



Introduction

Better Evidence and UpToDate



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.

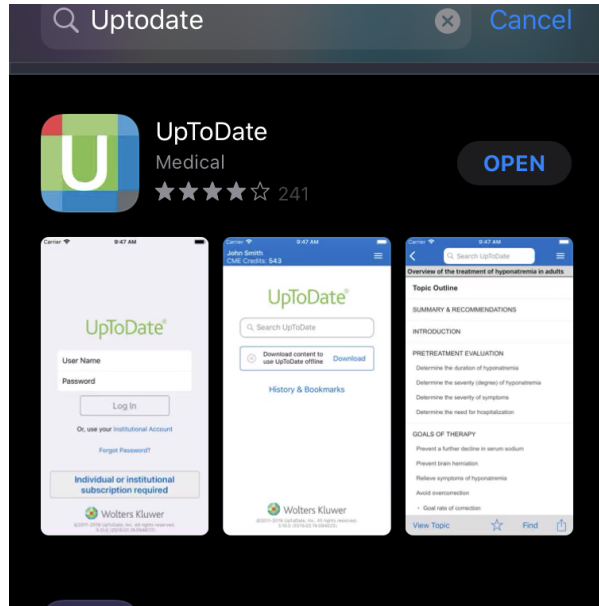
How to Apply for Free UpToDate

- Visit <https://www.better-evidence.org/>
- Click on “**Log In or Sign Up To Apply**”
- Create an account, proceed with the application, and click “**Submit Application**” when complete
- To monitor your application progress, visit the same website and use the same email and password to log in
- Your application will be reviewed and you will be notified of the admissions decision over email within 60 days
- If you are granted access, UpToDate will email you your account details and you can use the tool for free for one year
- 2-3 months before the year ends, you can request to renew your account by logging in to <https://www.better-evidence.org/> and applying again

How to use UpToDate - Online & On Site

- Visit www.uptodate.com/online on any computer, tablet, or phone connected the internet and log in
- Download the **mobile app** to use UpToDate **MobileComplete** on your mobile phone or tablet
- To keep your **account active**, make sure to renew your account 2-3 months before it is set to expire
- If your account gets deactivated because you did not renew in time, **reactivate it by applying for renewal on** <https://www.better-evidence.org/>

How to Download the Mobile App

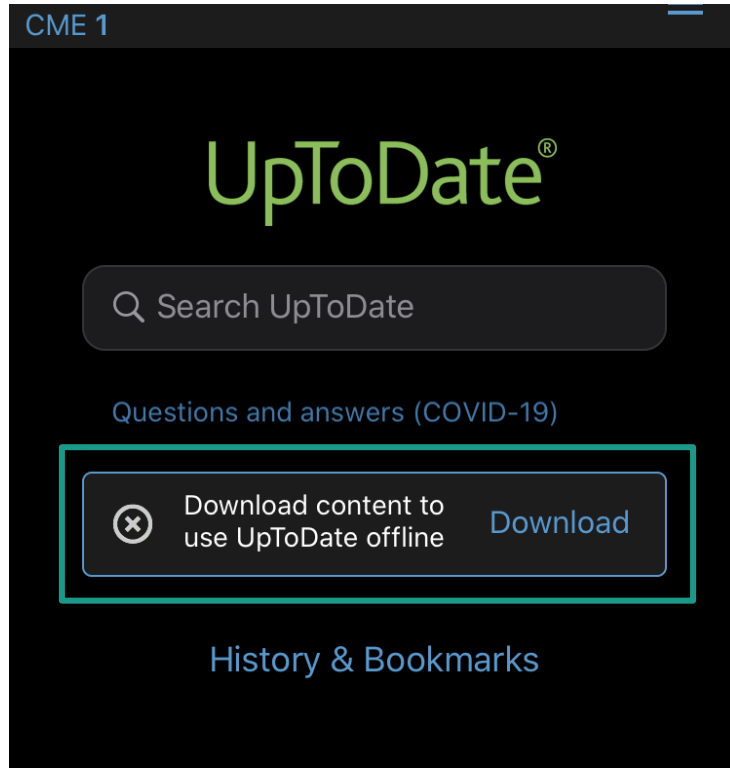


- In the Google Play, Amazon for Android or Apple App store, search “UpToDate”
- Download the UpToDate App
- All subscriptions come with the option to download UpToDate content for use offline through the app, called MobileComplete

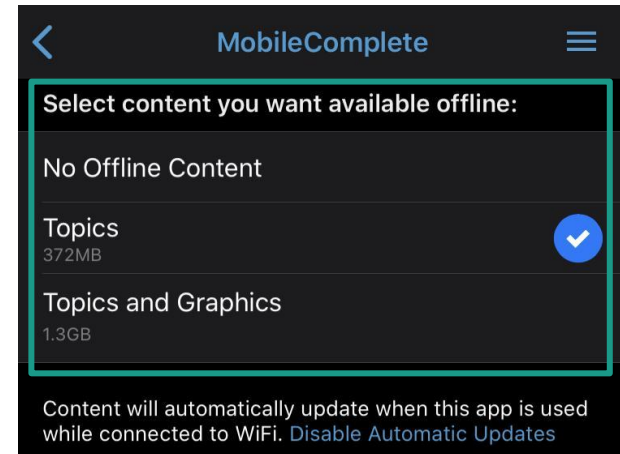


Available at
amazon appstore
for Android

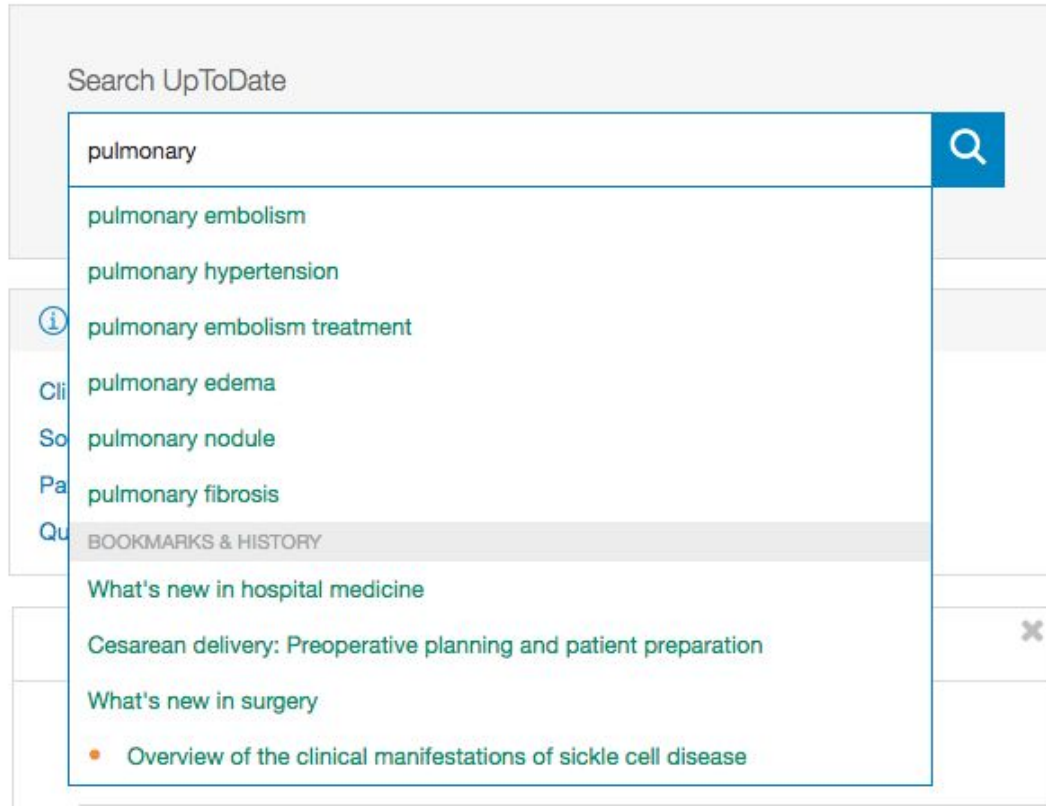
How to use UpToDate Offline with MobileComplete



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

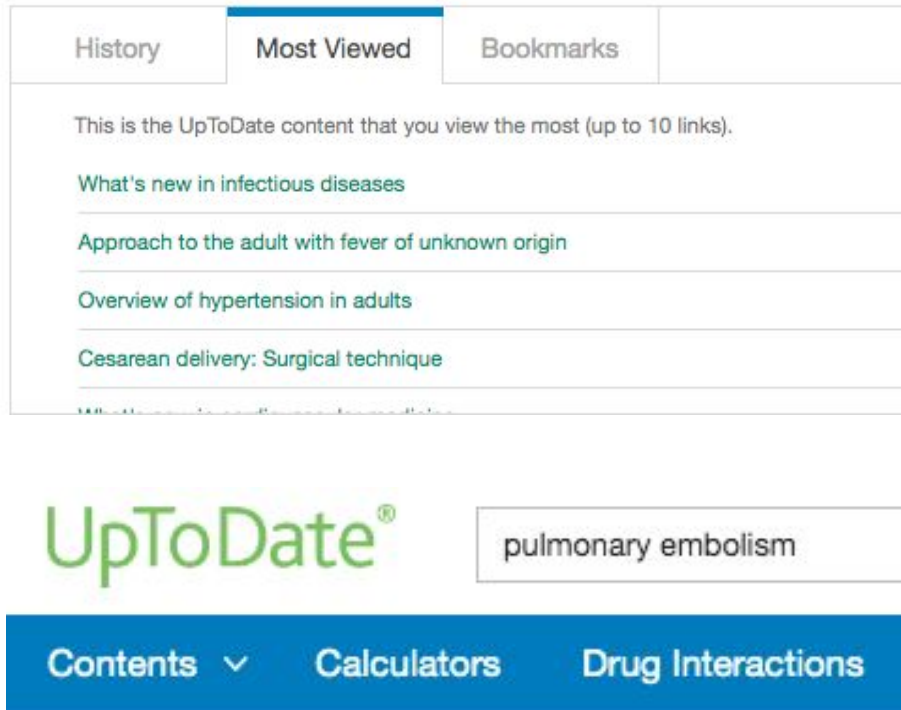


How to Conduct a Search



- 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

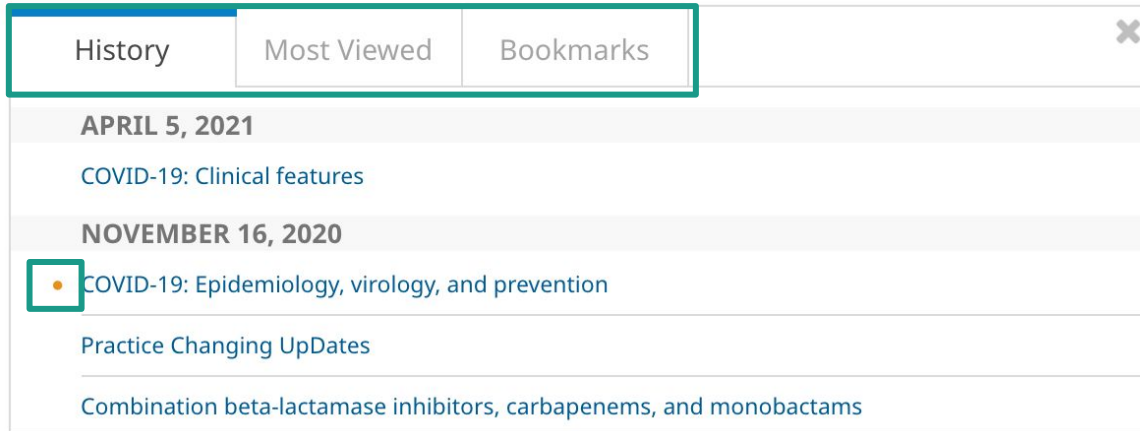
Search Page Additional Functions



The screenshot displays 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 'Most Viewed' tab, a message states: 'This is the UpToDate content that you view the most (up to 10 links)'. A list of five links follows: 'What's new in infectious diseases', 'Approach to the adult with fever of unknown origin', 'Overview of hypertension in adults', 'Cesarean delivery: Surgical technique', and 'Pulmonary embolism'. Below this list, the UpToDate logo is visible on the left, and a search bar on the right contains the text 'pulmonary embolism'. At the bottom, a blue navigation bar contains the 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 search results page. 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 bar, it says 'Showing results for **pulmonary embolism treatment**'. There are five filter buttons: 'All' (highlighted in blue), 'Adult', 'Pediatric', 'Patient', and 'Graphics'. Below the filters, it 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, it says '... 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 this result snippet, the text 'Reperfusion therapy' is shown in blue.

- 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



SUMMARY AND RECOMMENDATIONS

WHAT'S NEW

INTRODUCTION

INITIAL APPROACH AND RESUSCITATION

Assess hemodynamic stability

- Hemodynamically stable
- Hemodynamically unstable

Initial therapies

- Respiratory support
- Hemodynamic support
- Empiric anticoagulation

Treatment, prognosis, and follow-up of acute pulmonary embolism in adults

Authors: [Victor F Tapson, MD](#), [Aaron S Weinberg, MD, MPhil](#)

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Deputy Editor: [Geraldine Finlay, MD](#)

[Contributor Disclosures](#)

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**.

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 icons for a user profile, a dropdown arrow, and a blue "Menu" button. Below the search bar is a navigation bar with a blue "Back to Search" link, the current topic "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 font size icon, and a "Bookmark" button. On the left side, a sidebar lists "WHAT'S NEW" and "INTRODUCTION" (highlighted in blue). Below "INTRODUCTION" are sections for "INITIAL APPROACH AND RESUSCITATION" and "Assess hemodynamic stability", which includes a bulleted list: "Hemodynamically stable", "Hemodynamically unstable", "Initial therapies", "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 window is overlaid on the text, showing "1 of 13" results, "Synonym" and "Exact" filters, and navigation arrows. The text in the main area mentions "sometimes fatal disease with a highly variable clinical presentation" and "thromboembolism and death can be prevented [1-5]". At the bottom, it states "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.

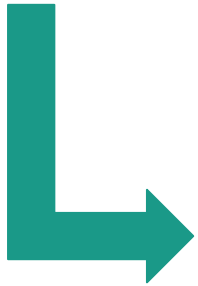
Explanation:

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 ListAnalyze

–

Azithromycin (Systemic)

–

Digoxin

–

HydroCHLORothiazide

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

X	Avoid combination	C	Monitor therapy	A	No known interaction
D	Consider therapy modification	B	No action needed	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.

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, Cyclopenthiiazide, 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 displays the UpToDate website's clinical calculator interface. At the top, the UpToDate logo is visible, along with navigation links for Language, Help, and a search bar. Below the logo, a search bar contains the text "Search UpToDate". To the right of the search bar are links for Contents, Patient Education, What's New, Practice Changing UpDates, Calculators, and Drug Interactions. The main heading for the calculator is "Calculator: Body mass index (BMI) for adults (Metric, Patient education)". Below this, a brief explanation states: "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." The input section, labeled "Enter height and weight:", includes two rows of input fields. The first row is for Height, with a value of 182 and a unit dropdown set to cm. The second row is for Weight, with a value of 60 and a unit dropdown set to kg. To the right of the input fields, the "Result:" section shows the calculated BMI as 18.1. Below the result is a "Reset form" button. A "BMI interpretation" section is located below the input fields, containing a table with BMI ranges and their corresponding weight categories. The table is highlighted with a white box. At the bottom of the page, a "References" section lists a single reference from the National Institutes of Health (NIH).

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

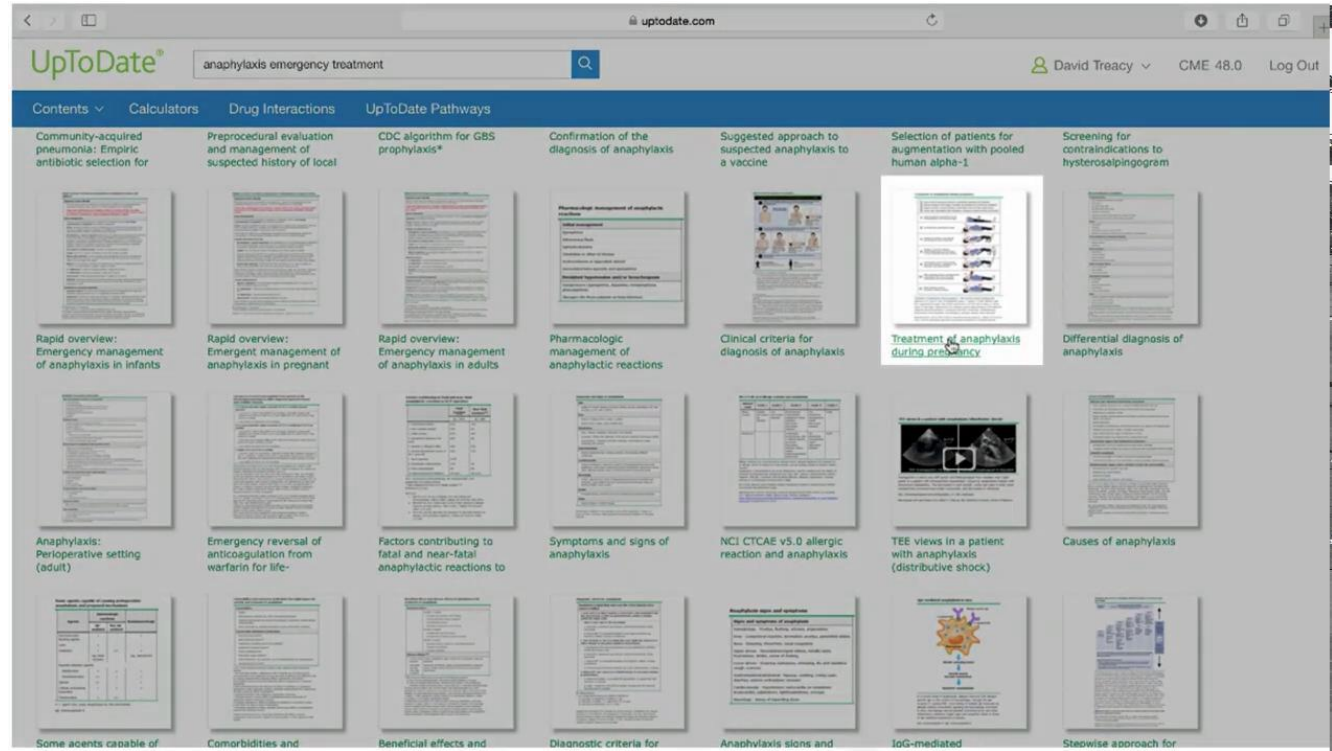
BMI <18.5:	Underweight
BMI ≥18.5 and <25:	Healthy weight
BMI ≥25 and <30:	Overweight
BMI ≥30:	Obesity

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?

Contact us at

beproviders@globalhealthdelivery.org