UpToDate

Understanding Clinical Decision Support

Janet Broome – Sales Manager, UK, Ireland and Italy

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Introduction

- Why Point of Care/Clinical Decision Support
- What is UpToDate – Features and Benefits
- Research Studies
- Myths and Misconceptions
- UpToDate in the UK
- WIIFM – UpToDate and NHS Library Services

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Why CDS? Doctors Have Clinical Questions

Unanswered clinical questions impact patient management decisions

Approximately 2 out of 3 clinical encounters generate a question

Physicians have approximately 11 clinical questions a day

40%

of questions get answered

Covell, DG. Ann Intern Med 1985; 103:596; Green, ML. AM J Med 2002; 109:218; Osheroff, JA. Ann Intern Med 1991:575; Ely, JW. J Am Med Inform Assoc 2005; 12:217; Gorman, PN. Med Decis Making 1995; 15:113.

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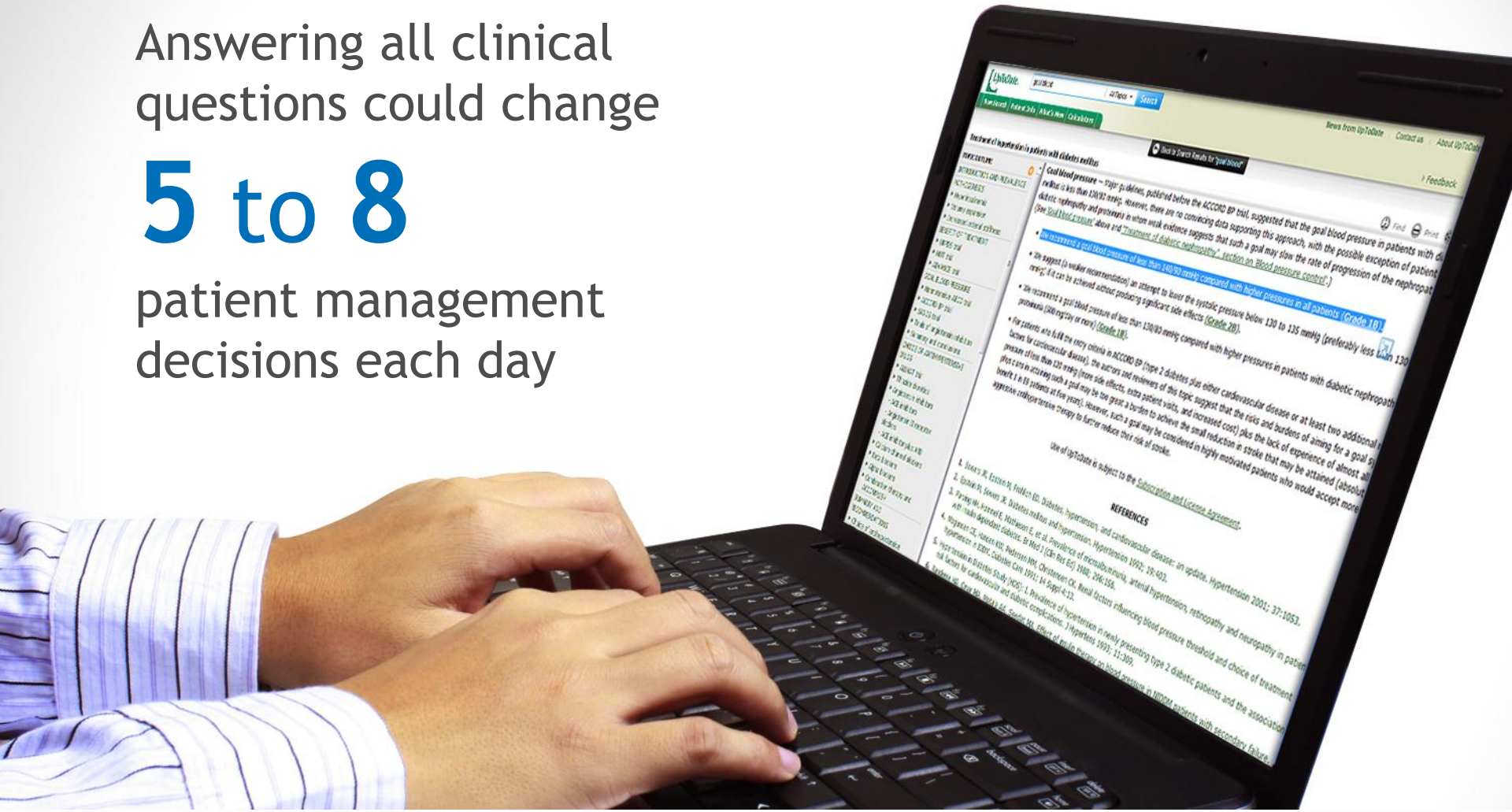
Many Clinical Questions Go Unanswered

Answering all clinical questions could change

5 to 8

patient management decisions each day



Covell, DG. Ann Intern Med 1985; 103:596; Green, ML. AM J Med 2002; 109:218; Osheroff, JA. Ann Intern Med 1991:575; Ely, JW. J Am Med Inform Assoc 2005; 12:217; Gorman, PN. Med Decis Making 1995; 15:113.

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Where do Clinicians go when they have questions?

Recent HSJ Webinar impact of CDS on Patient Safety – Dr Peter Williams – St Helen's and Knowsley

Interviews with 15 Junior Doctors

- Ask a colleague
- Internet – Dr Google
- Use Local Trust Guidelines
- NICE Guidelines
- Use Oxford Handbooks
- Question – what are your Junior Doctors and Consultants using to answer clinical questions?

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Features of CDS systems that are correlated with improving patient care*

- Integrated into the workflow
- Electronic based
- Provide decision support at the time and location of care rather than prior to or after the patient encounter
- Provides recommendations for care, not just assessments

*Kawamoto, K, et al. Improving clinical practice using clinical decision support systems: a systematic review of trials to identify features critical to success. BMJ 2005; 330:740.

Features of CDS

- Comprehensive
- Evidence Based
- Easy to Use
- Trusted

What is UpToDate?

•The oldest and most established CDS System (22 years)

• Electronic Evidence-Based Clinical Decision Support System written by Physicians for Clinicians and Healthcare professionals to:-

• answer clinical questions – quickly and accurately

• improve clinical knowledge

• improve patient care

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What Is UpToDate?

- CDS widely used around the Globe
  - 700,000+ clinicians in 158 countries use UpToDate to improve care
  - 90% of academic medical centers in US, 95% in Benelux, 95% in Germany, 86% in Japan
  - Part of clinical workflows in over 25,000 institutions and practices worldwide
  - Over 100 hospitals in the UK
- Depth and breadth
  - 5,100+ authors, editors and peer reviewers from 51 countries (250 of these are based in the UK)
  - 50 physician editors on staff
  - 10K topics over 20+ specialties, 9K evidenced-based, graded recommendations
  - 20 million topics accessed each month
  - Editorial independence

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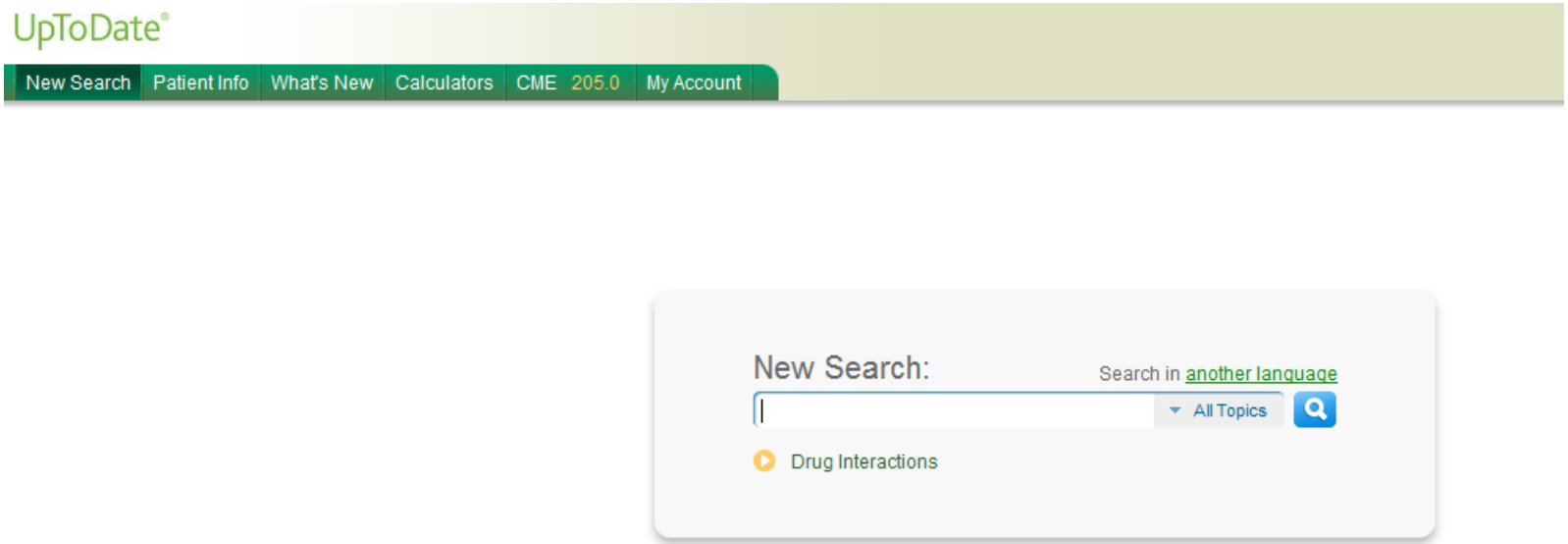
Features of UpToDate

Ease of Use



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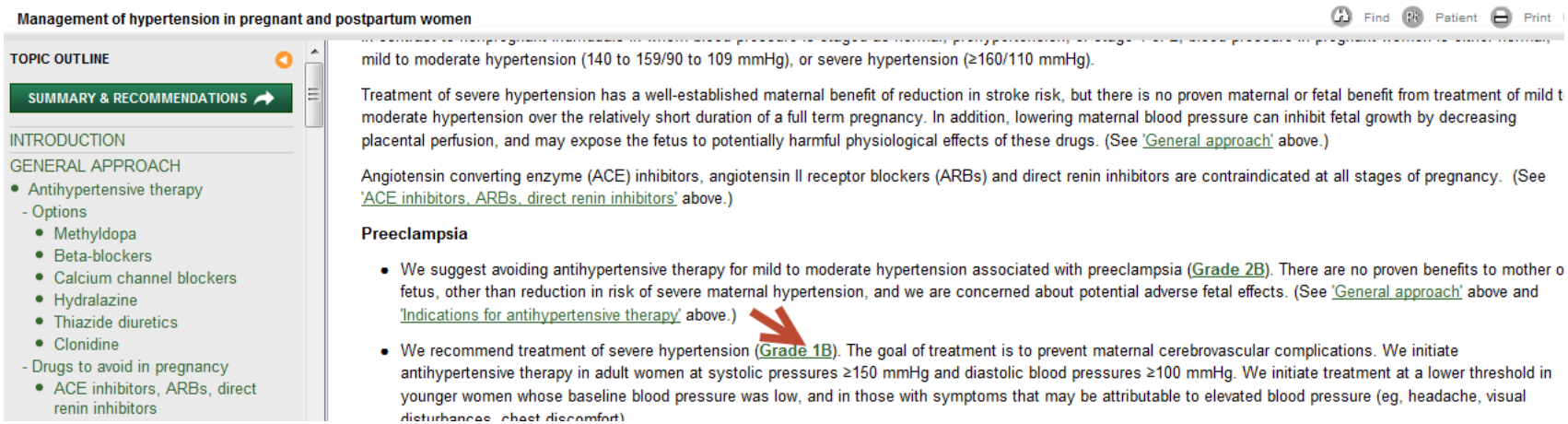
Graded Summaries and Treatment Recommendations

- Grade System is an international system
- UpToDate has been working with Gordon Guyatt – McMaster University since 2000
- We are part of the Grade Working Group (Grading of Recommendations Assessment, Development and Evaluation)
- Graded Recommendations have been part of UTD since 2005

Graded Recommendation

9,000 Graded Recommendations in UpToDate



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Grade

- Two Parts to the Grade
- Strength of the Recommendation

Grade 1B recommendation

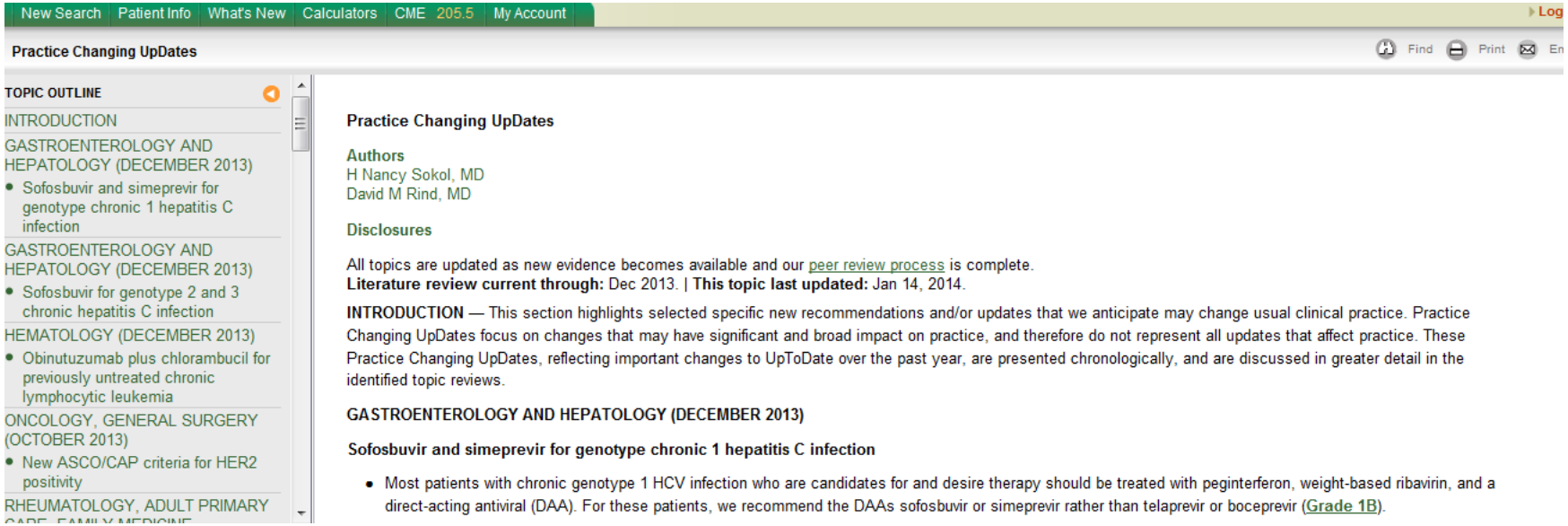
A Grade 1B recommendation is a strong recommendation, and applies to most patients. Clinicians should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.
Explanation:
A Grade 1 recommendation is a strong recommendation. It means that we believe that if you follow the recommendation, you will be doing more good than harm for most, if not all of your patients.
Grade B means that the best estimates of the critical benefits and risks come from randomized, controlled trials with important limitations (eg, inconsistent results, methodologic flaws, imprecise results, extrapolation from a different population or setting) or very strong evidence of some other form. Further research (if performed) is likely to have an impact on our confidence in the estimates of benefit and risk, and may change the estimates.

Recommendation grades
1. Strong recommendation: Benefits clearly outweigh the risks and burdens (or vice versa) for most, if not all, patients
2. Weak recommendation: Benefits and risks closely balanced and/or uncertain

Evidence grades
A. High-quality evidence: Consistent evidence from randomized trials, or overwhelming evidence of some other form
B. Moderate-quality evidence: Evidence from randomized trials with important limitations, or very strong evidence of some other form
C. Low-quality evidence: Evidence from observational studies, unsystematic clinical observations, or from randomized trials with serious flaws

Practice Changing Updates

- Practice Changing Updates – What's New



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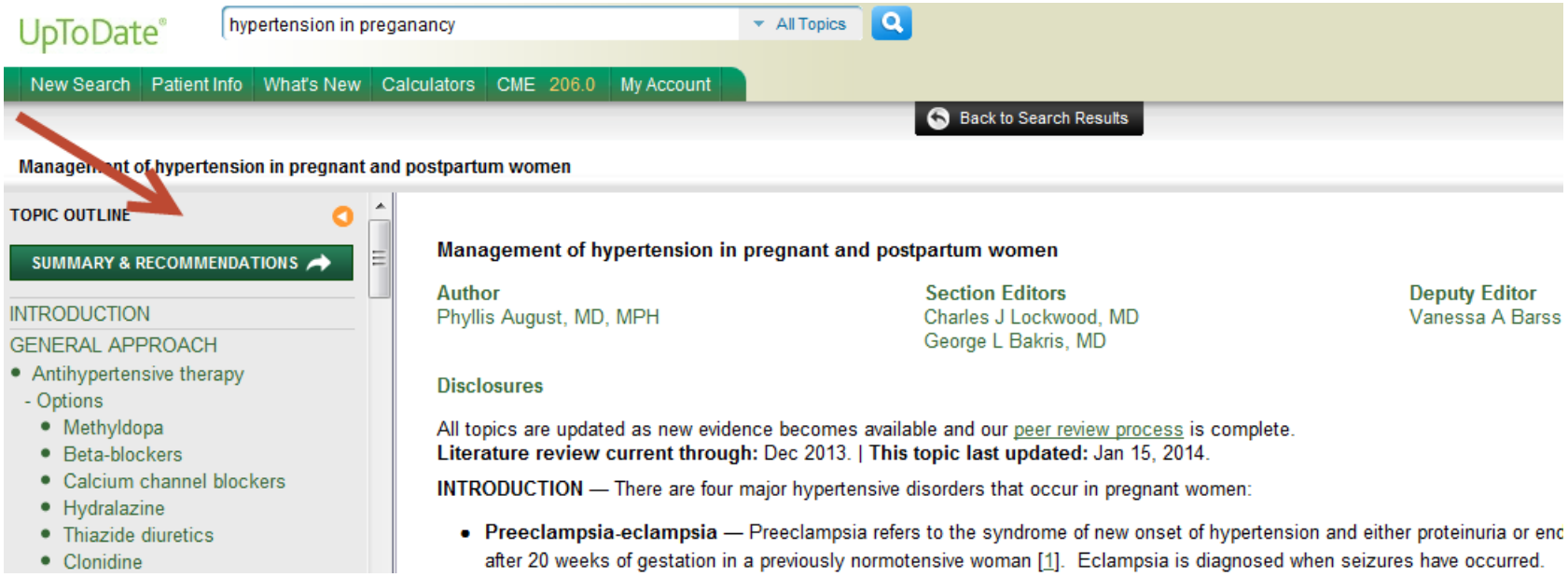
Topic Outlines

- Written in the way a clinician thinks



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Patient Information

- Over 1,500 Patient Information Topics
- Non-Clinical – (Basic)
- Clinical – (Beyond the Basics)
- Patient information topics are written by the same authors who write the topics – in some CDS systems patient information contradicts what is in the topic
- Patient information topics can be e-mailed out to patients
- Beyond the basics is used extensively in the Medical Schools to give a good overview of the condition

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Graphics Database

- A Graphics Database of over 25,000 Graphics including tables, figures, images and videos
- These can be downloaded into PowerPoint and can be used in creating Course Packs and Training Materials
- Our authors personally select graphics to illustrate and support the topic findings

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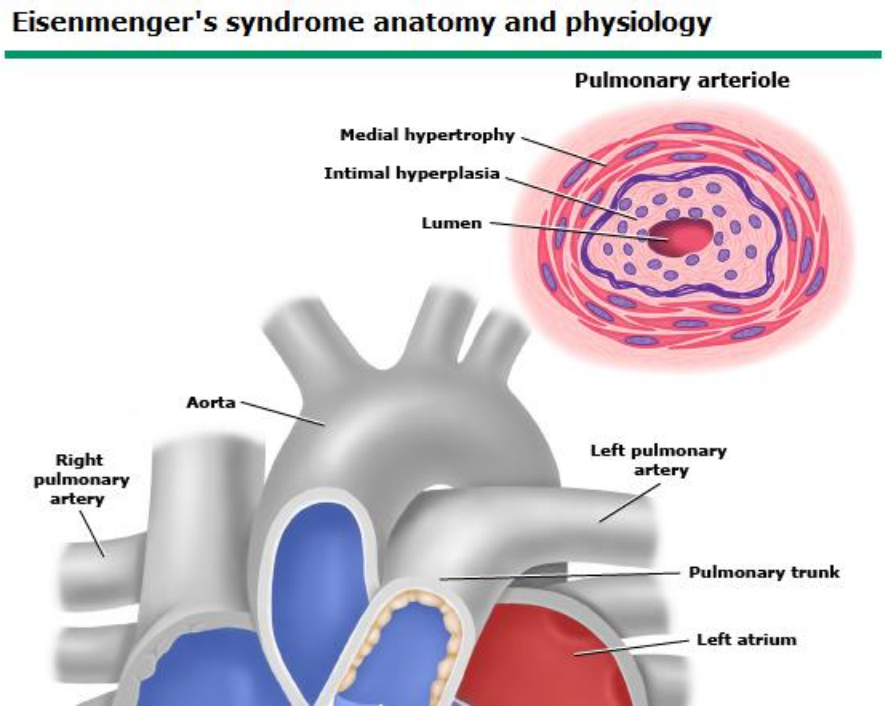
Graphic Example

Export To PowerPoint



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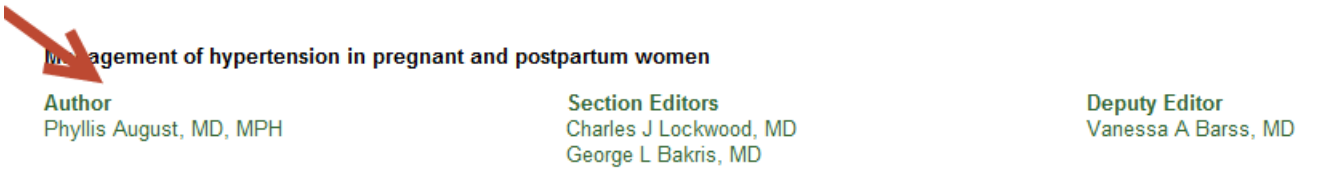
Editorial Process

- UpToDate has a rigorous editorial three tier process
- Author, Editor and Section Editors
- We use a blind peer review process
- Always list who has authored the topic



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Editorial Process

- Our 5,100 authors, editors world wide review over 450 high impact factor titles and open access titles synthesize the findings, and write original topics
- Many topics have 60 plus reviewed articles
- As standard for each topic we review BMJ, Lancet, NEJM and JAMA and specialist titles for the specialty
- Link to UpToDate Reviewed Journals
- http://www.uptodate.com/home/journals-reviewed-uptodate

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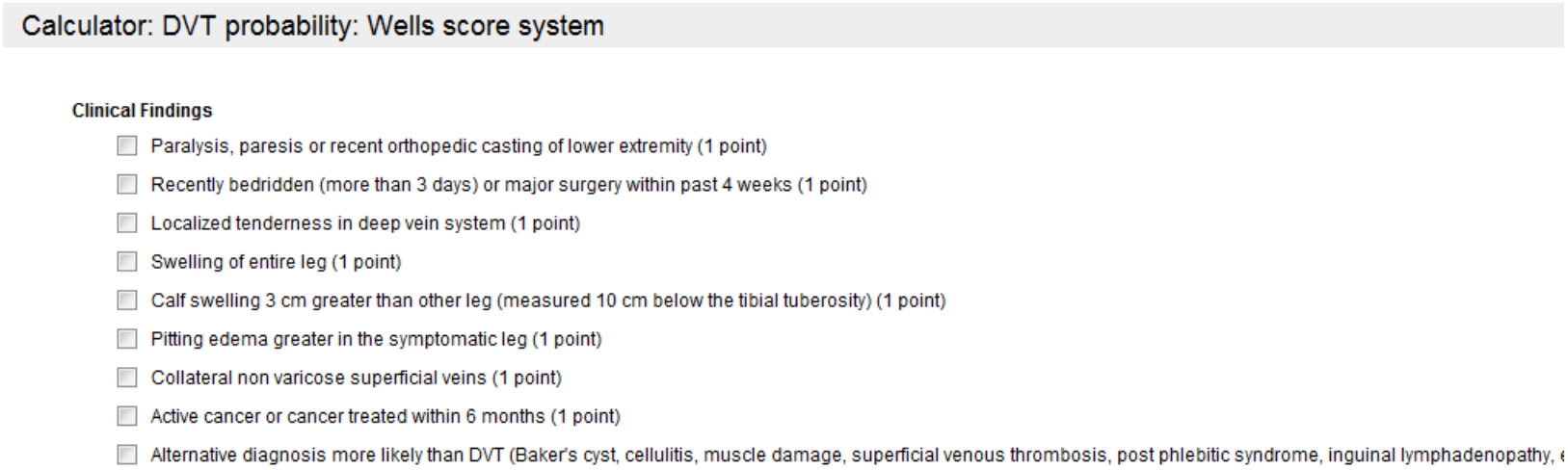
Medical Calculators

- 140 Medical Calculators which can be searched our browsed


Calculator: DVT probability: Wells score system

Clinical Findings

- ☐ Paralysis, paresis or recent orthopedic casting of lower extremity (1 point)
- ☐ Recently bedridden (more than 3 days) or major surgery within past 4 weeks (1 point)
- ☐ Localized tenderness in deep vein system (1 point)
- ☐ Swelling of entire leg (1 point)
- ☐ Calf swelling 3 cm greater than other leg (measured 10 cm below the tibial tuberosity) (1 point)
- ☐ Pitting edema greater in the symptomatic leg (1 point)
- ☐ Collateral non varicose superficial veins (1 point)
- ☐ Active cancer or cancer treated within 6 months (1 point)
- ☐ Alternative diagnosis more likely than DVT (Baker's cyst, cellulitis, muscle damage, superficial venous thrombosis, post phlebitic syndrome, inguinal lymphadenopathy,

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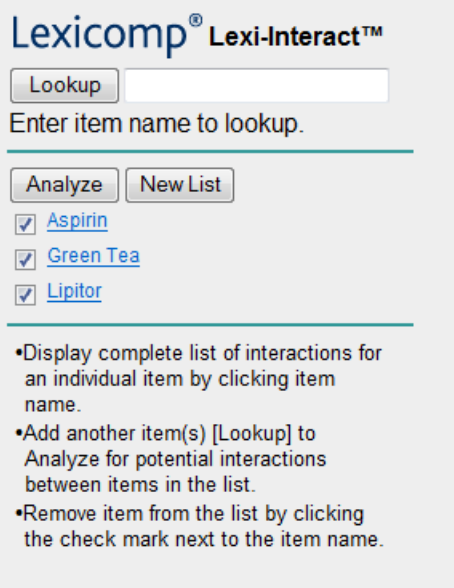
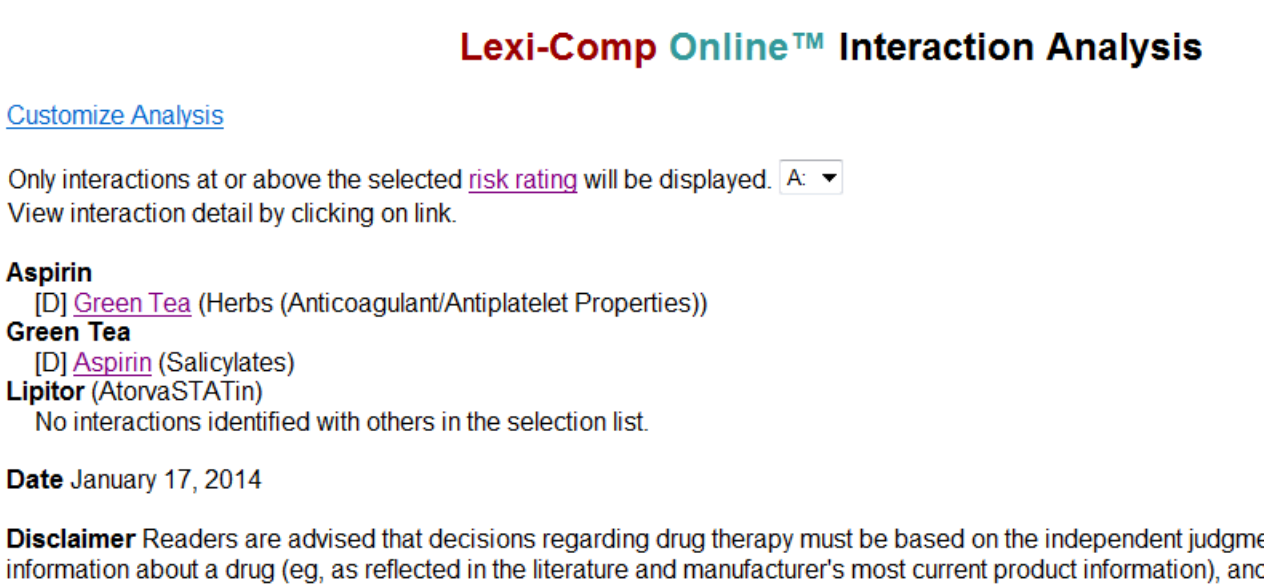
Drug Interactions Database

Analyses the drug interactions prescribed drugs, over the counter drugs and herbal medicines





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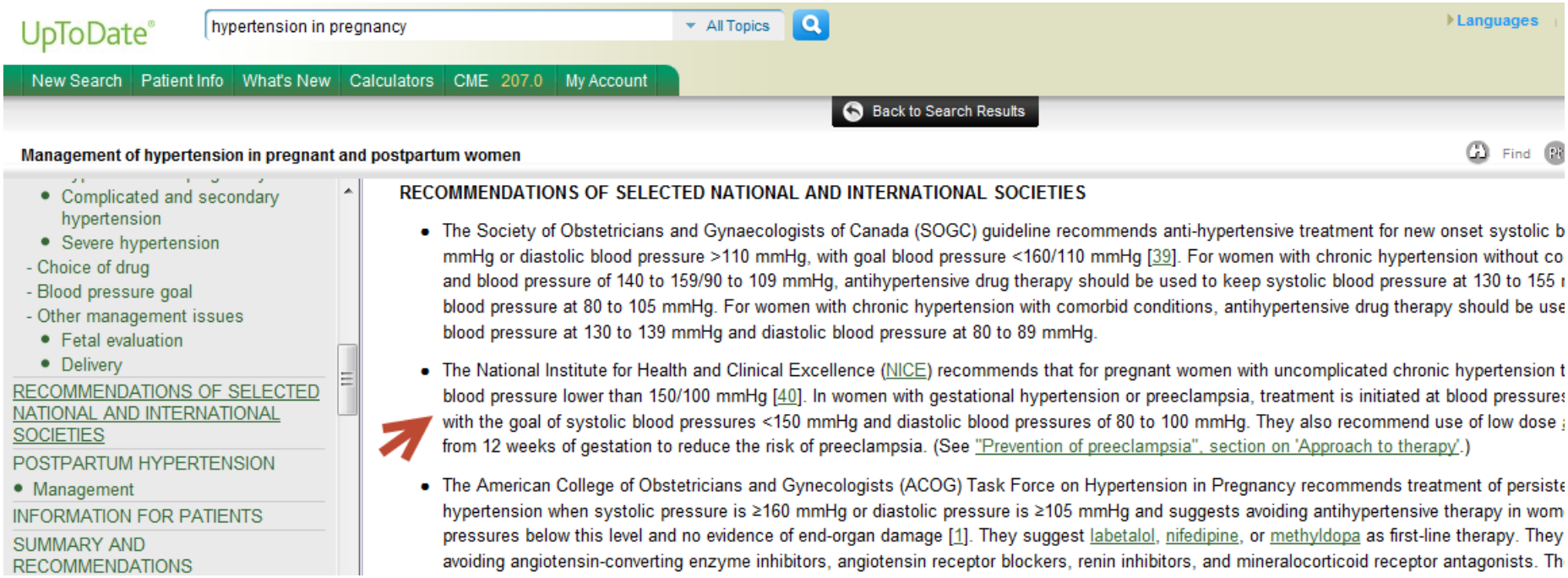
Selected International Guidelines

- Include Selected International Guidelines



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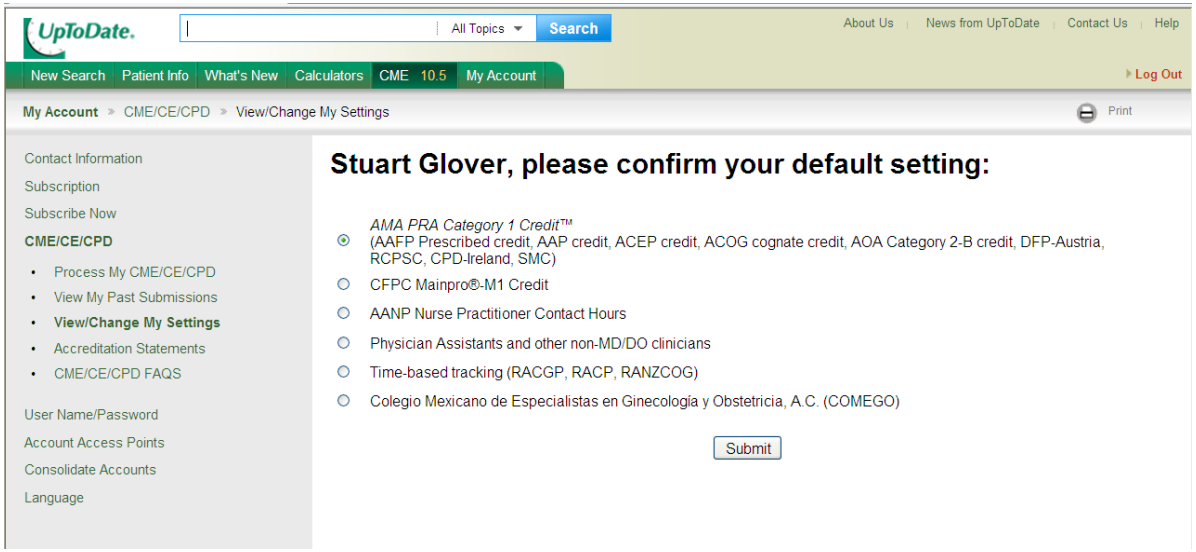
CPD and UpToDate

- UHL used CME Reflection Page for CPD



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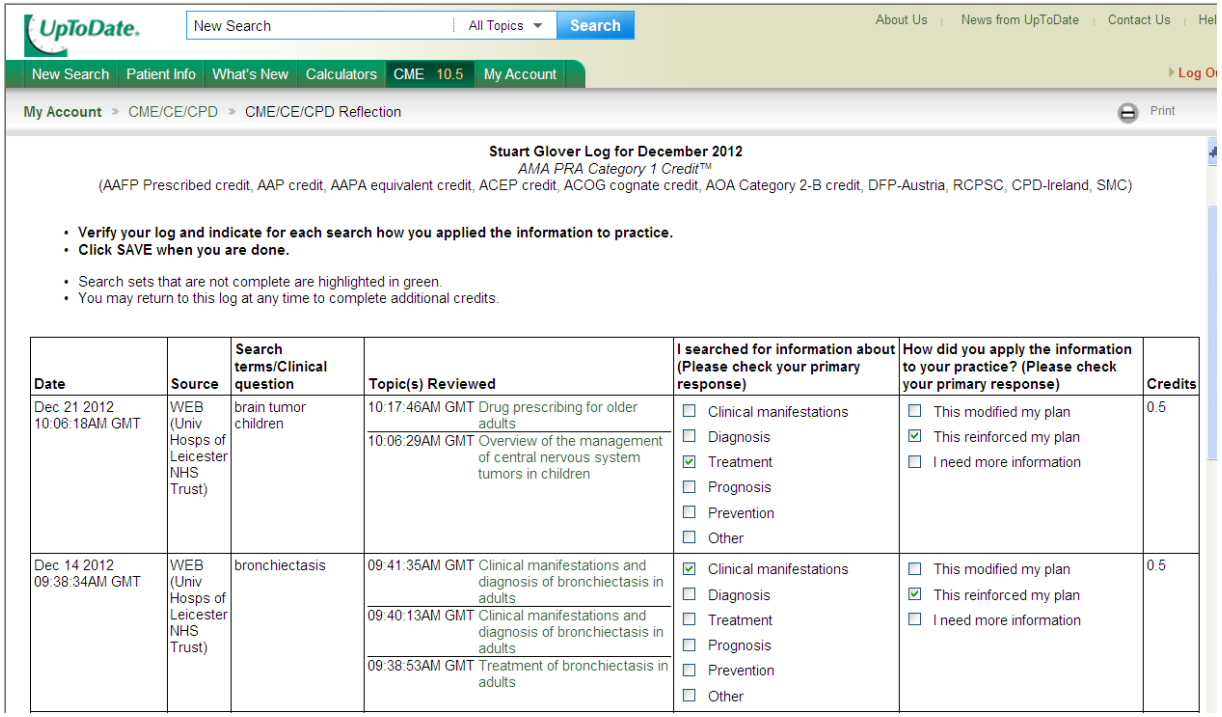
CPD



UpToDate. New Search All Topics Search

About Us | News from UpToDate | Contact Us | Hel

New Search | Patient Info | What's New | Calculators | CME 10.5 | My Account | Log O

My Account » CME/CE/CPD » CME/CE/CPD Reflection

Print

Stuart Glover Log for December 2012

AMA PRA Category 1 Credit™

(AAFP Prescribed credit, AAP credit, AAPA equivalent credit, ACEP credit, ACOG cognate credit, AOA Category 2-B credit, DFP-Austria, RCPSC, CPD-Ireland, SMC)

- **Verify your log and indicate for each search how you applied the information to practice.**
- **Click SAVE when you are done.**

- Search sets that are not complete are highlighted in green.
- You may return to this log at any time to complete additional credits.

Date	Source	Search terms/Clinical question	Topic(s) Reviewed	I searched for information about (Please check your primary response)	How did you apply the information to your practice? (Please check your primary response)	Credits
Dec 21 2012 10:06:18AM GMT	WEB (Univ Hosps of Leicester NHS Trust)	brain tumor children	10:17:46AM GMT Drug prescribing for older adults 10:06:29AM GMT Overview of the management of central nervous system tumors in children	☐ Clinical manifestations ☐ Diagnosis ☑ Treatment ☐ Prognosis ☐ Prevention ☐ Other	☐ This modified my plan ☑ This reinforced my plan ☐ I need more information	0.5
Dec 14 2012 09:38:34AM GMT	WEB (Univ Hosps of Leicester NHS Trust)	bronchiectasis	09:41:35AM GMT Clinical manifestations and diagnosis of bronchiectasis in adults 09:40:13AM GMT Clinical manifestations and diagnosis of bronchiectasis in adults 09:38:53AM GMT Treatment of bronchiectasis in adults	☑ Clinical manifestations ☐ Diagnosis ☐ Treatment ☐ Prognosis ☐ Prevention ☐ Other	☐ This modified my plan ☑ This reinforced my plan ☐ I need more information	0.5

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Ample Evidence for Impact of CDS

Widespread, global usage of UpToDate has lead to it being most researched and studied CDS

Over 30 studies

Recent research from the UK demonstrates CDS changes decision making and behavior

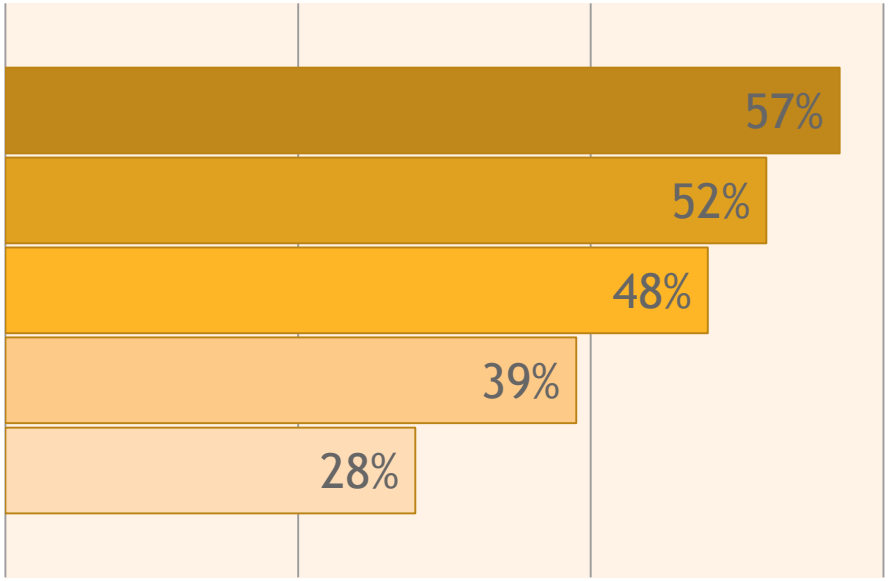
- Investigators surveyed doctors at healthcare organizations in North West England which subscribe to UpToDate.

- Respondents were asked to describe a scenario in which they had used UpToDate, and to identify benefits, if any, associated with that scenario.

Addison J, Whitcombe J, Glover SW. *How doctors make use of online, point-of-care clinical decision support systems: a case study of UpToDate*. Health Information & Libraries Journal, 2012 30, pp. 13-22

Recent research from the UK

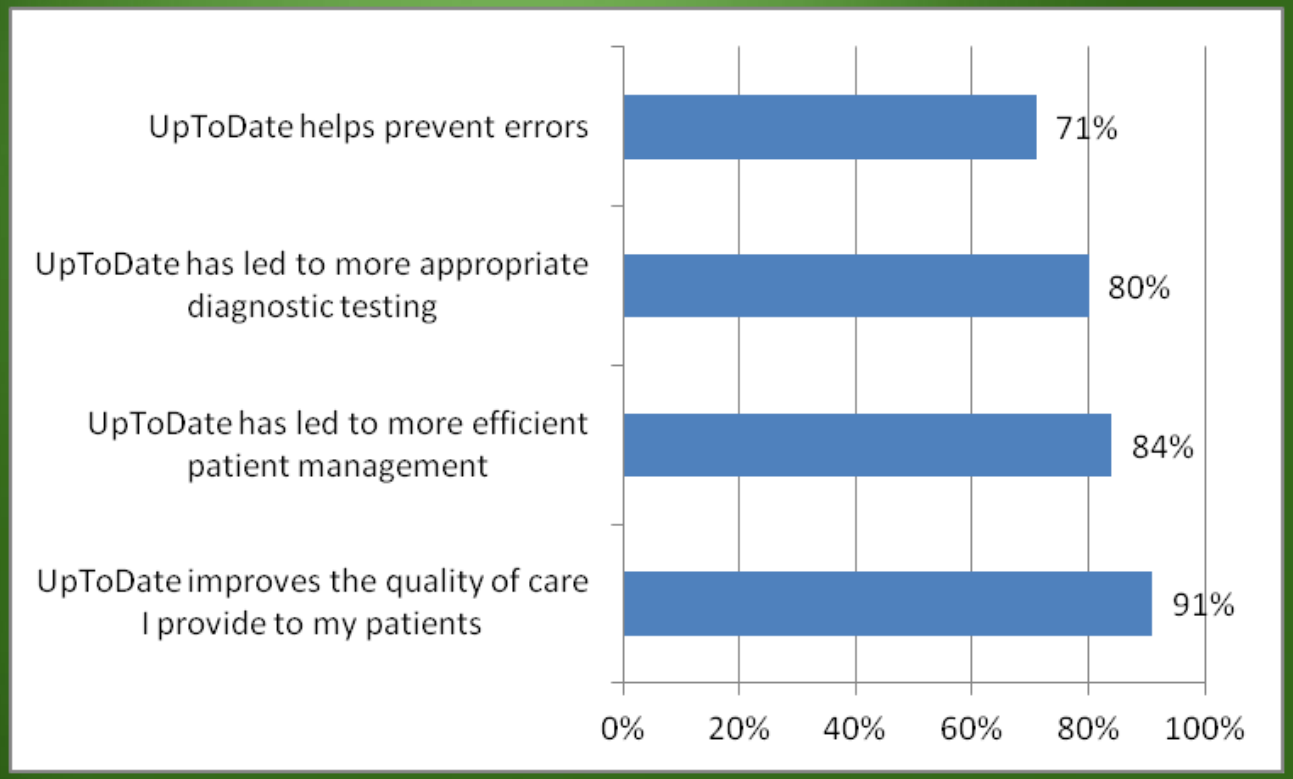
More than 90% of the 239 respondents who had used UpToDate identified at least one benefit:



Addison J, Whitcombe J, Glover SW. *How doctors make use of online, point-of-care clinical decision support systems: a case study of UpToDate*. Health Information & Libraries Journal, 2012 30, pp. 13-22

UpToDate UK Subscriber Survey Results

Respondents to a 2012 subscriber survey in the UK shared the following



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Use of UpToDate Associated with Improved Outcomes

Solucient[1] studied the impact of UpToDate on length of stay, patient complications and patient safety[2]

Impact

Significantly shortens lengths of stay

Significantly lowers complication rates

Significantly lowers adverse outcome rates

(1) Solucient maintains the nation's largest healthcare database, comprised of more than 26 million discharges per year from 2,900 hospitals.

(2) Bonis PA. Association of a clinical knowledge support system with improved patient safety, reduced complications and shorter length of stay among Medicare beneficiaries in acute care hospitals in the US. Int J Med Inform 2008; 77:745.

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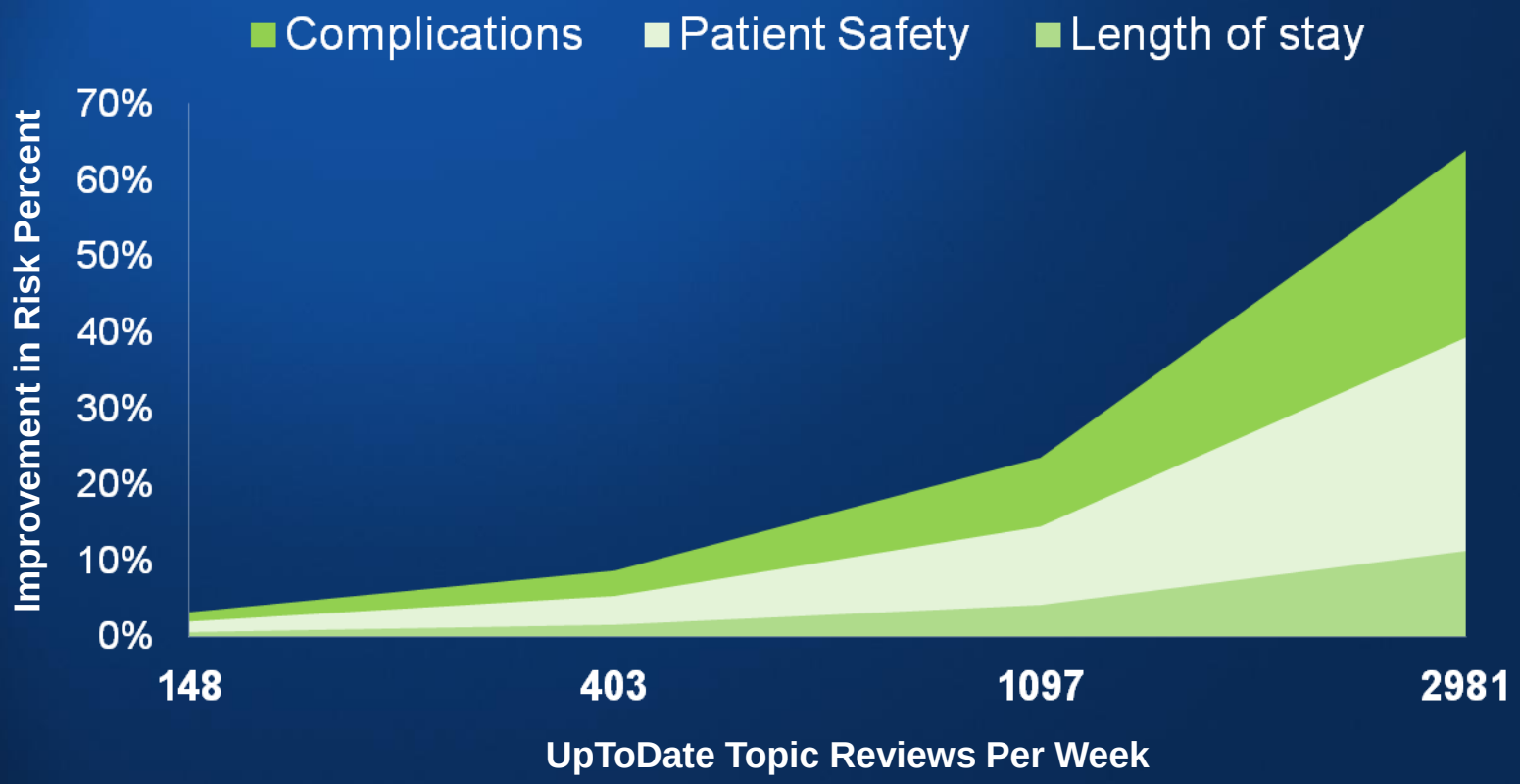
The more UpToDate is used the better the outcomes

UpToDate Usage Levels and Impact on Patient Complications, Patient Safety, and length of stay



Int J Med Inform 2008;77:745

Researchers at Harvard University Find UpToDate Associated with Improved Outcomes

Use of UpToDate Associated with:

Improved Quality
Every condition on Hospital Quality Alliance Metrics

Shorter Lengths of Stay
372,000 days over 1 year

Lower Mortality Rates
11,500 lives over 3 years

Isaac T, Zheng J, Jha A. Use of UpToDate and outcomes in US hospitals. J Hosp Med 2012; 7:85.

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Research Is Global

Phua J, See KC, Khalizah HJ, et al. Utility of the electronic information resource UpToDate for clinical decision-making at bedside rounds. Singapore Med J 2012; 53:116.

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Forrester Study (UK)

The Total Economic Impact Of UpToDate's Clinical Decision Support System For Healthcare Institutions

A Case Study Of Salford Royal NHS Foundation Trust

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Forrester

- Findings were ROI within first three months in terms of cost savings in terms of reduced diagnostic tests efficiencies

Table 1

UpToDate: One-Year, Risk-Adjusted Benefits, Costs, And ROI Summary

ROI	Payback period	Total benefits	Total costs
402%	Within 3 months	£123,958	(£24,678)

Source: Forrester Research, Inc.

Myths and Misconceptions

- We are not up-to-date
- Too American
- We do not support Nice Guidelines
- Drug Information
- Mobile app

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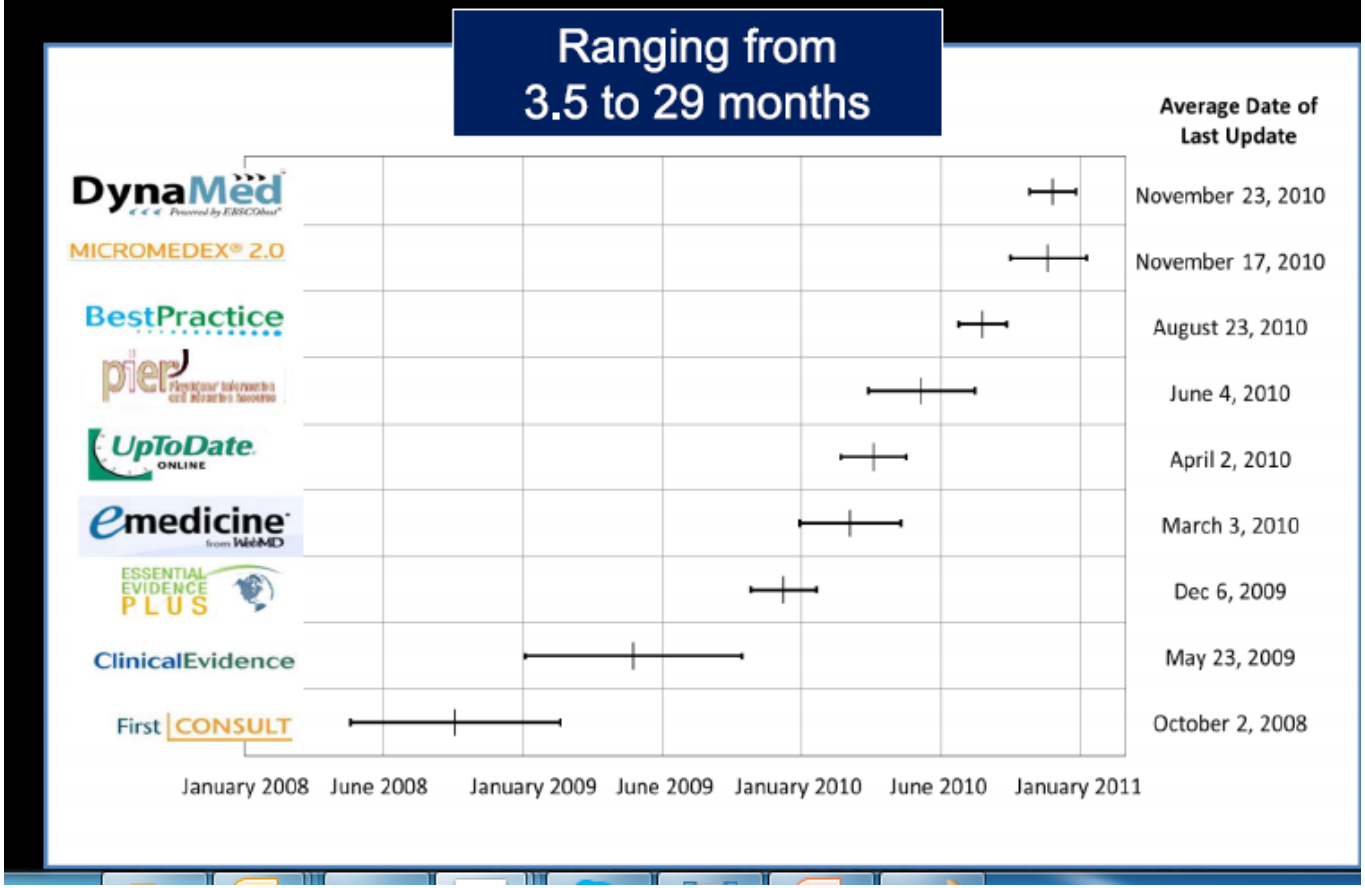
Average time of updating of 60 topics (randomly selected) as of July 2011



Continuous Publishing

- UpToDate implemented continuous publishing in 2012 – update 5 days a week
- Before that Practice Changing UpDates we updated immediately.

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Too American

- 158 countries use UpToDate to improve care
- Part of clinical workflows in over 25,000 institutions and practices worldwide
- Over 100 hospitals in the UK
- Have over 250 contributors from the UK
- If you were to survey departments within your hospital – within their top 10 journals American journals would be cited.
- Representation from UK Library and Clinical Communities

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Nice Guidelines

- We support selected guidelines from international bodies
- CAG has raised this with us
- A number of Trusts use UTD to write their local guidelines in conjunction with NICE Guidelines

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Drug Information

- Dosing is US
- This has been managed in over 100 Trusts by training
- We are working with a group of UK Customers at the moment on the feasibility of incorporating BNF into UpToDate

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Feedback on Drug Information in UTD

Daily Telegraph

http://www.telegraph.co.uk/technology/news/10488778/Digital-doctors-how-mobile-apps-are-changing-healthcare.html

"One of my favorite things about using the UpToDate app is the access to Lexicomp, the Wolters Kluwer Health drug database. I had a patient the other day who was reporting a very unusual symptom that he was claiming was a side effect of an HIV medication he was on," she said.

"I looked it up in our local BNF (British National Formulary) system and the information was very generic. I then looked it up on UpToDate and was able to show that in fact, he was right. UpToDate noted that 1-6% of patients experienced headaches while using this medication. With UpToDate, getting an answer was really quick and I was able to show the patient."

Dr Effrossyni Gkrania-Klotsas, infectious diseases consultant at Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust,

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Mobile App

- UHL are our Beta Test Partner for the institutional mobile app (UTDA)
- We currently offer a mobile optimised version “app like” and designed for ward rounds
- Launching the Mobile App for institutions Q2 and your UTD account manager will be contacting you regarding an implementation plan
- Many Trusts are not mobile ready
- Have no mobile policy
- This is an opportunity for librarians to promote their skills and support

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UpToDate in the UK

- Implemented in over 100 Trusts and Medical Schools
- Trusts are using us for CPD and Revalidation
- Support the QIPP Agenda
- Quality – Evidence Based
- Innovative – Ease of Use – clearly defined strategy for the deployment of mobile
- Productive – Associated with cost savings reducing length of hospital stays (Harvard Public Health Study)
- Prevention – Associated with prevention and improving Patient Safety and Care
- Being used in some Trusts to write local Trust Guidelines

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UpToDate in the UK

- European Clinical Advisory Board
- Dr Paul Altmann – CCIO Oxford Universities NHS Trust
- Dr Michael Fisher – CCIO and Consultant Cardiologist – Royal Liverpool and Broadgreen
- Library Advisory Board
- Betsy Anagnostelis – UCL/Royal Free
- Sarah Sutton – UHL NHS Trust

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WIIFM – UpToDate and an NHS Library Service

- As standard we implement all NHS customers with the NHS Evidence link resolver
- In December I completed a project to set-up all existing customers with the NHS Evidence Resolver
- Librarians have reported increased journal usage
- By bringing expensive full text to the POC it has exposed the library
- Enabled librarians to support an evidence-based collection development policy
- Saying “No” has been easier
- Increased Athens usage

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WIIFM – UpToDate and NHS Library Services

- Involvement in mobile strategies
- New opportunity to rebrand and promote services you offer
- Trusts librarians working with Medical Education writing e-learning using graphics and content from UTD
- Our very detailed usage statistics help identify areas for training development

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UpToDate in the UK

- Electronic Health Record (EHR) System integration

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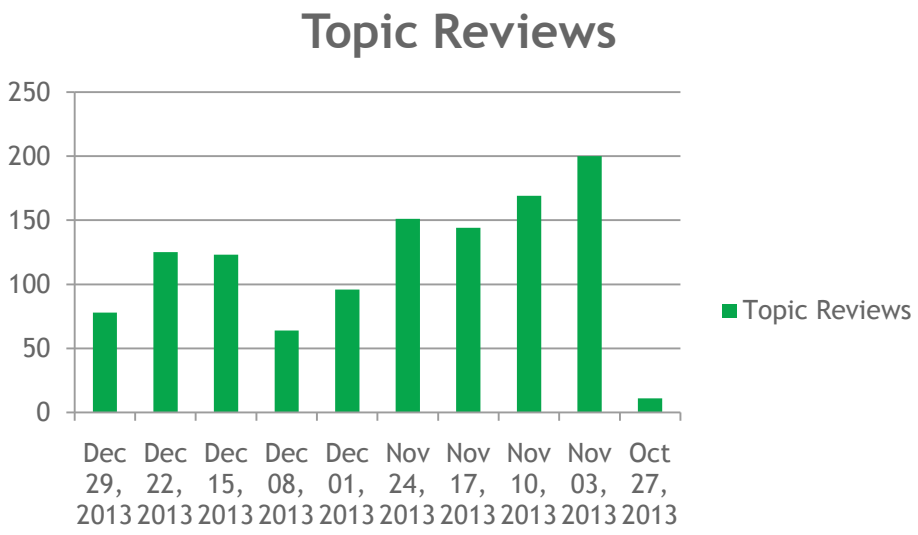
Usage Statistics



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By Specialty

Rank	Topic Specialty	Total Topic Hits
1	General Surgery	113
2	Neurology	101
3	Pediatrics	96
4	Obstetrics, Gynecology and Women's Health	92
5	Endocrinology and Diabetes	80
6	Gastroenterology and Hepatology	78
7	Pulmonary, Critical Care, and Sleep Medicine	61
8	Adult and Pediatric Emergency Medicine	59
9	Infectious Diseases	59
10	Nephrology and Hypertension	58

Topic

UpToDate Confidential						
1	Obstetrics, Gynecology and Women's Health	Overview of postpartum hemorrhage	13			
2	General Surgery	Pressure ulcers: Epidemiology, pathogenesis, clinical manif	10			
3	General Surgery	Treatment of pressure ulcers	10			
4	Pediatrics	Bronchiolitis in infants and children: Treatment; outcome; an	8			
5	Obstetrics, Gynecology and Women's Health	Etiology, prenatal diagnosis, obstetrical management, and re	8			
6	General Surgery	Prevention of pressure ulcers	8			
7	Gastroenterology and Hepatology	What's new in gastroenterology and hepatology	8			
8	Pediatrics	Overview of neonatal respiratory distress: Disorders of trans	7			
9	Oncology	Pathology of bladder neoplasms	7			
10	Pediatrics	Transient hyperphosphatasemia of infancy and early childho	7			

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Thank you and Questions

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