

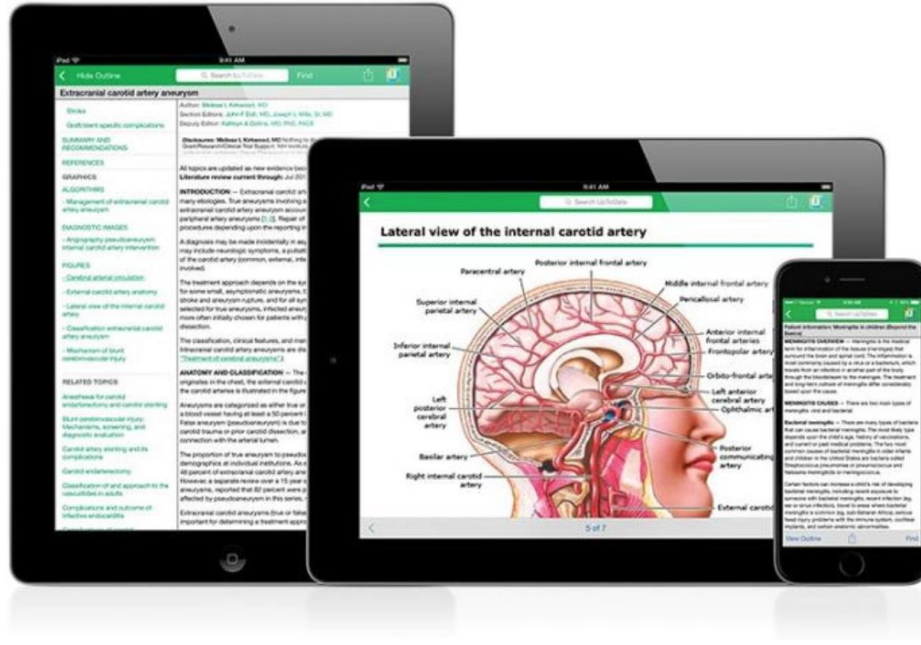
Introduction Better Evidence and UpToDate

2021

What is UpToDate?

- UpToDate is a clinical decision support tool authored by 7,300 world-renowned physicians who synthesize the most recent medical information into trusted, evidence-based recommendations accessible via the web or download, on a computer or a smartphone.
- Over 2 million clinicians in over 190 countries rely on UpToDate to find the answers to pressing questions.
- Every year, clinicians view topics covering 25 specialties over 617 million times.

What is UpToDate?



- UpToDate impacts **300,000 medical decisions** globally every day
- Clinicians report information provided by UpToDate **changes their decision 30%** of the time

What is UpToDate *Anywhere*?

With an UpToDate Anywhere subscription, you are getting the most comprehensive package with many special features including:

- **Remote access** from any computer with an Internet connection.
- **History, Most Viewed, Bookmarks** — quickly access the content you find most valuable.
- **Automatically Sync** your History, Bookmarks and Most Viewed across all devices you use to access UpToDate, such as a desktop or mobile device.
- **What's New Notifications** alert you when topics you've previously viewed have been updated to include discussion of new articles from the medical literature.
- The **"Current UpDate"** bi-weekly e-newsletter with important clinical updates from UpToDate's editorial team.

How to Register for an Institutional UpToDate Account

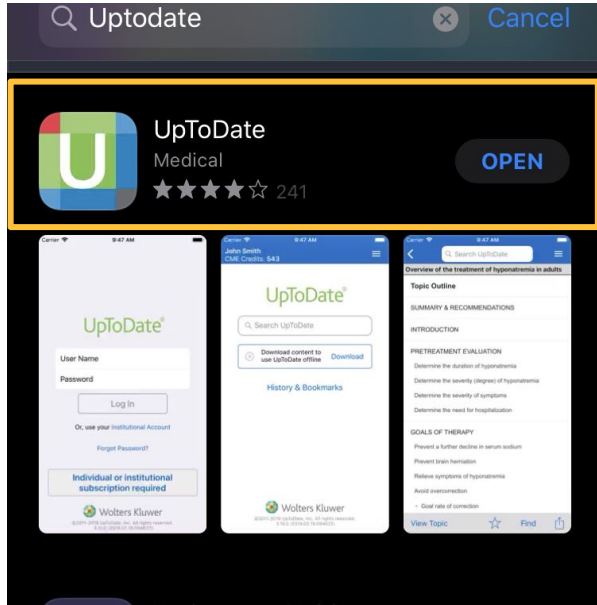
- Connect to wifi via institutional IP address
- Visit www.uptodate.com/online
- Click on “**register**” in the top right corner
- Complete the registration sheet to create a login and password, and click on “**submit**”
- To log in next time, visit the same website and hit “**login**,” use the same login and password
- If you forget your password, click on “forgot username and password” and follow the instructions to reset your information via email



How to use UpToDate - Online & on site

- Visit www.uptodate.com/online on any computer, tablet, or phone connected your institution's internet and log in
- Download the **mobile app** to use UpToDate **MobileComplete** on your mobile phone or tablet
- To keep your **account active**, log in from your institution's network or the network of an associated clinical facility once every 90 days
- If your account gets deactivated because you did not log in within 90 days, **reactivate it by logging in from your institution's network**

How to Download the Mobile App

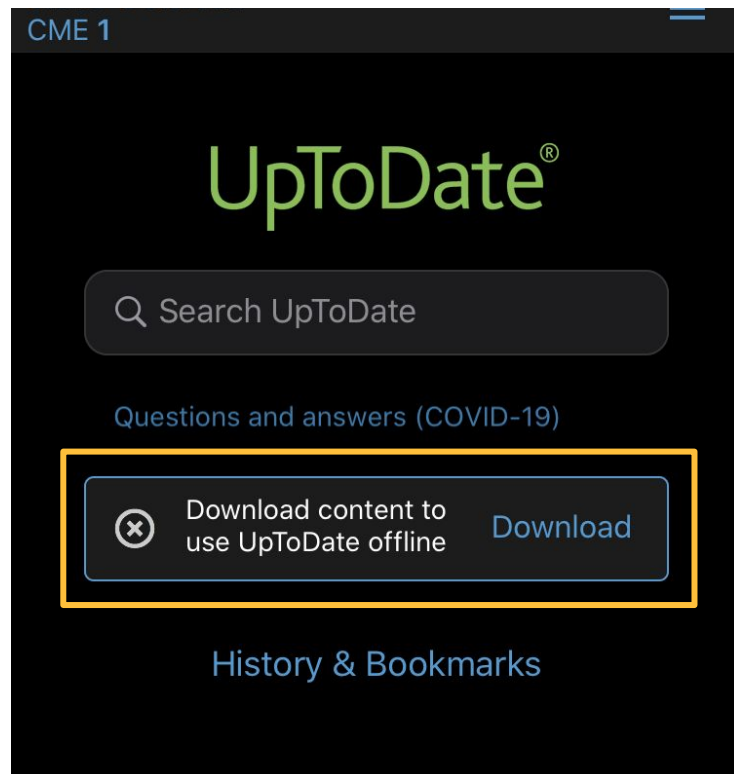


- In the Google Play, Amazon for Android or Apple App store, search “UpToDate”
- Download the UpToDate App
- All subscriptions come with the option to download UpToDate content for use offline through the app, called MobileComplete

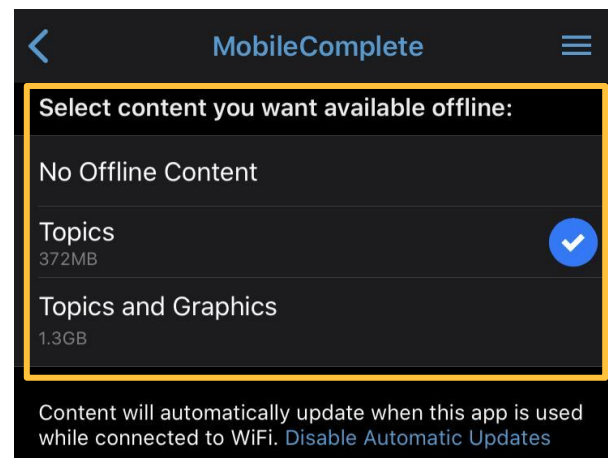


Available at
amazon appstore
for Android

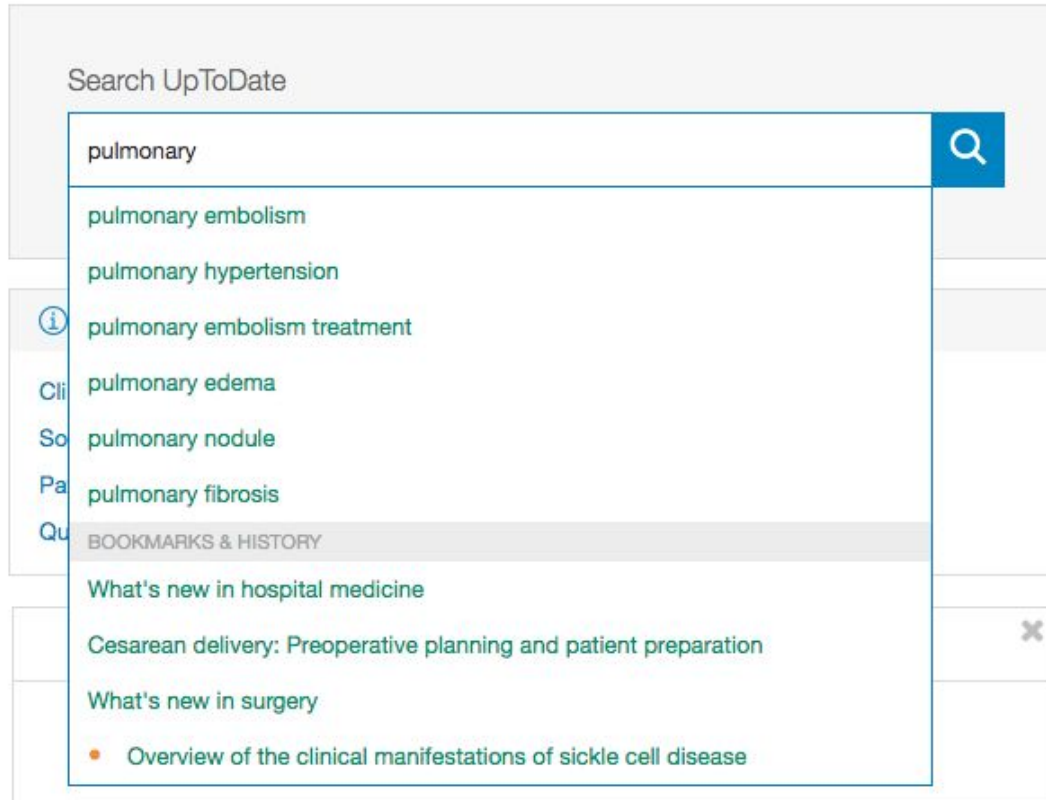
How to use UpToDate Offline with MobileComplete



- Log into the UpToDate Mobile app
- Select “Download content to use UpToDate offline”
- Choose the content you want available offline via **MobileComplete**



How to Conduct a Search



- In the search bar, search by **disease, symptom, lab abnormality, procedure, or drug**
- UpToDate will suggest search terms
- Click the search button to go to the search results page
- UpToDate also allows for searches in Spanish, French, English, Chinese, Japanese, German, Portuguese, and Italian

Search Page Additional Functions

The screenshot shows the UpToDate search interface. At the top, there are three tabs: 'History', 'Most Viewed' (which is selected and highlighted with a blue bar), and 'Bookmarks'. Below the tabs, a message states: 'This is the UpToDate content that you view the most (up to 10 links)'. A list of four topics is displayed, each on a separate line with a horizontal separator:

- What's new in infectious diseases
- Approach to the adult with fever of unknown origin
- Overview of hypertension in adults
- Cesarean delivery: Surgical technique

Below the list, the UpToDate logo is visible on the left. To its right, there is a search bar containing the text 'pulmonary embolism'. At the bottom of the page, there is a blue navigation bar with three white text links: 'Contents' (with a dropdown arrow), 'Calculators', and 'Drug Interactions'.

- **What's new?** – provides important topic updates by specialty
- **Bookmarks** – includes pages that you bookmarked
- **Calculators** – links to many calculators that you can use in your clinical practice
- **Practice changing updates** – provides updates for the most recent guidelines, by specialty

Personalizing Your Experience

History	Most Viewed	Bookmarks	✕
APRIL 5, 2021			
COVID-19: Clinical features			
NOVEMBER 16, 2020			
• COVID-19: Epidemiology, virology, and prevention			
Practice Changing UpDates			
Combination beta-lactamase inhibitors, carbapenems, and monobactams			

- View a **history** of content you have previously read
- Keep track of **updates** to topics you visit most frequently - an **orange dot** next to a topic indicates the topic has been updated since your last viewing
- **Bookmark** UpToDate topics you wish to revisit

UpToDate Search Results Page

The screenshot shows the UpToDate website interface. At the top, the UpToDate logo is on the left, and a search bar contains the text 'pulmonary embolism treatment' with a magnifying glass icon on the right. Below the search bar is a blue navigation bar with 'Contents' (with a dropdown arrow), 'Calculators', and 'Drug Interactions'. Underneath this is a grey bar stating 'Showing results for **pulmonary embolism treatment**'. Below that is a row of filter buttons: 'All' (highlighted in blue), 'Adult', 'Pediatric', 'Patient', and 'Graphics'. A line of text says 'Click related term for pulmonary embolism: [venous thromboembolism](#)'. The main content area shows a result titled 'Treatment, prognosis, and follow-up of acute pulmonary embolism in adults' in green text. Below the title is a snippet of text: '... thromboembolism and death can be prevented . The **treatment**, prognosis, and follow-up of patients with **PE** are reviewed here. The epidemiology, pathophysiology, clinical presentation, and diagnosis ...'. At the bottom of the snippet is a blue link 'Reperfusion therapy'.

- Topics are displayed by relevance
- To filter a search, select *All*, *Adult*, *Pediatric*, *Patient*, or *Graphics* at the top of the screen under the search bar
 - **Adult:** clinical content relevant to adult patients
 - **Pediatrics:** clinical content relevant to pediatric patients
 - **Patient:** resources for patients (i.e., patient education)
 - **Graphics:** over 30,000 graphics available, can be exported directly to PowerPoint

Topic Navigation and Functionality

Topic Outline	Treatment, prognosis, and follow-up of acute pulmonary embolism in adults
SUMMARY AND RECOMMENDATIONS	
WHAT'S NEW	Authors: Victor F Tapson, MD , Aaron S Weinberg, MD, MPhil Section Editors: Jess Mandel, MD , Robert S Hockberger, MD, FACEP Deputy Editor: Geraldine Finlay, MD Contributor Disclosures
INTRODUCTION	All topics are updated as new evidence becomes available and our peer review process is complete. Literature review current through: Mar 2020 . This topic last updated: Mar 06, 2020 .
INITIAL APPROACH AND RESUSCITATION	
Assess hemodynamic stability	
<ul style="list-style-type: none">Hemodynamically stableHemodynamically unstable	
Initial therapies	
<ul style="list-style-type: none">Respiratory supportHemodynamic supportEmpiric anticoagulation	What's New Clinical impact of pulmonary embolism response teams (December 2019) Pulmonary embolism response teams (PERT) are being increasingly used, but their clinical impact is u... Read more ▾

Topic Navigation and Functionality

< Back to Search

Topic Outline



SUMMARY AND RECOMMENDATIONS

WHAT'S NEW



INTRODUCTION

INITIAL APPROACH AND RESUSCITATION

Assess hemodynamic stability

- Hemodynamically stable
- Hemodynamically unstable

- **Topic Outline** – provides a table of contents and links to related topics in case the search did not yield what you were looking for

What's New

Clinical impact of pulmonary embolism response teams (December 2019)

Pulmonary embolism response teams (PERT) are being increasingly used, but their clinical impact is unknown. In a recent, retrospective study of nearly 770 patients with PE, PERT implementation was associated with a lower 30-day inpatient mortality compared with baseline, particularly in patients with intermediate and high-risk PE (5 versus 10 percent, respectively) [1]. A PERT was also associated with lower rates of major bleeding, shorter time to therapeutic anticoagulation, and decreased use of inferior vena cava filters. We support the use of PERT, especially in patients with intermediate and high-risk PE. (See ["Treatment, prognosis, and follow-up of acute pulmonary embolism in adults"](#), section on ["Hemodynamically unstable"](#).)

Topic Navigation and Functionality

- **Search Bar** – use to search within the topic for specifics (i.e. ‘complications’ or the name of a medication)
- **Bookmark** – click “bookmark” on the top right corner to save the current page

The screenshot displays the UpToDate website interface. At the top left is the UpToDate logo. A search bar contains the text "pulmonary embolism treatment" with a magnifying glass icon to its right. To the right of the search bar are a user profile icon, a dropdown arrow, and a blue "Menu" button. Below the search bar is a navigation bar with a blue "Back to Search" link, the topic title "Treatment, prognosis, and follow-up ..." in bold, and a search box containing "vasopressor" with a "Find" button. Further right are links for "Patient", "Share", a printer icon, and a "Bookmark" button. On the left side, a sidebar lists "WHAT'S NEW" and "INTRODUCTION" (highlighted in blue). Below "INTRODUCTION" is "INITIAL APPROACH AND RESUSCITATION" with a list of topics: "Assess hemodynamic stability" (with sub-points "Hemodynamically stable" and "Hemodynamically unstable") and "Initial therapies" (with sub-points "Respiratory support" and "Hemodynamic support"). The main content area is titled "INTRODUCTION" and contains text about acute pulmonary embolism. A "Find In Topic" pop-up is visible over the text, showing "1 of 13" results and buttons for "Synonym", "Exact", navigation arrows, and "Done". The text in the main area includes: "Acute pulmonary embolism is a sometimes fatal disease with a highly variable clinical presentation. ... thromboembolism and death can be prevented [1-5]. The treatment, prognosis, and follow-up of patients with acute PE are reviewed here. The epidemiology, pathophysiology, clinical presentation, and diagnosis of PE, as well as detailed discussions of anticoagulation and thrombolysis in patients with PE are presented separately. (See ["Overview of acute pulmonary embolism in adults"](#) and ["Clinical presentation, evaluation, and diagnosis of the nonpregnant adult with suspected acute pulmonary embolism"](#) and ["Approach to](#)

Topic Navigation and Functionality

- **References and full-text Research Articles** – clicking on an in-text citation brings up the full reference and abstract, which you can then access **through HINARI** to read more about the topic

A femoral IV access line with a “built-in” IVC filter that can be opened when the line is placed and collapsed and removed when the line is removed is being studied for high risk patients who cannot be treated with anticoagulants [88].



Medline ® Abstract for Reference 88 of 'Treatment, prognosis, and follow-up of acute pulmonary embolism in adults'

88 [PubMed](#)

TI Pilot study evaluating the safety of a combined central venous catheter and inferior vena cava filter in critically ill patients at high risk of pulmonary embolism.

AU Cadavid CA, Gil B, Restrepo A, Alvarez S, Echeverry S, Angel LF, Tapson V, Kaufman J

SO J Vasc Interv Radiol. 2013;24(4):581.

The objectives of this pilot trial were to assess the safety of a new device for pulmonary embolism (PE) prophylaxis. The device, the Angel Catheter, was placed in eight patients who were in the intensive care unit and were at high risk of PE. The device was inserted at the bedside without fluoroscopic guidance via a femoral venous approach. All eight devices were inserted and subsequently retrieved without complications (follow-up, 33-36 d). One filter trapped a large clot.

AD Critical Care Department, Hospital Pablo Tobon Uribe, Medellin, Colombia.

PMID [23522160](#)

Topic Navigation and Functionality

- **Graded Recommendations** - All recommendations have grades that reflect the strength of the recommendation and the quality of the supporting evidence
- For patients with a **low** risk of bleeding and a high clinical suspicion for PE, we suggest empiric anticoagulation rather than waiting until definitive diagnostic tests are completed **(Grade 2C)**. We use a similar approach in those with a moderate or low clinical suspicion for PE in whom the diagnostic evaluation is expected to take longer than four hours and 24 hours, respectively.



Grade 2C recommendation

A Grade 2C recommendation is a very weak recommendation; other alternatives may be equally reasonable.

Explanation:

A Grade 2 recommendation is a weak recommendation. It means "this is our suggestion, but you may want to think about it." It is unlikely that you should follow the suggested approach in all your patients, and you might reasonably choose an alternative approach. For Grade 2 recommendations, benefits and risks may be finely balanced, or the benefits and risks may be uncertain. In deciding whether to follow a Grade 2 recommendation in an individual patient, you may want to think about your patient's values and preferences or about your patient's risk aversion.

Grade C means the evidence comes from observational studies, unsystematic clinical experience, or from randomized, controlled trials with serious flaws. Any estimate of effect is uncertain.

Topic Navigation and Functionality

- **Drug Referencing** – clicking on the drug name within the search result brings up that drug's Lexicomp page, which describes dosing, contraindications, drug interactions, etc.
- **Norepinephrine** – Norepinephrine is the most frequently utilized agent in this population because it is effective and less likely to cause tachycardia [16]. Other alternatives include [dopamine](#) and [epinephrine](#), but tachycardia, which can exacerbate hypotension, can occur with these agents [20].



Norepinephrine (noradrenaline): Drug information Lexicomp®

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(For additional information [see "Norepinephrine \(noradrenaline\): Patient drug information"](#) and [see "Norepinephrine \(noradrenaline\): Pediatric drug information"](#))

For abbreviations and symbols that may be used in Lexicomp ([show table](#))

Drug Interactions

- To help minimize risk and increase patient safety, UpToDate includes a drug interaction analysis tool.

UpToDate®

Lexicomp® Drug Interactions

Add items to your list by searching below.

ITEM LIST

Clear List

Analyze

–

[Azithromycin \(Systemic\)](#)

–

[Digoxin](#)

–

[HydroCHLORothiazide](#)

Display complete list of interactions for an individual item by clicking item name.

X

Avoid combination

D

Consider therapy modification

C

Monitor therapy

B

No action needed

A

No known interaction

More about Risk Ratings

▼

3 Results

Filter Results by Item

Print

C

Digoxin (Cardiac Glycosides)
Azithromycin (Systemic) (Macrolide Antibiotics)

C

Digoxin (Cardiac Glycosides)
HydroCHLORothiazide (Thiazide and Thiazide-Like Diuretics)

C

Digoxin (P-glycoprotein/ABCB1 Substrates)
Azithromycin (Systemic) (P-glycoprotein/ABCB1 Inhibitors)

DISCLAIMER: Readers are advised that decisions regarding drug therapy must be based on the independent judgment of the clinician, changing information about a drug (eg, as reflected in the literature and manufacturer's most current product information), and changing medical practices.

Ariadne Labs

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Drug Interactions

3 Results

C

Digoxin (Cardiac Glycosides)
Azithromycin (Systemic) (Macrolide Antibiotics)

C

Digoxin (Cardiac Glycosides)
HydroCHLOROthiazide (Thiazide and Thiazide-Like Diuretics)

C

Digoxin (P-glycoprotein/ABCB1 Substrates)
Azithromycin (Systemic) (P-glycoprotein/ABCB1 Inhibitors)

DISCLAIMER: Readers are advised that decisions regarding drug therapy must be based on information about a drug (eg, as reflected in the literature and manufacturer's most current

Title Cardiac Glycosides / Thiazide and Thiazide-Like Diuretics

[Print](#)

Risk Rating C: Monitor therapy

Summary Thiazide and Thiazide-Like Diuretics may enhance the adverse/toxic effect of Cardiac Glycosides. Specifically, cardiac glycoside toxicity may be enhanced by the hypokalemic and hypomagnesemic effect of thiazide diuretics. **Severity** Moderate **Reliability Rating** Fair

Patient Management Monitor for increased cardiac glycoside toxicity (eg, cardiac arrhythmias) if a thiazide diuretic is initiated or the dose is increased. Careful monitoring of serum potassium and magnesium along with administration of electrolyte replacement therapy to correct hypokalemia or hypomagnesemia may reduce the risk of cardiac glycoside toxicity.

Cardiac Glycosides Interacting Members Digitoxin, Digoxin

Thiazide and Thiazide-Like Diuretics Interacting Members Bendroflumethiazide, Chlorothiazide, Chlorthalidone, Cyclopenthiazide, HydroCHLOROthiazide, Hydroflumethiazide, Indapamide, Methyclothiazide, MetOLazone, Xipamide

Discussion The risk of cardiac glycoside toxicity increases in the presence hypokalemia and hypomagnesemia, even when serum concentrations are maintained in the therapeutic range.¹ The association of digitalis toxicity and electrolyte disturbances induced by diuretic (loop and thiazide) use has been reported in numerous studies^{2,3,4,5,6,7,8} and case reports^{9,10}. In contrast, some studies report that serum potassium levels do not influence the risk of digitalis toxicity,^{11,12,13} possibly because serum potassium concentrations may not correlate with total body potassium stores.

Prescribing information for digoxin recommends careful monitoring of serum potassium and magnesium levels in patients receiving digoxin along with diuretics.¹ Administering electrolyte replacement to correct hypokalemia and hypomagnesemia is recommended.



UpToDate Clinical Calculators

- You can also access more than 200 medical calculators right in the clinical workflow

The screenshot shows the UpToDate website interface. At the top, there's a search bar and navigation links like 'Language', 'Help', 'Welcome, John Smith', 'My UpToDate', 'CME 8.5', and 'Log Out'. Below the search bar, there's a navigation menu with 'Contents', 'Patient Education', 'What's New', 'Practice Changing Updates', 'Calculators', and 'Drug Interactions'. The main content area is titled 'Calculator: Body mass index (BMI) for adults (Metric, Patient education)'. It includes a brief explanation of BMI and a form to 'Enter height and weight'. The form has input fields for Height (182 cm) and Weight (60 kg). To the right, the 'Result' section shows 'BMI 18.1' and a 'Reset form' button. Below the form, there's a 'BMI interpretation' section with a table of BMI ranges and their corresponding weight categories. At the bottom, there's a 'References' section with a single citation from the National Institutes of Health.

UpToDate®

Search UpToDate

Calculator: Body mass index (BMI) for adults (Metric, Patient education)

BMI is a measure of weight in relation to height. It is the most practical way to estimate if a person is underweight, healthy weight, overweight, or obese.

Enter height and weight:

Height 182 cm

Weight 60 kg

Result:

BMI 18.1

Reset form

BMI interpretation

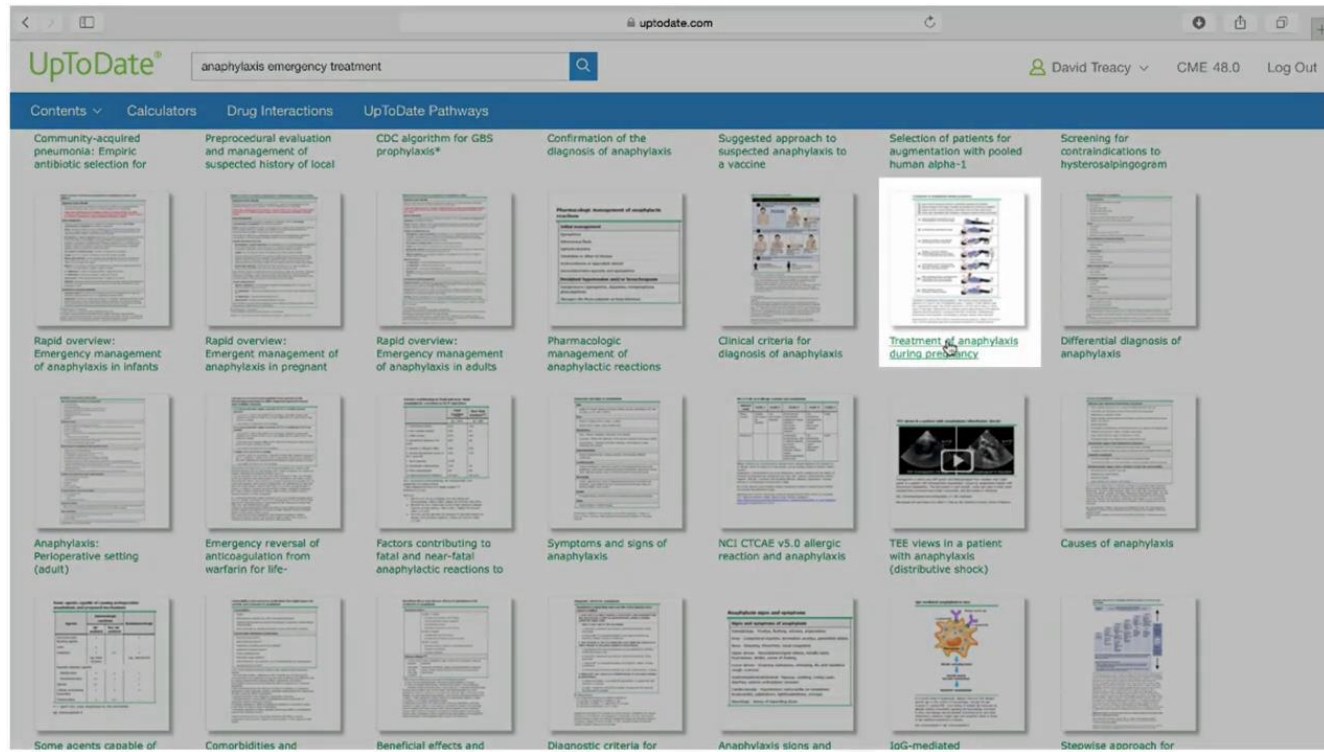
BMI <18.5:	Underweight
BMI ≥18.5 and <25:	Healthy weight
BMI ≥25 and <30:	Overweight
BMI ≥30:	Obesity

References

1. National Institutes of Health (NIH), National Heart, Lung, and Blood Institute (NHLBI). The practical guide: identification, evaluation, and treatment of overweight and obesity in adults. Bethesda: National Institutes of Health. 2000, NIH publication 00-4084.

UpToDate Graphics and Algorithms

- As well as more than 36,000 pictures, figures, tables, graphs, algorithms, and videos



Questions?

Learn more at

<https://www.ariadnelabs.org/areas-of-work/better-evidence/>

Contact us at

betterevidence@ariadnelabs.org



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