle Rule for the Use of X-Ray in Ankle Injury
Ottawa Foot Rule for the Use of X-Ray in Foot Injury
Ottawa Knee Rule for use of X Ray in Knee Injury
Pacer Need After Heart Valve Surgery
Palliative Prognostic Score in Terminal Illness
Pancreatitis Prognosis Criteria When Disease Due To Gallstones
Pancreatitis Prognosis Criteria
Panic Disorder Screener
Perioperative Cardiac Evaluation TreeCalc®
Pittsburgh Knee Rule for X-Ray Evaluation of Knee Injury TreeCalc®
Pneumonia Mortality in Nursing Home Patients by Logistic Regression
Pneumonia Mortality Prediction in Nursing Home Patients (SI Units)
Pneumonia Mortality Prediction in Nursing Home Patients
Pneumonia Mortality Predictor In the Elderly
Pneumonia Probability in Nursing Home Patients
Pneumonia Risk in Post Operative Period of Non-Cardiac Surgery
Polycythemia Vera Diagnostic Criteria
POSSUM Score for Orthopedic Procedure Prognosis (SI Units)
POSSUM Score for Orthopedic Procedure Prognosis
PROCAM Risk Score (Munster Heart Study imperial units)
PROCAM Risk Score (Munster Heart Study)
Prostatism Symptom Score
PTCA Complication Prediction Score (death, MI, urgent bypass)
PTCA Mortality Prediction
Pulmonary Embolism Risk by Pisa Study (with chest x-ray)
Pulmonary Embolism Risk by Pisa Study (without chest x-ray)
Pulmonary Embolism Wells Score
Pulmonary Fibrosis Survival Prediction (CRP Score for abbreviated model)
Pulmonary Fibrosis Survival Prediction (CRP score for complete model)
Rabies Post Exposure Prophylaxis (PEP) TreeCalc®
Renal Artery Stenosis Prediction Rule
Respiratory Failure Risk in Post Operative Period of Non-Cardiac Surgery
Rheumatoid Arthritis Clinical Disease Activity Index CDAI
Rheumatoid Arthritis Criteria (1987 revision, American Rheumatism Association)
Rheumatoid Arthritis Disease Activity Score DAS-28
Rheumatoid Arthritis Simplified Disease Activity Index SDAI
Roland-Morris Disability Score
Romhilt-Estes Criteria for Left Ventricular Hypertrophy
Rotator Cuff Tear Diagnosis
SARS (Severe Acute Respiratory Distress Syndrome) CDC Case Definition (4/20/2003) TreeCalc®
SARS Prognosis Predictor (basic parameters)
SARS Prognosis Predictor (with lab and x-ray parameters)
Septic Arthritis Prediction in Pediatric Hip Pain Syndrome
Smallpox Risk Assesment (CDC version 1.0, 2002) TreeCalc®
Smoking Cessation and Intervention TreeCalc®
Solitary Pulmonary Nodule Malignancy Risk
Sore Throat (Pharyngitis) Evaluation and Strep Prediction (Attia)
Sore Throat (Pharyngitis) Evaluation and Treatment Criteria (McIsaac)
Spinal Manipulation Success Prediction for Low Back Pain
Stage III Pressure Ulcer TreeCalc®
Stage IV Pressure Ulcer TreeCalc®
Stress Test Outcome Risk Factors
Stroke Recovery Prediction
Stroke Risk in Diabetes Type 2 UKPDS 60
Stroke Risk in Patients 55-84 Years Old (Framingham data)
Suggested Management of Patients with Raised Lipid Levels TreeCalc®
Syncope Risk Prediction
Systemic Lupus Erythematosis American Rheumatism Association 11 Criteria
Systolic Murmur Significance Probability
Thrombolysis in Myocardial Infarction (TIMI) Score for ST Elevation Acute Myocardial Infarction
Thrombolysis in Myocardial Infarction (TIMI) Score for Unstable Angina Non ST Elevation Myocardial Infarction
Thyroid Disease Screening for Females More Than 50 Years Old TreeCalc®
TIA Prognosis: Risk of Stroke by 90 Days After Presentation
Tuberculosis Risk Prediction
Unstable Angina and Tirofiban Benefit Prediction
Unstable Angina Outcome Prediction
Unstable Angina Risk Stratification (Piombo)
Unstable Angina Risk Stratification (Solomon)
Vector and Scalar Electrocardiography
Venous Leg Ulcer Healing Prediction
Warfarin Dosing Nomogram for 10 mg Initiation (Crowther) TreeCalc®
Warfarin Dosing Nomogram for 10 mg Initiation (Kovacs) TreeCalc®
Warfarin Dosing Nomogram for 5 mg Initiation (Crowther) TreeCalc®
Warfarin Dosing TreeCalc®
Warfarin Weekly Dose Estimate in Non-rheumatic A-fib
Waterlow Scale for Stratification of Pressure Sore Risk

Clinical Rules, Decision Trees or Criteria Calculators

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.

Essential Evidence Plus (EE+) Online and Mobile

The complete EE+ database is available on either the web, desktop or the Mobile versions. EE+ 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 (Calculators)

More than 225 calculators 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.

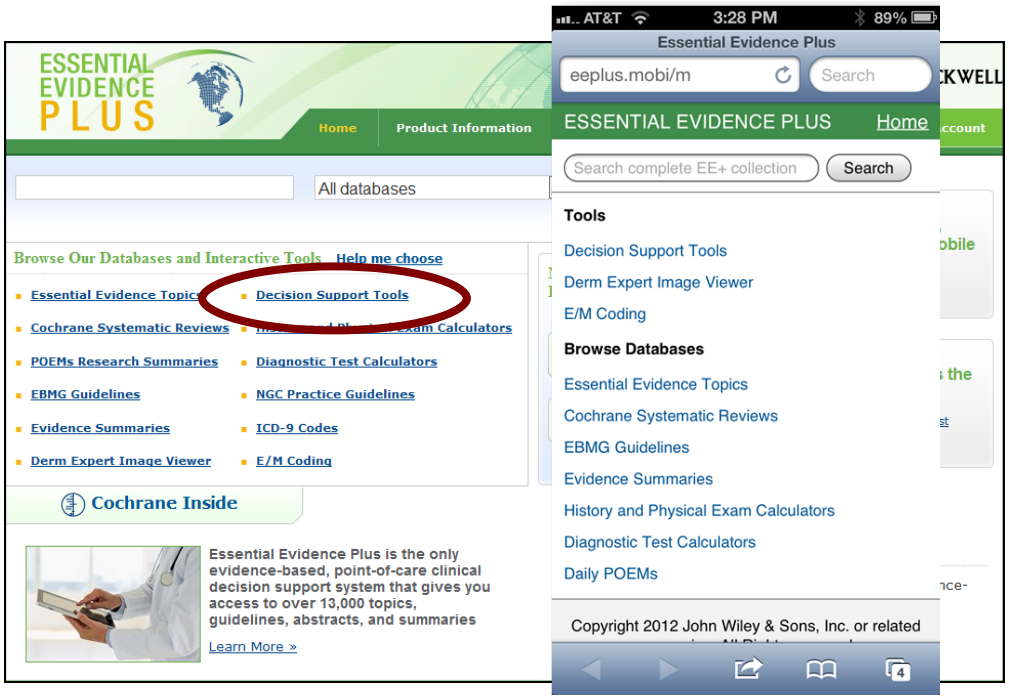
From http://www.infopoems.com/support/ProductManual/IR_Databases.pdf

Finding the Decision Support Tools

Online, the index of Clinical Rules and Calculators is found under Browse Our Databases and Interactive Tools on the main page. You must then drill down to find the calculator you want by system.

On a mobile device, follow the same link to Decision Support Tools. Click on any category to expand it to show all the calculators in that category.

See a list of the decision support tools (calculators) in EE+ on the next several pages.



EE+ Clinical Rules and Calculators

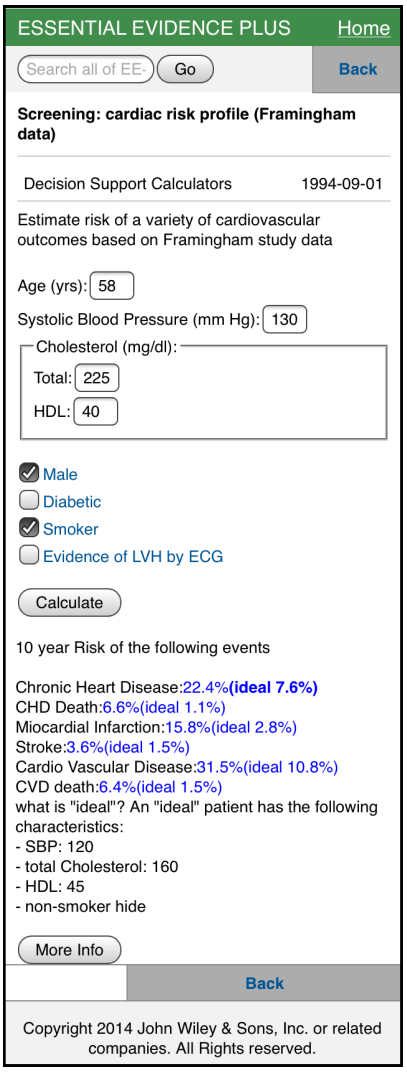
CV: Acute MI/unstable angina
6 month ACS mortality (GRACE score)
ACI-TIPI risk score
ACS - prob of successful medical tx
Acute MI diagnosis (Goldman algorithm)
Intracranial hemorrhage risk w/ thrombolysis
Invasive vs conservative management
Mortality in ST elevation AMI
Probability of normal LVEF
Prognosis based on initial ECG
Prognosis in non-ST elevation AMI (TIMI)
Prognosis in ST elevation AMI (TIMI)
Risk of death in AMI
Tirofiban benefit in unstable angina/ NQWMI
Unstable angina prognosis (Piombo)

CV: Angioplasty
Angioplasty complication rate (Bates)
Angioplasty complication rate (CADILLAC)
Angioplasty complication rate (Kimmel)
Angioplasty complication rate (Mayo)
Angioplasty complication rate (Resnic)
Angioplasty mortality (Michigan score)

CV: Chest pain and CAD
Antiplatelet therapy recommendations
Aortic thoracic artery dissection diagnosis
CAD mortality risk
Chest pain diagnosis in primary care (Bosner)
Chest pain risk stratification (modified TIMI)
Panic disorder among chest pain patients
Pretest probability of CAD (Diamond-Forrester)
Probability of complications requiring ICU care
Probability of left main CAD
Probability of significant CAD in outpatients
Risk of AMI with normal or near-normal ECG
Stress test interpretation (adenosine SPECT)
Treadmill interpretation (Duke score)

CV: DVT and PE
Bleeding risk on warfarin
DVT: clinical diagnosis
PE diagnosis (revised Geneva)
Pulmonary embolism diagnosis (Geneva)
Pulmonary embolism diagnosis (Hoellerich)
Pulmonary embolism diagnosis (Pisa)
Pulmonary embolism diagnosis (Wells)

CV: Heart failure
CHF prognosis (Killip class)
Framingham criteria for heart failure
Heart failure diagnosis with proBNP
Heart failure prognosis for inpatient (Fonarow)
Heart failure prognosis for inpatient (Lee)



Screening: cardiac risk profile (Framingham Data)
Useful tool to encourage patients to lower cholesterol, stop

Chest pain: probability of significant CAD in outpatients

CV: HTN, lipids, screening
Hypertension: renal artery stenosis diagnosis
Screening: cardiac risk profile (Framingham data)
Screening: NCEP ATP III lipid guideline

CV: Other
Atrial fibrillation risk (10 year)
PAOD diagnosis (Doppler)
Peripheral vascular disease prognosis
Return of spontaneous circulation after cardiac arrest (RACA)

CV: Pre-op evaluation
AAA surgery mortality risk
Atrial fib risk post-op CABG
CABG risk score
Implantable cardioverter-defibrillator risk score
Non-cardiac surgery risk (Detsky score)
Post-operative pneumonia risk
Post-operative prognosis (Surgical Apgar)
Pre-op evaluation (ACC/AHA)
Prognosis after ortho surgery (POSSUM)
Ruptured AAA repair prognosis (Glasgow)
Simple cardiac risk score (Lee)
Vascular surgery risk

CV: Stroke, Aneurism, AVM
Acute stroke prognosis (6 variable score)
Acute stroke prognosis (early recovery)
Acute stroke prognosis (Wang 30 day score)
Acute stroke prognosis - 30 day (Wang)
Acute stroke prognosis - 6 mos (G-Score)
Brain AVM prognosis
Carotid endarterectomy prognosis
Cerebral aneurysm rupture risk
Hemorrhage after thrombolysis for CVA (HAT)
Intracranial hemorrhage prognosis
Ischemic vs hemorrhagic stroke (Besson)
Ischemic vs hemorrhagic stroke (Efstathiou)
NIH stroke scale
Stroke diagnosis (Cincinnati Stroke Scale)
Stroke risk - atrial fib (Framingham)
Stroke risk - atrial fib (SPAF)
Stroke risk - atrial fib (vanWalraven)
Stroke risk - diabetics (UKPDS)
Stroke risk - next 5 yrs in elderly
Stroke risk after TIA (ABCD rule)
Stroke risk in atrial fib (CHADS-VASC)
Stroke risk with TIA (ABCD2)
TIA prognosis

CV: Valve and endocarditis
AV replacement in aortic stenosis
Endocarditis prognosis
Left atrial thrombi disappearance after commissurotomy
Pacing need after valve surgery

Drug dosing
ACE inhibitor cough risk

Adverse drug reaction risk in hospitalized elderly (GerontoNet Score)
Hydronephrosis in patients with acute kidney injury
Lithium dosing

Endocrinology
Bariatric surgery risk score
Basal energy requirements
BMI and body surface area calculator
Diabetes mellitus screening
Diabetes risk score
Diabetes risk score (Bang)
Diabetic foot ulcer risk
Hypercalcemia: probability of malignancy
Ideal body weight (adults)
Michigan Neuropathy Screening Instrument
Precocious puberty: need for brain imaging

Epidemiology
Diagnostic test calculator (LR and post-test probability)
Treatment calculator (NNT, RRR, and ARR)

Fluids/electrolytes
Anion gap
Pediatric IV fluid calculator
Serum osmolality calculator

Gastroenterology: GERD/dyspepsia
Dyspepsia: predicting response to omeprazole
Dyspepsia: probability of ulcer
GERD diagnosis (Manterola)
GERD diagnosis (Zimmerman)
GERD: Barretts prognosis

Gastroenterology: GI Bleed
GI bleed (lower): prognosis
GI bleed (upper): predicting need for intervention
GI bleed (upper): probability of persistent bleeding after injection
GI bleed: identification of low risk GI bleeds
GI bleed: inpatient mortality risk

Gastroenterology: Hepatic
Abnormal liver function work-up
Bleeding risk after hepatic resection
Cirrhosis: probability of varices
End stage liver disease prognosis
Fibrosis (severe) in NASH
Fibrosis probability (FIB4 index)
Hepatitis C: probability of cirrhosis
Hepatitis C: probability of fibrosis
Hepatitis C: prognosis
NASH in obese patients (HAIR score)
Probability of severe fibrosis in hepatitis C

Gastroenterology: Lower GI
Chronic constipation diagnosis
Diarrhea: need for cultures in nosocomial diarrhea
Mortality following colorectal surgery
Rome I Criteria for irritable bowel
Small bowel obstruction: need for surgery

Gastroenterology: Other
Abdominal pain diagnosis (men)
Appendicitis diagnosis (Alvarado score)
Appendicitis diagnosis (Ohmann)
Dehydration diagnosis (Gorelick)
Post-op nausea and vomiting

Gastroenterology: Pancreas
Acute pancreatitis: prognosis (Imrie score)
Acute pancreatitis: prognosis (Ranson score)
Pancreatitis prognosis (BALI model)

Gynecology and obstetrics
Apgar score
Cephalic version success
Diagnosis of polycystic ovarian syndrome
Edinburgh Postpartum Depression Scale (EPDS)
Induction of labor: Bishop score
Induction of labor: Dhall score
Pregnancy wheel
Probability of gestational diabetes
Probability of successful VBAC
Risk of ectopic pregnancy with 1st trimester pain or bleeding
Risk of malignancy index for ovarian cancer
Successful VBAC at 40-42 weeks
Urinary incontinence diagnosis

Hematology/Anticoagulation
Bleeding risk (HAS-BLED score)
Bleeding risk (HEMORR2HAGES)
Bleeding risk in elderly on warfarin at 90 days
Bleeding risk on warfarin
Bleeding risk on warfarin at 3 and 12 mos (OBRI)
Hemorrhage on warfarin in AF (ATRIA score)
Heparin dosing by weight
Risk of bleeding with warfarin treatment for DVT
Warfarin dose (elderly)
Warfarin dosing: adjustment
Warfarin dosing: initial
Warfarin initial dose (10 mg protocol)

Infectious disease
AIDS progression likelihood
Bacteremia risk (age 3 to 36 months)
Chagas Heart disease prognosis
Influenza diagnosis (adults)
Leprosy: predicting nerve function impairment
Lyme meningitis diagnosis (Rule of 7's)
Meningitis diagnosis children (Bacterial Meningitis Score)
Need for LP in children with meningeal signs
New head CT lesions in HIV patients
Orbital abscess in patients with periorbital infection
Rochester criteria - pediatric fever
Prognosis in pandemic infection
SARS diagnosis
Sepsis treatment (goal-directed therapy)
TB isolation decision-making (Wisnivesky)

Musculoskeletal: Diagnostic criteria
Ankylosing spondylitis diagnosis
Ankylosing spondylitis diagnosis (Gran)
Rheumatoid arthritis diagnostic criteria
SLE diagnostic criteria

Musculoskeletal: Need for imaging
Ankle injury: is x-ray needed (Ottawa)
C-spine radiography (NEXUS)
C-spine radiography rule (Canadian)
Foot injury: is x-ray needed (Ottawa)
Head CT after minor head injury (Canadian)
Head CT after minor head injury (New Orleans)
Knee injury: is x-ray needed (Ottawa)
TBI in children < 2 years: need for CT
TBI in children 2+ years: need for CT

Musculoskeletal: Osteoporosis
Fracture risk with steroid treatment
Hip fracture risk in women (FRACTURE)
Hip fracture risk in women (FRAMO)
Osteoporosis risk (men)
Osteoporosis screening (Dutch instrument)
Osteoporosis screening (NOF)
Osteoporosis screening (ORAI)
Osteoporosis screening (OST)
Osteoporosis screening (SCORE)

Musculoskeletal: Other
Back pain evaluation guideline
Benefit from spinal manipulation
Carpal tunnel: success of medical tx
Familial Mediterranean fever diagnosis
Fibromyalgia screening
Gout diagnosis
Knee surgery referral guide
Neck pain prognosis at 6 months
Netherlands rheumatoid arthritis score
PMR disease activity score
Rotator cuff diagnosis
Septic arthritis diagnosis
TMJ disorders diagnosis

Neurology
30 day syncope prognosis (San Francisco Rule)
Cognitive impairment screening (6 item screener)
Cognitive impairment screening (AD8)
Delirium probability in elderly inpatient
Delirium probability at discharge
Dementia screening (Time and Change test)
Driving competency screen for elderly (Clock test)
Glasgow Coma Score
Headache diagnosis in children
Intracerebral hemorrhage with IV alteplase (SITS)
Meningitis diagnosis children (Bacterial Meningitis Score)
Mental status screen (GOAL score)
Migraine screener
Mini-Cog
Need for mechnical ventilation in Guillan-Barre
Nontraumatic coma prognosis
Pediatric head injury prognosis
Probability of bad outcome in syncope
Status epilepticus prognosis

Oncology: Other
Overian cancer dx: M and B rules
Probability of cancer with unwanted weight loss

Oncology: Prognosis
Bladder cancer prognosis
Chronic lymphocytic leukemia prognosis
Colon cancer hepatic metastasis
Febrile neutropenia in CA risk score
Gastric cancer prognosis
Melanoma 10 year prognosis
Melanoma 2 and 5 year prognosis
Non-small cell lung cancer
Pancreatic neuroendocrine tumor prognosis
Post-op mortality for CRC surgery in elderly
Probability that prostate CA is indolent
Prostate CA: prognosis for abnl post-op PSA
Prostate cancer (d'Amici)
Prostate cancer (UCSF-CAPRA)
Prostate cancer - predicting histologically aggressive tumors
Renal cell CA prognosis (metastatic)
Spinal metastases
Spinal metastasis prognosis
Terminal lung cancer
Thyroid cancer 5 year

Oncology: Risk
Breast cancer (Gail model)
Esophageal cancer risk with dysphagia
Hepatic metastasis from CRC prognosis
Lung cancer
Ovarian cancer risk (Harvard)
Ovarian cancer risk (SEER)
Pancreatic cancer
Proximal colon cancer
Pulmonary nodule (PET + Swensen rule)
Pulmonary nodule (Swensen rule)

Overall mortality and screening
1 year mortality after discharge in elderly
10 year mortality for various conditions
4 year mortality in older adults
ACLS termination criteria
APACHE 2 score
BLS termination criteria
Charlson Comorbidity Index
Cooper Clinic Risk Index (15 yr mortality)
CPR prognosis (inpatient)
Exercise capacity by age
Height estimation from knee/heel measure
Hospital d/c prognosis for elderly
In-hospital mortality of elderly patients (MEWS)
Individualized screening guidelines (USPSTF)
Out-of-hospital CPR prognosis
Prognosis: Palliative Prognosis Score
Sepsis mortality risk

Perinatal and infant
Bilirubin prediction based on initial level
Difficult IV access in children (DIVA score)
Neonatal jaundice guideline (AAP)
Prognosis with LBW (500-999 gms)
Respiratory prognosis NICU (Richardson)
Serious bacterial infection risk
Severe bacterial infection 1 wk to 3 yrs (Lab Score)

Psychiatric and substance abuse
Adolescent substance abuse (CRAFFT)
Adult ADHD screener (WHO ASRS)
Alcohol withdrawal management
Alcoholic hepatitis prognosis (discriminant fxn)
Alcoholic hepatitis prognosis (Glasgow)
AUDIT-C (alcohol use disorder screen)
Bipolar disorder (Mood Disorder Questionnaire)
CAGE score (alcoholism screening)
Depression screening
Depression screening (PHQ-2)
Depression screening in elderly
Eating disorder likelihood
Generalized anxiety disorder diagnosis (GAD-2)
Generalized anxiety disorder diagnosis (GAD-7)
Panic disorder (single question)
Panic disorder (three question)
Perinatal depression
Risk of repeated self-harm or suicide
Social anxiety disorder diagnosis (Mini-SPIN)
Suicidal ideation risk
Which high users are somatizers

Renal disease
Acute renal failure diagnosis (FE-Na)
BPH symptom index (AUA)
Chronic kidney disease screening test
Creatinine clearance (MDRD 4 variable)
Creatinine clearance (MDRD 6 variable)
Creatinine clearance calculator
Dialysis prognosis
GFR estimation (quadratic equation)
Nephropathy risk with PCI
Probability of dialysis post-operatively
Renal lithiasis diagnosis (Elton)
Renal lithiasis diagnosis (Eskelinen)
UTI diagnosis
UTI diagnosis (Leibovici)
UTI diagnosis (McIsaac)
UTI diagnosis girls < 2 years

Respiratory disease: Asthma and COPD
Asthma relapse in adults
COPD diagnosis
COPD prognosis (BODE index)
Peak flow - normal values
Peds asthma - hospitalization risk

Respiratory disease: Bronchiolitis and croup
Bronchiolitis: need for hospitalization
Croup score (Syracuse)
RSV prognosis (pediatric)

Respiratory disease: Other
A-a gradient
ABG interpretation
Acute lung injury vs pulmonary edema diagnosis
Bacteremia risk in older patients with CAP
Hypersensitivity pneumonitis diagnosis
Inhalation anthrax diagnosis
Pleural effusion (Light's criteria)
Post-op likelihod of pneumonia
Post-op need for mechanical ventilation
Pulmonary fibrosis survival
Sleep apnea diagnosis
TB isolation decision-making (El-Solh)

Respiratory disease: Pneumonia
Diagnosis of pneumonia (Diehr)
Diagnosis of pneumonia (Heckerling)
Diagnosis of pneumonia (nursing home)
Diagnosis of pneumonia (Singal)
Hospitalization or death due to flu or pneumonia
Mycoplasm in children with pneumonia
Pneumonia in wheezing children
Pneumonia prognosis (CURB-65)
Pneumonia prognosis (Pneumonia Severity Index)
Pneumonia prognosis: mortality in elderly
Pneumonia prognosis: nursing home
Severe pneumonia probability (Spanish)

Respiratory disease: Upper respiratory disease
Sinusitis diagnosis (Berg)
Sinusitis diagnosis (Williams)
Strep diagnosis in sore throat
Strep score (pediatric)

Respiratory disease: Vent weaning
CROP index
Rapid Shallow Breathing score
Ventilation index

Skin disease
Necrotizing fasciitis diagnosis
Predicting pressure ulcer development with Braden Score
Venous leg ulcer healing

Surgery and trauma
Bowel obstruction diagnosis: need for x-ray
Burn injury prognosis
Burn injury prognosis (Belgian)
Clinically important brain injury 2-18 yrs (PECARN)
Common bile duct stone risk
Fall risk in assisted living
Fall risk in elderly
Hip fracture length of stay in NH
Hip fracture prognosis
Intimate partner violence screening (combined protocol)
Lap chole: probability of conversion
Need for massive transfusion in trauma
Pediatric appendicitis score
Peritonitis prognosis (Mannheim)
Prognosis in near drowning
Severe head injury prognosis
Spinal cord injury prognosis
Traumatic brain injury prognosis (Marshall CT score)
Traumatic wound infection risk

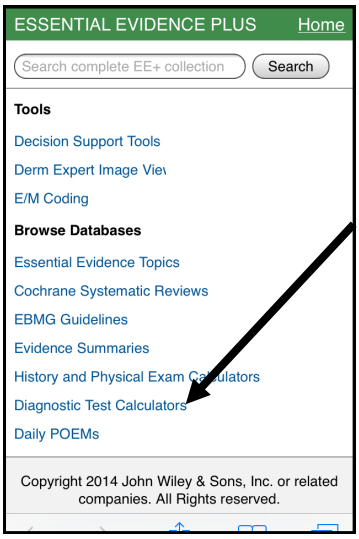
Diagnostic Test Calculators

Calculators of the clinical performance of a diagnostic test

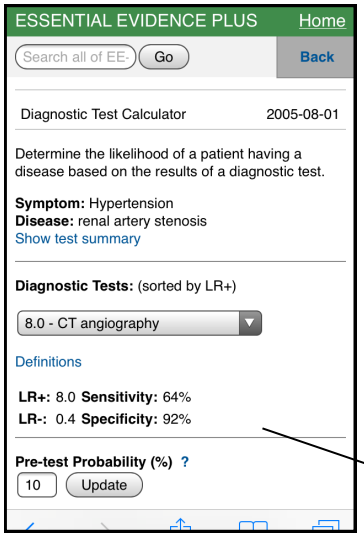
Purpose: To help clinicians choose the best diagnostic test and interpret the test results

Example: The calculator answers questions such as: What is the best test to rule out renal artery stenosis? (below) What is the likelihood of Trichomonal infection in women with Trichomonas on pap smear? What is the 10-year mortality risk for a patient who smokes and has hypertension?

Detailed Description: The tool offers test characteristics and an estimate of the probability of disease before doing the test. The calculator also outlines the probability of the disease based upon the results of test. Users can choose from one of several tests based on what is available and whether they are interested in ruling-in or ruling-out a disease. Additionally, users can change the probability of disease based upon a clinical decision rule or gestalt. This allows users to tailor test result interpretations to the clinical circumstances.

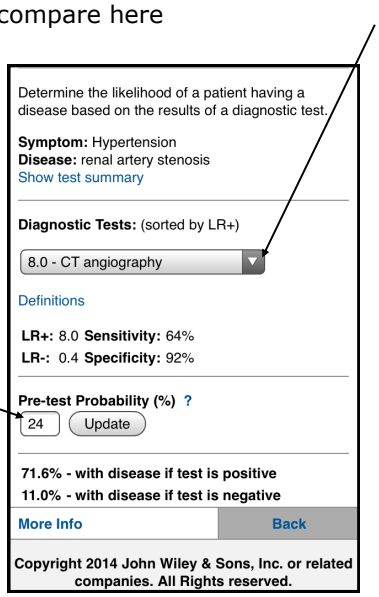


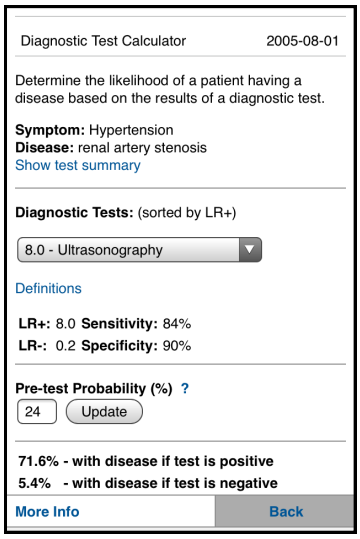
Go to **Diagnostic Test Calculators**, then find **Cardiovascular**, then **Hypertension > Renal Artery**



Hypertension: renal artery stenosis probability calculator

Change Pretest Probability to value etimated. Select test to compare here





Determine the Pretest probability of your patient having renal artery stenosis using the *Hypertension: renal artery stenosis diagnosis* clinical calculator. Using the *Hypertension -> Renal artery stenosis* diagnostic test calculator, compare Ultrasonography with CT Angiography for the best test with a patient with a 24% pretest probability of renal artery stenosis. Ultrasonography has the same positive predictive value and is noninvasive as well. Click **More Info** for references.

Definitions:

Pretest: Best estimate of percent with disease before any testing or probability based on calculation
Sensitivity: Percent with disease who have a positive test
Specificity: Percent without disease who have a negative test
LR: Likelihood ratio for each level of test. The higher it is, the better it rules -in disease. The lower it is, the better it rules it out.
LR+: Positive likelihood ratio (how well a positive test rules-in disease)
LR-: Negative likelihood ratio (how well a negative test rules-out disease)
LR = 1: No change in disease likelihood
Prob: Probability of disease for patients with this test result

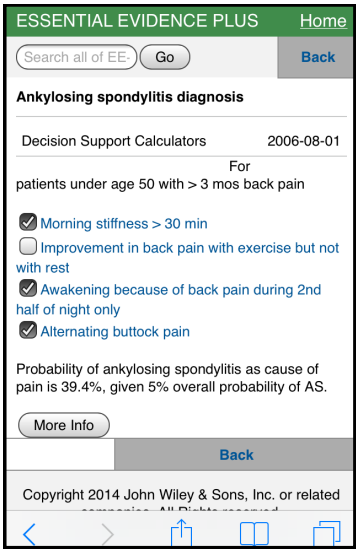
History and Physical Test Calculators

Calculates the value of various history or physical findings

Purpose: To support the clinical decision making of a clinician by offering information regarding the likelihood of patients having a disease based on information gathered during a history and physical evaluation

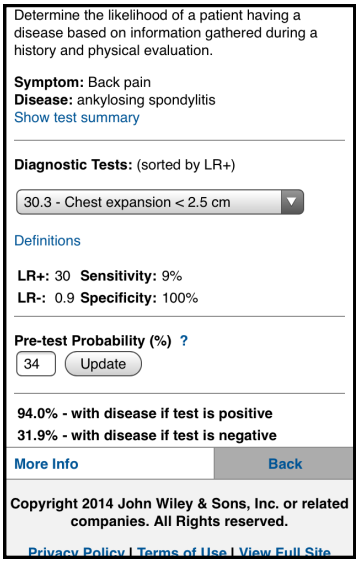
Example: What is the likelihood of strep throat in a patient with tonsillar exudates? In a patient with low back pain, what symptoms are indicators of ankylosing spondylitis? (Below)

Detailed Description: The calculator gives users the probability of the disease based upon the results of clinical evaluation before doing additional testing. Users can choose one of several elements of the history and physical. They can also change the probability of disease based upon a clinical decision rule or gestalt. This allows users to tailor interpretation of the clinical circumstances to decide if additional testing is worthwhile.

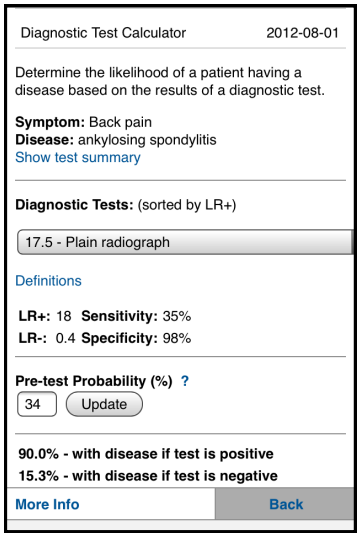


Use the Ankylosing Spondylitis calculator to determine pretest probability of AS.

On the main page select History and Physical DB
Pick Musculoskeletal, and find Back Pain > Ankylosing Spondylitis



Back pain -> ankylosing spondylitis



Back pain -> ankylosing spondylitis

Physical exam determining chest expansion of less that 2.5 cm is shown to be a 94% positive likelihood of ankylosing spondhlitis based on a 39% pretest probability calculated based on history. Drop down the list to see other findings and compare their positive predictive value.

Using the 94% likelihood based on the low chest expansion, you can then use the diagnostic test calculator to select the best test to order to confirm your diagnosis. (right). With a 94% pretest probability, x-ray has a positive predictive value of 94.5%,meaning that if the x-ray is positive, there is a 99.6 chance that the patient has ankylosing spondylitis.

Exercise for Practice
You suspect that a 45 year old man might have osteoarthritis. He has pain when he flexes his knee. Using the a Diagnosis History and Physical calculator, with a 70% pretest probability of osteoarthritis, what is the probability of him having osteoarthritis based on this finding?

Exercises for Practice

Essential Evidence Plus Clinical Rules and Calculators, Diagnostic test Calculators and History and Physical Exam Calculator

A 24 year old female comes to her doctor because one leg seems to be swollen while the other is not. She says that she has been in bed for several days with the flu, but otherwise has no other pertinent history. The doctor examines the patient and finds that she has pitting edema in the swollen leg, and the circumference of the calf is 4 cm larger than the unaffected leg.

IR Decision Support Calculators
A) Using a clinical decision rule, estimate the probability of DVT in her patient (Level 1a evidence). The DVT decision support calculator should give her clinical guidance depending on the outcome of the ultrasound and d-dimer, if indicated.

IR Diagnostic Test Calculator
B) If she desires more information on the accuracy of the ultrasound on this particular patient. Using the diagnostic test calculator for "DVT suspected (symptomatic) → DVT (all) (diagnostic test)" based on the pretest probability calculated above, determines the likelihood of DVT if the venous ultrasound is either positive or negative. Compare to d-dimer.

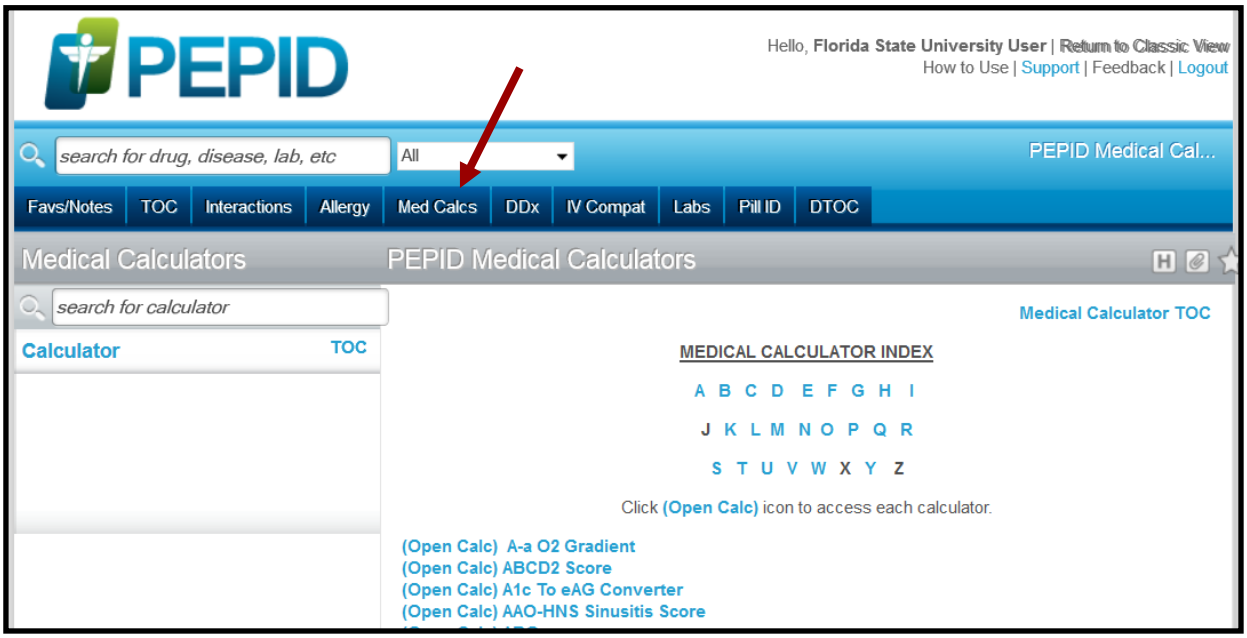
IR Diagnostic Test Calculator
C) Based on history and physical exam you suspect that a 25 year old man with positive hematuria has about a 50% chance of having kidney stones. (renal lithiasis) Using the Diagnostic test calculator, with a 50% pretest likelihood of stones, what is the better test to order, an IVP or a helical CT?

PEPID Calculators (Both Medical Calculators and Decision Support)

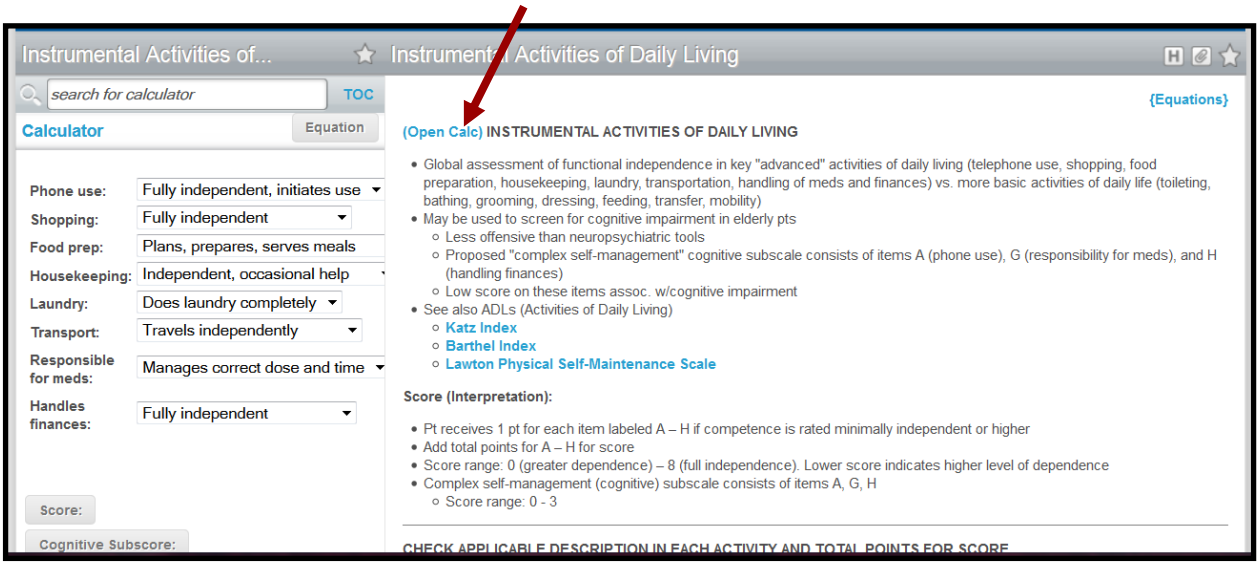
PEPID provides a comparable number and variety of calculators and decision support tools to Epocrates Online's MedCalc 3000. Unlike Epocrates, the tools are available in PEPID online and on the mobile device.

The calculator icon on the navigation toolbar will take you to the calculator alphabetical like on the web. Calculators appear individually in the PEPID index. There is also a link to the calculator index in the Table of Contents. The fastest way to find a calculator is to search for it in the Search box.

The calculators appear in the far left column on the Online version. Links are embedded into content in the right column. Below is the IADL content in the Geriatrics section of the resource. Note the (Open Calc) by the title. Click this to bring up the interactive calculator in the left column.



Included with each calculator is a description of the tool, with instructions for scoring and interpreting the calculation.



PEPID Calculators on the Mobile device

PEPID calculators on the Mobile device are accessed the same way as on the web, however, you are limited to one screen instead of three columns.

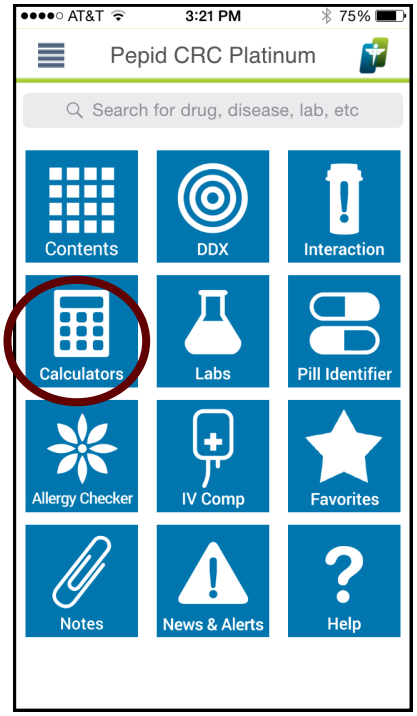
You can use the Table of Contents to look at calculators classified into categories.

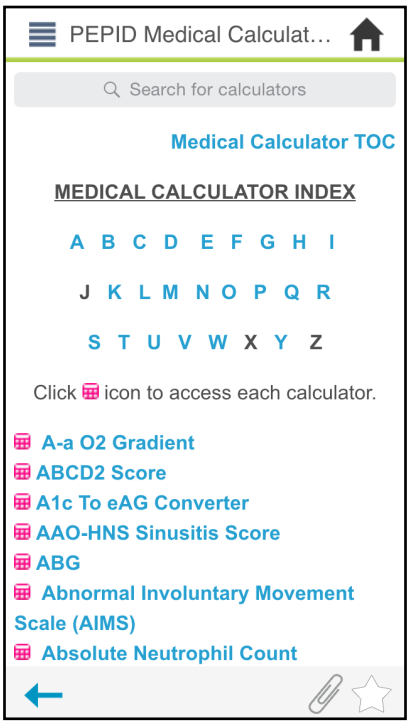
You can also click on the calculator icon on the navigation bar to jump to the alphabetical listing of all calculators.

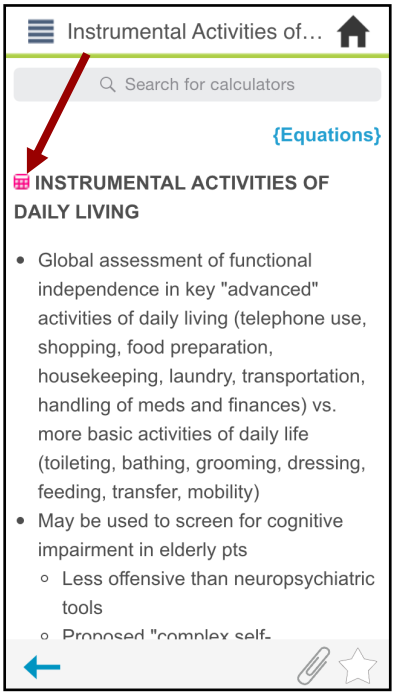
Below is the same IADL calculator as shown on the web version on the previous page.

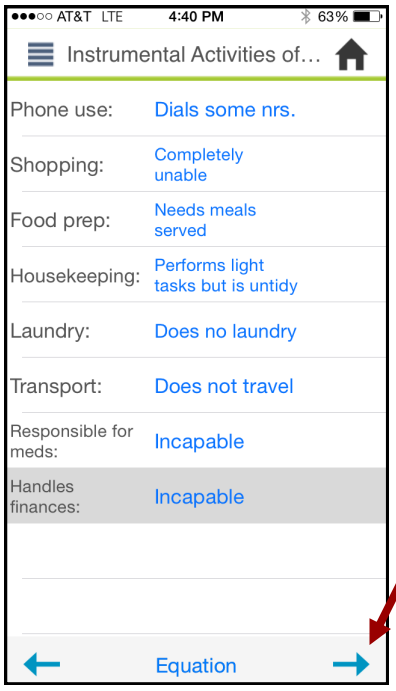
Click the little calculator icon to open the tool which will score your results.

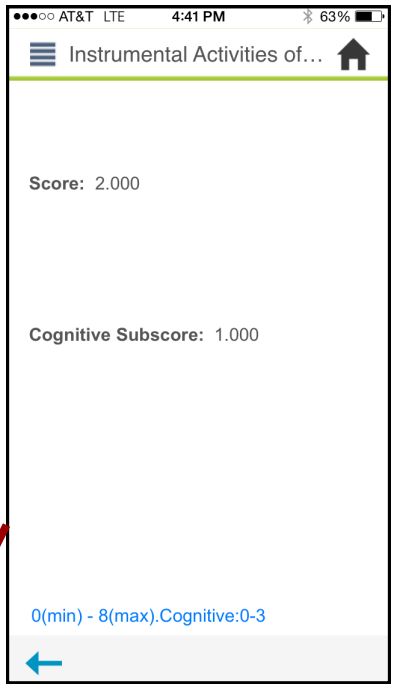
Images are from the iPhone version of PEPID.











PEPID Calculators

I. ANATOMIC

A. NEUROVASCULAR EQUATIONS
- Cerebral Perfusion Pressure
- See also NEUROLOGIC SCORES

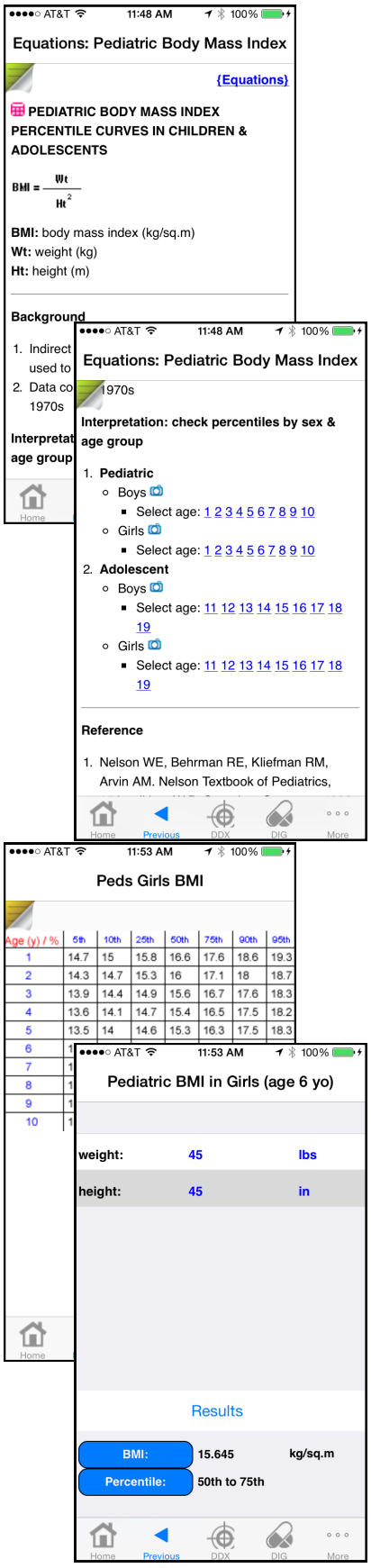
B. EYES, EARS, NOSE AND THROAT EQUATIONS
- Graves' Ophthalmopathy Clinical Activity Score
- Centor Criteria Score (Modified)

c. CARDIOVASCULAR EQUATIONS
- WORK INDEX
  - Cardiac Work Index
    - Left
    - Right
  - Ventricular Stroke Work Index
    - Left
    - Right
- VASCULAR RESISTANCE
  - Pulmo Vasc Resistance
  - Pulmo Vasc Resistance Index
  - Systemic Vasc Resistance
  - Systemic Vasc Resistance Index
- PRESSURES
  - Coronary Perfusion Pressure
  - Mean Arterial Pressure
  - Mean Pulmo Arterial Pressure
  - Pulse Pressure / Product
- OTHER
  - Cardiac Index
  - Cardiac Output:
    - Fick Equation
    - Physiologic
  - Coronary Heart Disease Risk Factor Score (Female)
  - Coronary Heart Disease Predictor Score (Male)
  - Duke Treadmill Score
  - Ejection Fraction
  - H.E.A.R.T. Score
  - Qs/Qt (Shunt, Fraction)
  - QT Interval Correction
  - Stroke Volume
  - Stroke Volume Index

D. INFECTION
- MEDS Score

E. RESPIRATORY EQUATIONS
- Asthma Severity Score
- Asthma Control Score (Adults)
- Asthma Score (Peds 4 - 11 yo)
- Capacities & Ventilations
- Centor Criteria Score(Modified)
- Oxygen Calculations
- PERC Score
- Westley Croup Score
- C.U.R.B. 65 Score
- C.A.T. Score

F. GASTROINTESTINAL
- Alvarado Acute Appendicitis Score
- BISAP Score
- Rockall GI bleeding Score
- Glasgow-Blatchford Upper GI Bleeding Score
- Glasgow Pancreatitis Prognostic Criteria
- Balthazar Pancreatitis CT Severity



H. CAPACITIES & VENTILATIONS
- Alveolar Ventilation
- Bohr Equation
- Dead Space
- Enghoff Equation
- Lung Volumes
- Minute Ventilation
- Respiratiory Exchange Ratio
- Tidal Volume

I. OXYGEN CALCULATIONS
- A-a Gradient
- Arterial-Venous O2 Content Diff.
- O2 Capacity
- O2 Consumption
- O2 Consumption Index
- O2 Content
  - Arterial
  - Capillary
  - Mixed Venous
- O2 Delivery
- O2 Delivery Index
- O2 Extraction Rate
- O2 Tension
  - Alveolar
  - Inspired

G. OTHER
- Barometric Pressure
- ABG
- Carbon Dioxide Production
- Disease Activity Scale
- Dynamic Compliance
- Heparin Dosing Weight - Based
- Static Compliance
- Peak Flow

II. RENAL & ELECTROLYTE EQUATIONS

A. RENAL FUNCTIONS
- Body Water Losses
  - Urinary
  - Fecal
  - Insensate
  - Water Losses in Hypernatremia
- Creatinine Clearance / For ED
- Fractional Excretion
  - Potassium
  - Sodium
- Glomerular Filtration Rate
  - Bjornsson
  - Cockcroft
  - Counahan-Barratt
  - Gates
  - Hull
  - Jelliffe
  - Mawer
  - MDRD
  - Schwartz
  - Shull
  - Traub
  - Zhazali-Barratt
- Filtration Fraction
- Nitrogen
  - Balance
  - Urine Loss
- Potassium
  - Urine, Corrected
  - Transtubular

PEPID Calculators ...continued

B. ELECTROLYTES
- Anion Gap
- Bicarbonate Deficit
- Calcium
  - Corrected
  - Protein-Bound
- Osmolality, Calculated
- Osmolar Gap
- Potassium: Total Body
- Sodium
  - Corrected
  - Deficit
  - Hypernatremia Management
  - Water Losses in Hypernatremia

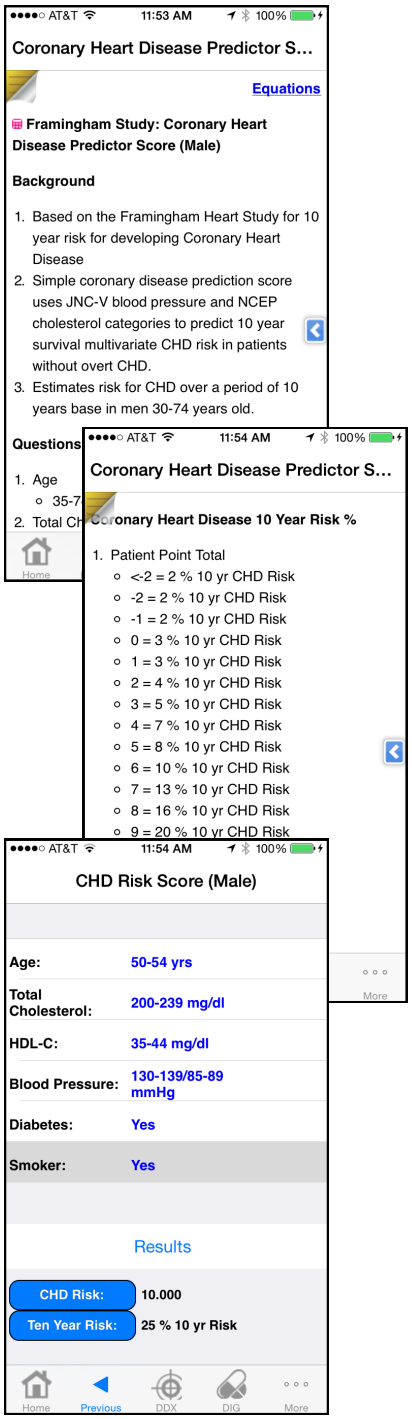
C. ACID BASE
- ABG Analysis
- Respiratory Acidosis
  - Compensation
  - Acute
  - Chronic
  - Winter's Formula
- Respiratory Alkalosis
  - Compensation
  - Acute
  - Chronic
- PCO2 Compensation Expected
  - Metabolic Acidosis
  - Metabolic Alkalosis
- Henderson-Hasselbalch Equation
- Hydrogen Concentration (Kassirer-Bleich Equation)

D. OTHER
- AST/ ALT Ratio
- Blood Alcohol Level
  - Calculated
  - Predicted
  - Mass of Pure Ethanol Consumed
- Colloid-Oncotic Pressure
- HIV Drug Adjustments
- Iron Deficit
- Low Density Lipoprotein, Cholesterol
- Phenytoin Corrected

III. METABOLIC EQUATIONS

A. FLUID COMPARTMENTS
- Body Fluid Compartments
- Body Water Deficit
- Free Water Deficit
- Total Body Solutes

B. WEIGHT & MASSES
- Body Weight
  - Adjusted
  - Ideal
  - Ideal (Hamwi Method)
  - Lean Body Weight
- Body Mass
  - Body Mass Index (BMI)
    - Adult
    - Pediatric
  - Lean Body Mass
- Body Surface Area
  - DuBois & DuBois
  - Gehan & George
  - Mosteller



C. ENERGY
- Energy Expenditure
  - Basal
  - Total
- Caloric Requirements
  - Non-Protein
  - Protein
- Basal Metabolic Rate
- ABG Analysis
- Glucose / HbA1C Converter

IV. HEMATOLOGIC EQUATIONS
- Absolute Neutrophil Count
- Blood Volume
- Hemophilia
  - Factor VIII Dosage
  - Factor IX Dosage
- Mean Corpuscular
  - Hemoglobin
  - Hemoglobin Concentration
  - Volume
- Reticulocyte
  - Percent
  - Corrected
  - Absolute Count
- Albumin
  - Serum-Ascites Albumin Gradient
- Glycosylated Hemoglobin
  - HbA1C to Glucose

V. PEDIATRIC EQUATIONS
- APGAR
- Alvarado Acute Appendicitis Score
- Asthma Severity Score
- Croup Score
- Glasgow Coma Scale
- Maintenance Fluids
- Peak Flows
- Pediatric Risk Indicator
- Pediatric Trauma Score
- Peds & Adolescent BMI Percentiles
- Rochester Criteria
- Strep Pharyngitis Probability
- Systolic Blood Pressure
- Water Losses
- Yale Observation Scale

VI. CONVERSION EQUATIONS
- Weight
- Distance
- Volume
- Temperature
- Pressure
- SI Units Conversion
- Glucocorticoid Converter
- Narcotic Equianalgesic Dosing
- Phenytoin Corrected

VII. SCORES

A. Global Assessment Scores
- Activities of Daily Living (ADLs)
  - Barthel Index of ADLs
  - Katz Index of ADLs
  - Lawton Physical-Self Maintenance Scale
  - Instrumental Activities of Daily Living (IADLs)
- Drug/ Alcohol use
  - Alcohol Use Disorders Identification Test (AUDIT)
  - AUDIT-C
  - Brief Michigan Alcoholism Test
  - CAGE Questionnaire
  - Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar)
  - CRAFFT Questionnaire
  - Maddrey Discriminant Function
  - Opioid Risk Tool

PEPID Calculators ...continued

Problem Severity Index
TWEAK Alcoholism Score

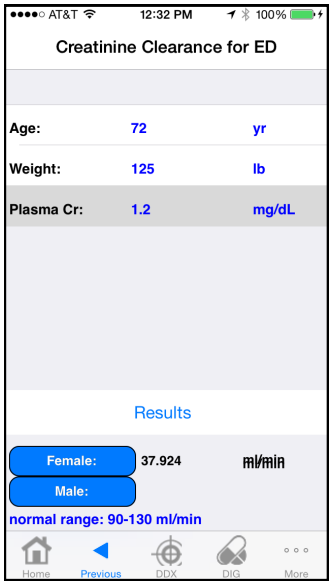
B. Neurologic Scores
AIMS (Abnormal Involuntary Movements Scale)
CHADS2 Primary Stroke Risk in Aspirin-Treated Non-valvular Atrial Fibrillation
Drug Regimen Unassisted Grading Scale (DRUGS)
Dizziness Handicap Inventory
Glasgow Coma Scale
Glasgow Coma Scale (Pediatric)
Los Angeles Prehospital Stroke Screen
Mini Mental Status Exam
NIH Stroke
Pain Assessment in Advanced Dementia (PAINAD)
Premature Infant Pain Profile
Standardized Assessment of Concussion
Tinetti Balance Score

C. Cardiovascular
ATP III Guidelines
Women
Men
Bleeding Probability after TPA or MI
Cardiac Arrest Score
CHADS2 Primary Stroke Risk in Aspirin-Treated Non-valvular Atrial Fibrillation
Coronary Heart Disease Risk Factor Score (Female)
Coronary Heart Disease Predictor Score (Male)
Duke Treadmill Score
Global Registry of Acute Coronary Events (GRACE)
Intracerebral Hemorrhage (ICH) Score
Lee Revised Cardiac Risk Index
PE, Canadian
PE, Geneva
Preoperative Cardiac Risk (ACP)
Well's PE Criteria
Well's DVT Criteria

D. GI Scores
Alvarado Acute Appendicitis Score
Bedside Index for Severity in Acute Pancreatitis (BISAP) Score
Meld Score
Meld Na Score
Peld Score
Ranson's Criteria
Rockall GI bleeding Score
Glucose / HbA1C Converter
Glasgow-Blatchford Upper GI Bleeding Score

E. Dermatological Scores
Braden Pressure Ulcer Risk Assessment
Modified Braden Q Pressure Ulcer Risk Assessment (Peds)
Norton Pressure Ulcer Risk Assessment

F. OB/Gyn Scores
APGAR
Bishop
Edinburg Postnatal Depression Scale
Premature Infant Pain Profile
Greene Climacteric Score
Osteoporosis Screening Tool



G. Orthopedic Scores
Disease Activity Score for Rheumatoid Arthritis (DAS 28)
Ottawa Knee Rule
Ottawa Foot Rule
Ottawa Ankle Rule

H. Urology Scores
AUA BPH Symptom Score

I. Infection Scores
Centor Criteria (Modified)
Community-Acquired Pneumonia Mortality Risk for Adults
Croup (Pediatric)
C.U.R.B 65 Score
MEDS Score
Pneumonia Severity Index
Sinusitis
Strep Pharyngitis Probability

J. Psychiatric Scores
Brief Psychiatric Rating Scale
Brief Fatigue Inventory
Edinburgh Postnatal Depression Scale
Geriatric Depression Scale
Problem Severity Index
SAD PERSONS Scale
Suicide Ideation Scale

K. Respiratory
Asthma Severity Score
Asthma Control Score (Adults)
Asthma Score (Peds 4 - 11 yo)
C.A.T. Score
Pram Score
Westley Croup Score

L. Trauma
Apache II
CRAMS
Glasgow Coma Scale
Glasgow Coma Scale (Pediatric)
Injury Severity Score (ISS)
Mangled Extremity Severity Score
Modified Injury Severity Score (MISS)
Pediatric Risk Indicator
Pediatric Trauma Score
Prehospital Index
Revised Trauma
Standardized Assessment of Concussion
Trauma
Trauma Infant Neurologic Score (TINS)
TRISS (Trauma Score - Injury Severity Score)
Blunt Trauma
Penetrating Trauma
Others
Snakebite Severity Score

VIII. OTHER EQUATIONS

A. Ascites
Serum-Ascites Albumin Gradient

B. Bayes Theorem

C. Burns
Estimated Affected Area
Fluid Mgmt: Parkland Formula

D. Carboplatin AUC
Calvert Formula
French Formula

E. Critical Care Equations
CO (cardiac output)
CI (cardiac index)
MAP (mean arterial pressure)
MPAP (mean pulmonary artery pressure)
PVR (pulmonary vascular resistance)
SVR (systemic vascular resistance)
CaO2 (arterial O2 content)
CvO2 (mixed venous O2 content)
C(a-v)O2 (arterial-venous difference)
O2 capacity
O2 consumption
Qs/Qt (shunt fraction)

F. Erectile Dysfunction Test

G. Heparin Dosing, Weight-Based

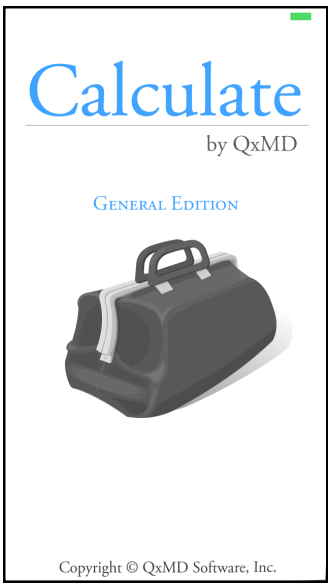
H. Intravenous (IV)
Dosing Calculators
Drip Rate
Drip Rate Conversion
Reverse Dosing Calculator

I. Pregnancy:
Expected Date of Delivery
Expected Gestational Age

Other Calculators

The availability of calculators exceeds the need. Most of the resources mentioned previously attempt to address the calculator needs of all specialties. As mentioned, many resources license and provide standard calculators created by **EBMcalc**. Others, like **Essential Evidence Plus** and **PEPID**, create their own. Some curate select calculators and provide links to those tools like **Pediatric Care Online**, listed below.

There is one free app that is worth mentioning. **QxMD** creates a nice set of 150 calculators in their free **Calculate** app. Their calculators are very easy to use and easy to read.



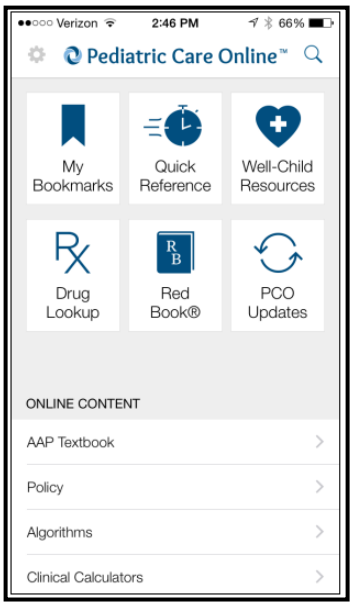
Access Medicine Calculators

Absolute Neutrophil Count
Anion Gap
APACHE II
BEE (Basal Energy Expenditure)
BMI
Body Surface Area
Calcium Salt Equivalents
Coronary Heart Disease Risk
Corrected Calcium
Creatinine Clearance
Fractional Excretion of Sodium
Free Water Deficit
GFR (Glomerular Filtration Rate)
Glasgow Coma Score
IBW (Ideal Body Weight)
IV Infusion Rate
Mean Arterial Pressure
Metric Standard Conversion
Oxygenation
Pregnancy Due Date
Serum Osmolality
SI/CU Conversion
Sodium Level Correction in Hyperglycemia
Steroid Equivalence
Temperature Conversion

Pediatric Care Online Calculators

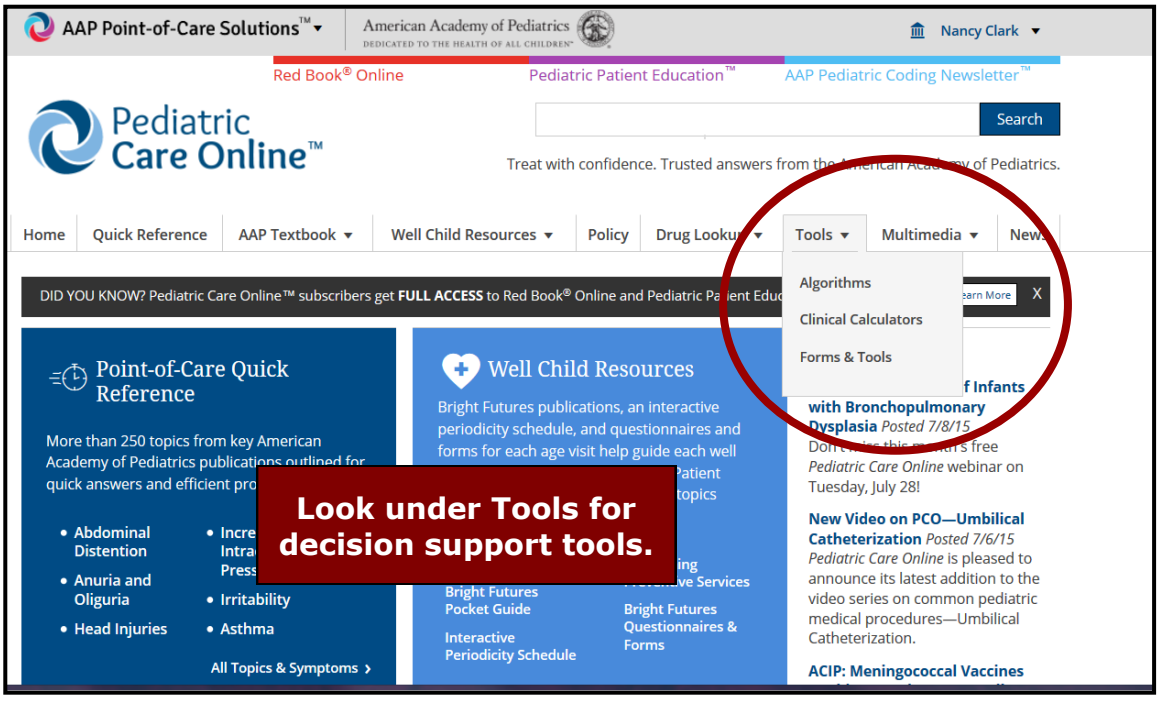
2x2 Contingency Table (Web page) VassarStats
Ballard Maturational Assessment of Gestational Age (Web page) MedCalc
Bayesian Analysis Model (Web page) MedCalc
BiliTool™ (Web page) BiliTool, Inc.
BMI Calculator for Child and Teen (Web page) Centers for Disease Control and Prevention
Body Surface Area, Body Mass Index (BMI) (Web page) MedCalc
Catch-up Immunization Scheduler - for children 6 years and younger (Web page) Centers for Disease Control and Prevention
Clinical Risk Index for Babies (CRIB II) (Web page) SFAR
Duke Criteria for Infective Endocarditis (Web page) MedCalc
Endotracheal Tube & Umbilical Catheter (Web page) NICU Tools
Extremely Preterm Birth Outcome Data (Web page) National Institutes of Health
Instant Childhood Immunization Scheduler - for children 6 years and younger (Web page) Centers for Disease Control and Prevention
IV Infusion Rate (Web page) MedCalc
Neonatology on the Web (Web site) Neonatology on the Web
Open Source Epidemiologic Statistics for Public Health (Web page) OpenEpi
Peak Expiratory Flow (Web site) Cornell University
Pneumothorax (Web page) Chest X-ray - Your Thoracic Imaging Resource
Quality Dividend Calculator™ (Web page) National Committee for Quality Assurance
UBC Clinical Significance Calculator (Web site) University of British Columbia

Pediatric Care Online

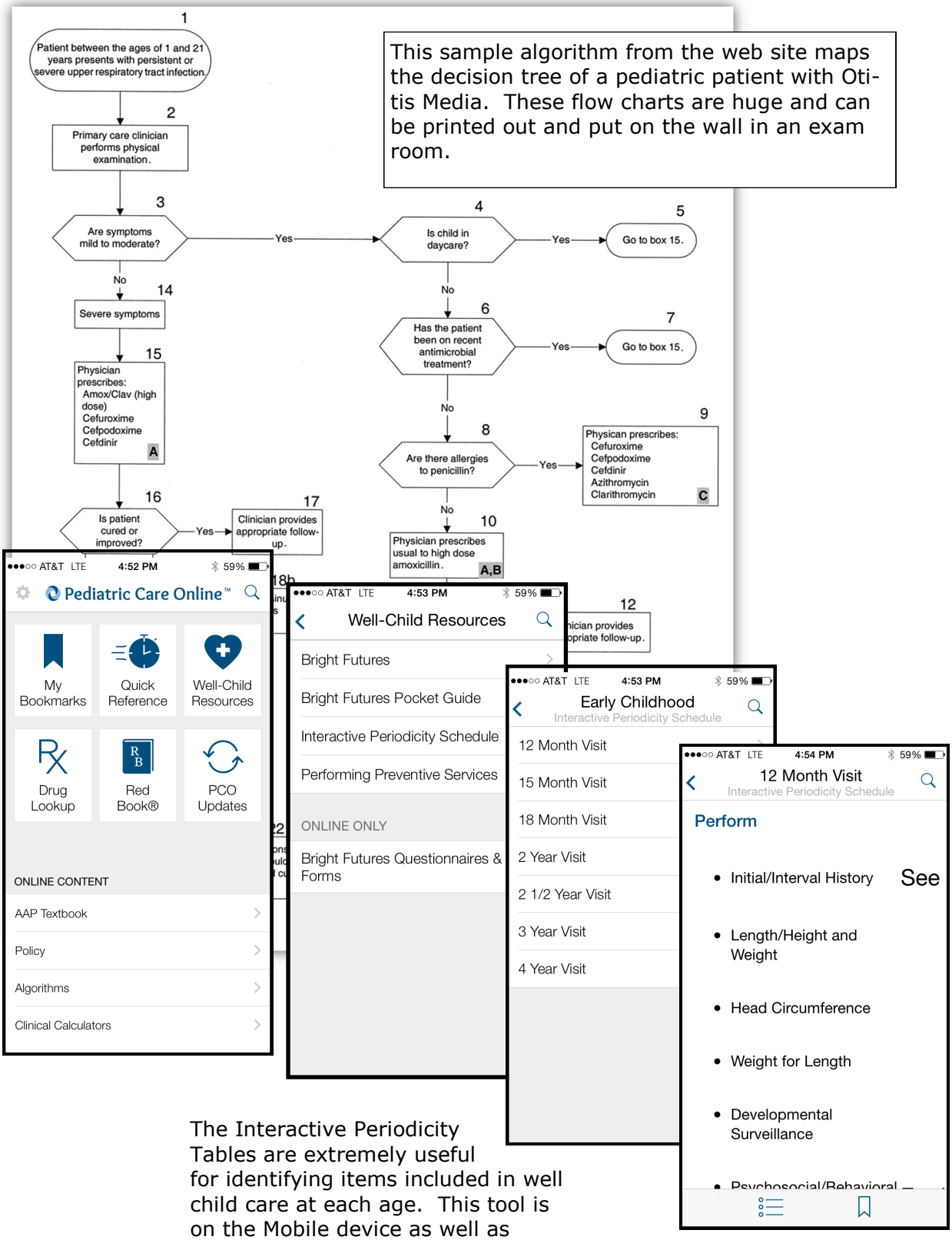


Pediatric Care Online, a product of The American Academy of Pediatrics (AAP), integrates many different pediatric decision support resources for quick access both online and on the mobile device. The web site has many more resources than the mobile device version.

- Point-of-Care Quick Reference – Over 240 select topics taken from the AAP Textbook of Pediatric Care outlined for quick retrieval of information
- The new AAP Textbook of Pediatric Care – Over 3000 pages of detailed information and recommendations
- Bright Futures – Comprehensive health supervision guidelines to help make the most of well-child visits
- Red Book Content– Detailed information from the AAP Red Book on over 200 childhood infectious diseases
- Interactive Periodicity Schedule – Interactive chart providing preventive screening and recommended actions for each well-child visit
- Clinical Calculators—calibrated for pediatrics, such as BMI
- Signs & Symptoms Search – Quickly suggests diagnoses based on selected signs and symptoms
- Patient Handouts - Hundreds of patient handouts with easy to read explanations for many conditions and procedures
- Forms & Tools - Hundreds of resources to help screen, track, and record clinical information
- Algorithms — Decision support for a number of pediatric conditions. See sample next page



Pediatric Care Online



This sample algorithm from the web site maps the decision tree of a pediatric patient with Otitis Media. These flow charts are huge and can be printed out and put on the wall in an exam room.

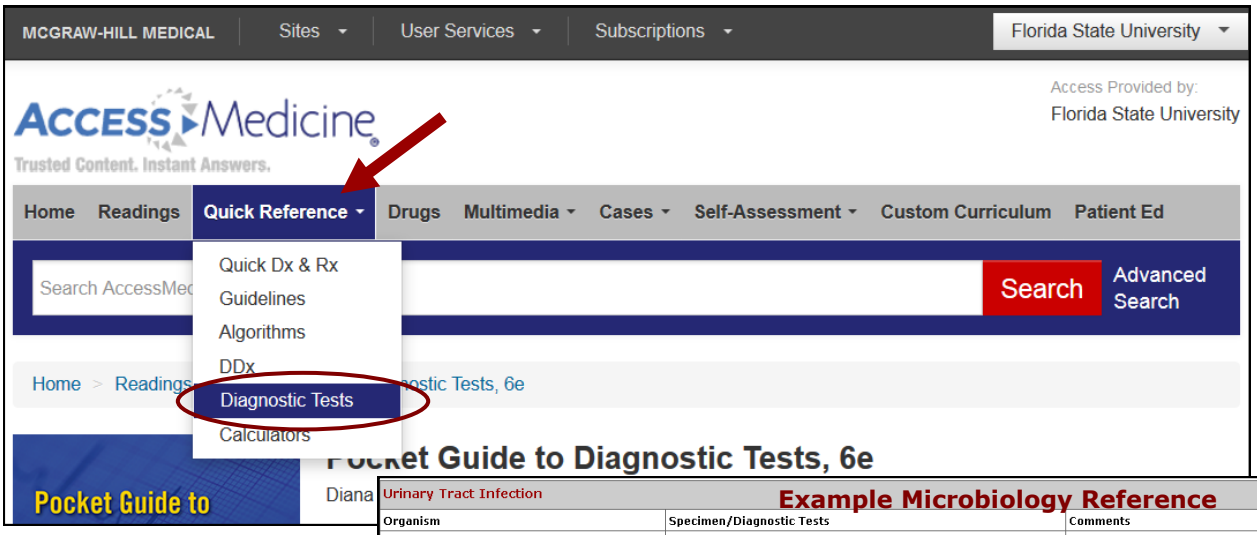
The Interactive Periodicity Tables are extremely useful for identifying items included in well child care at each age. This tool is on the Mobile device as well as

Diagnostic Test/Laboratory References

There are three handy resources that provide information about diagnostic testing: **Access Medicine** online and mobile, **PEPID** Online and mobile, and the Lab tab in **Epocrates Essentials** on the Mobile device. These are similar in that they include information on each test to include a basic description, reference range, how to interpret the test, prep and collection methods, and the cost of the test.

Access Medicine's Dx Test

Featuring the content of *Pocket Guide to Diagnostic Tests*, 6th ed., by Diana Nicoll, Stephen J. McPhee, Michael Pignone, and Chuanyi Mark Lu, this resource has the largest number and type of diagnostic test provided. It includes imaging tests, microbiology cultures, as well as diagnostic algorithms.



Example Microbiology Reference

Urinary Tract Infection

Organism	Specimen/Diagnostic Tests	Comments
Urinary tract infection (UTI)/cystitis/pyuria-dysuria syndrome Key Enterobacteriaceae (GNR, especially *E coli*), *Chlamydia trachomatis*, *Staphylococcus saprophyticus* (GPC) (in young women), enterococcus (GPC), group B streptococci (GPC), candida sp. (yeast), *N gonorrhoeae* (GNCB), HSV, adenovirus, *Corynebacterium glucuronolyticum*	Urinalysis and culture reveal the two most important signs: bacteriuria and pyuria (>10 WBCs/μL). 30% of patients have hematuria. Cystitis (95%) is diagnosed by ≥10^2 CFU/mL of bacteria; other urinary infections (90%) by ≥10^5 CFU/mL. Culture is generally not necessary for uncomplicated cystitis in women. Combination of current symptoms (eg, dysuria, frequency, and hematuria) and prior history yields a ≥90% probability of UTI. However, pregnant women should be screened for asymptomatic bacteriuria and promptly treated. Both Gram stain for bacteria and dipstick analysis for nitrite and …arly in detecting UTI in children and …sis for pyuria. Nitrite or leukocyte … of patients with bacteremia. …oscopy should be performed in …od infections, all young boys with …icated infection, and patients with …ion or renal stones. (See …ydia and gonorrhea are available.	Most men with UTIs have a functional or anatomic genitourinary abnormality. In catheter-related UTI, cure is unlikely unless the catheter is removed. In asymptomatic catheter-related UTI, antibiotics should be given only if patients are at risk for sepsis (old age, underlying disease, diabetes mellitus, pregnancy). Up to one-third of cases of acute cystitis have "silent" upper tract involvement. Am J Med 1999;106:636. BMJ 1999;318:770. Nephrol Dial Transplant 1999;14:2746. J Clin Microbiol 1999;37:3051.

Example Laboratory Reference

Thyroid-Stimulating Hormone

Test/Range/Collection	Physiologic Basis	Interpretation	Comments
Thyroid-stimulating hormone, serum (TSH; thyrotropin) 0.4–6 μU/mL [mU/L] Marbled $$ Key	TSH is an anterior pituitary hormone that stimulates the thyroid gland to produce thyroid hormones. Secretion is stimulated by thyrotropin-releasing hormone from the hypothalamus. There is negative feedback on TSH secretion by circulating thyroid hormone.	**Increased in:** Hypothyroidism. Mild increases in recovery phase of acute illness. **Dec** Hyp med pitu Dru dos	Newer sensitive assays can detect low enough levels of TSH to be useful in the diagnosis of hyperthyroidism as well as hypothyroidism and in

The scale used for the cost of each test is:

Approximate Cost	Symbol Used in Tables
$1–20	$
$21–50	$$
$51–100	$$$
> $100	$$$$

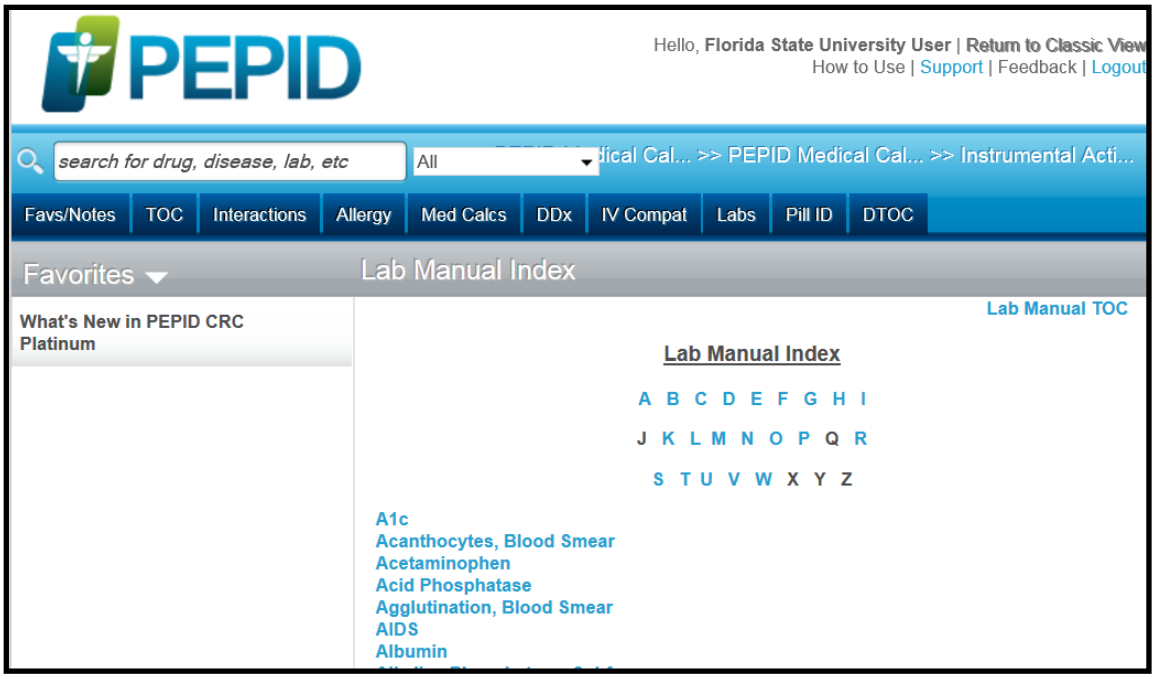
Example Imaging Reference

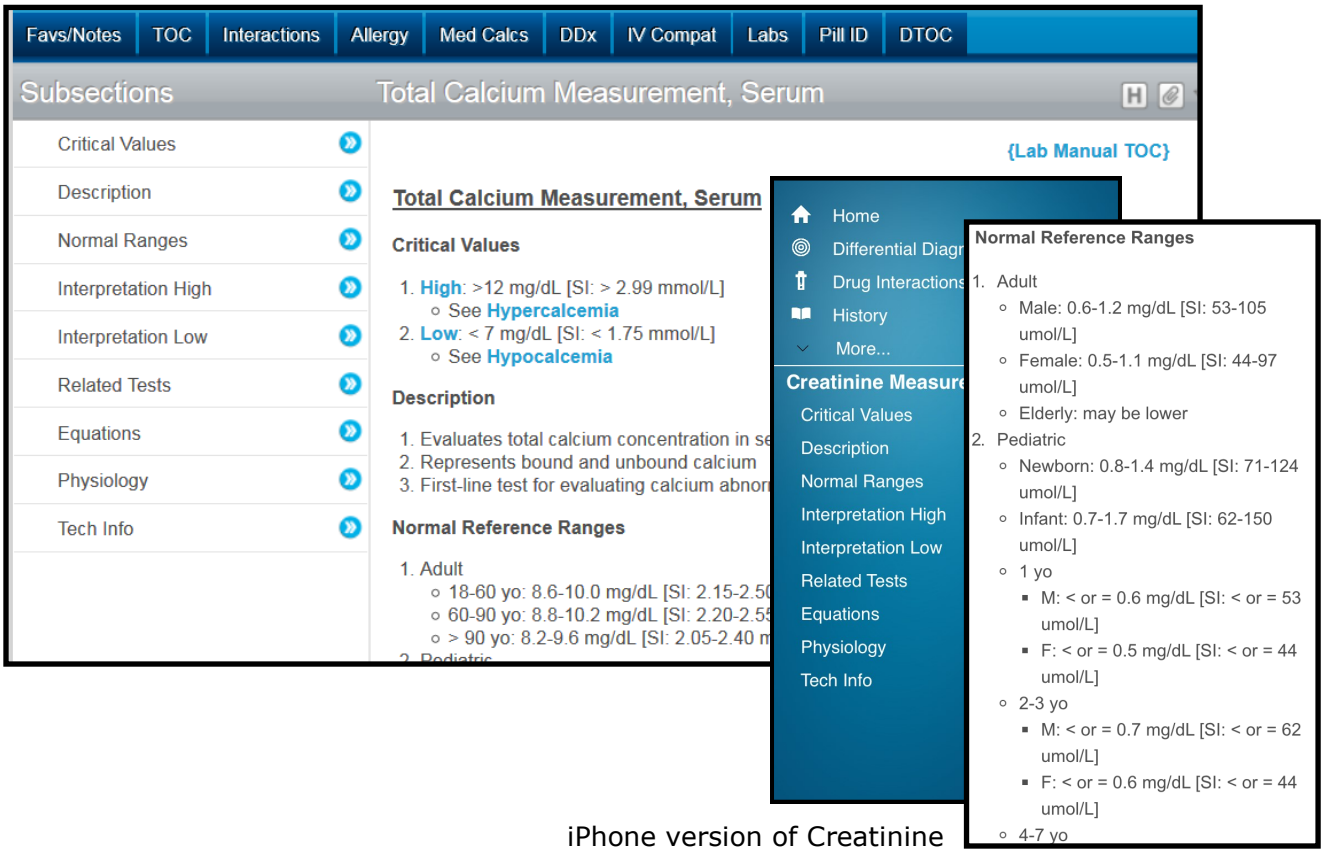
CT

Test	Indications	Advantages	Disadvantages/Contraindications	Preparation
NECK **Computed tomography** (CT) $$$$ Key	Evaluation of the upper aerodigestive tract. Staging of neck masses for patients who are not candidates for MRI. Evaluation of suspected abscess.	Rapid. Superb spatial resolution. Can guide percutaneous fine-needle aspiration of possible tumor or abscess.	Adequate intravenous contrast enhancement of vascular structures is mandatory for accurate interpretation. **Contraindications and risks:** Contraindicated in pregnancy because of the potential harm of ionizing radiation to the fetus. See Risks of CT and Angiographic Intravenous Contrast Agents.	Normal hydration. Sedation of agitated patients. Recent serum creatinine determination.

PEPID Lab Manual

PEPID contains an excellent lab manual both online and on the Mobile device. Use the Lab icon or table of contents to go to the Lab Manual Index and find the test.





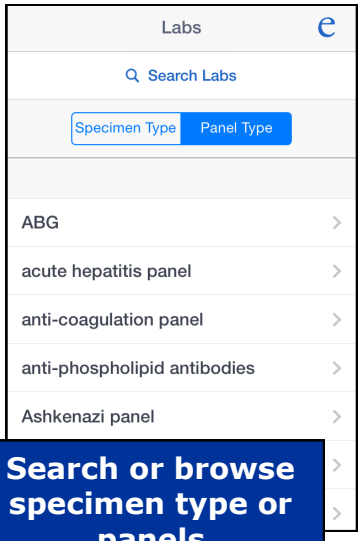
iPhone version of Creatinine

Epocrates App Lab Tab

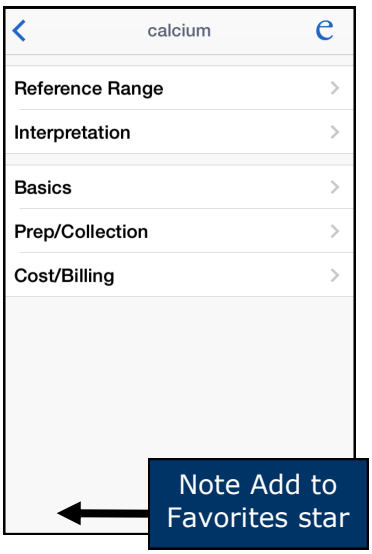
Epocrates Lab provides only laboratory test information, but they include Panels, which the students, unfamiliar with what is on a specific panel, find very useful. You can look up a test by name or look up the panel and pick tests from the list of tests on the panel. Included in the content on each test under **Basics** is a list of panels in which this test is normally included. Cost information is very specific including the cost of both the individual test and the various panels it is in. The ICD-9 codes for those diseases for which most payers will cover the lab test are provided under the **Cost/Billing** section.

You can also **Browse** the **Lab by Panel Types** to see the labs in each panel.

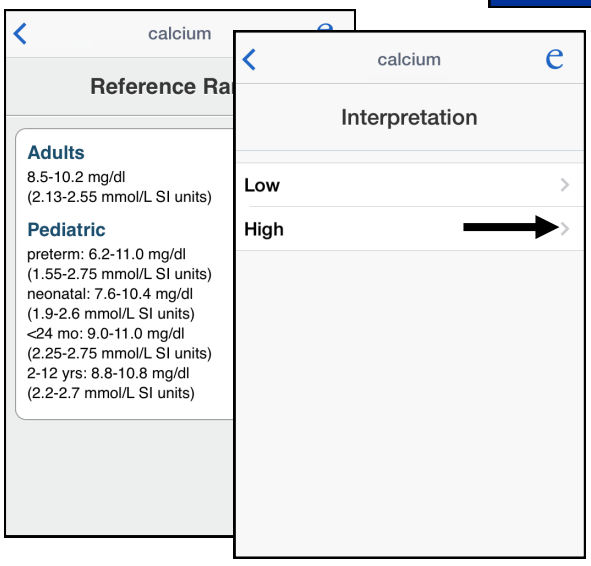
Exercise for Practice
A basic metabolic panel reveals that a 30 year old man suffering from bipolar disorder has a serum calcium level of 10.9 mg/dL. He is taking lithium and valproate. Could his medications be a factor?

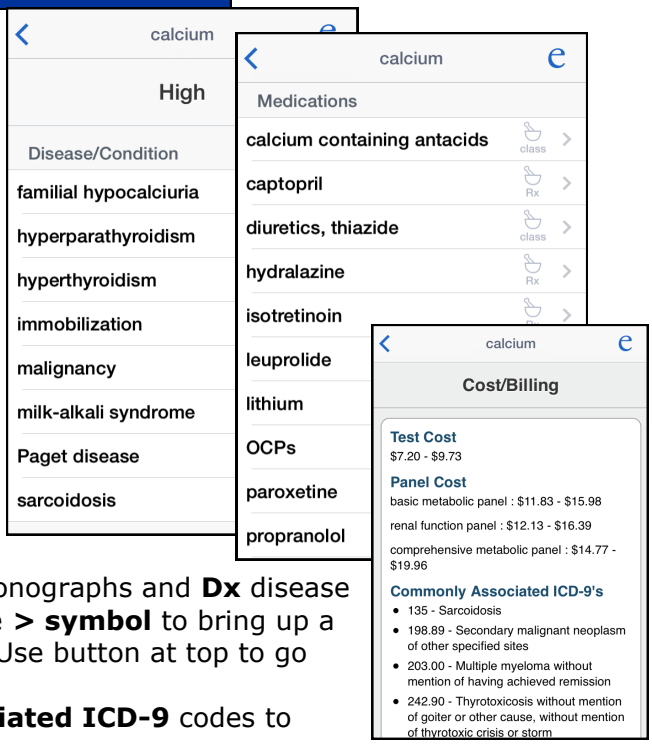


Search or browse specimen type or panels



Note Add to Favorites star





Interpretation is linked to the **Rx** drug monographs and **Dx** disease reference sections of Essentials Click on the **> symbol** to bring up a page containing interpretation for that Dx. Use button at top to go **Back**.
Under **Cost/Billing** are **Commonly Associated ICD-9** codes to help in coding for ordering the labs.