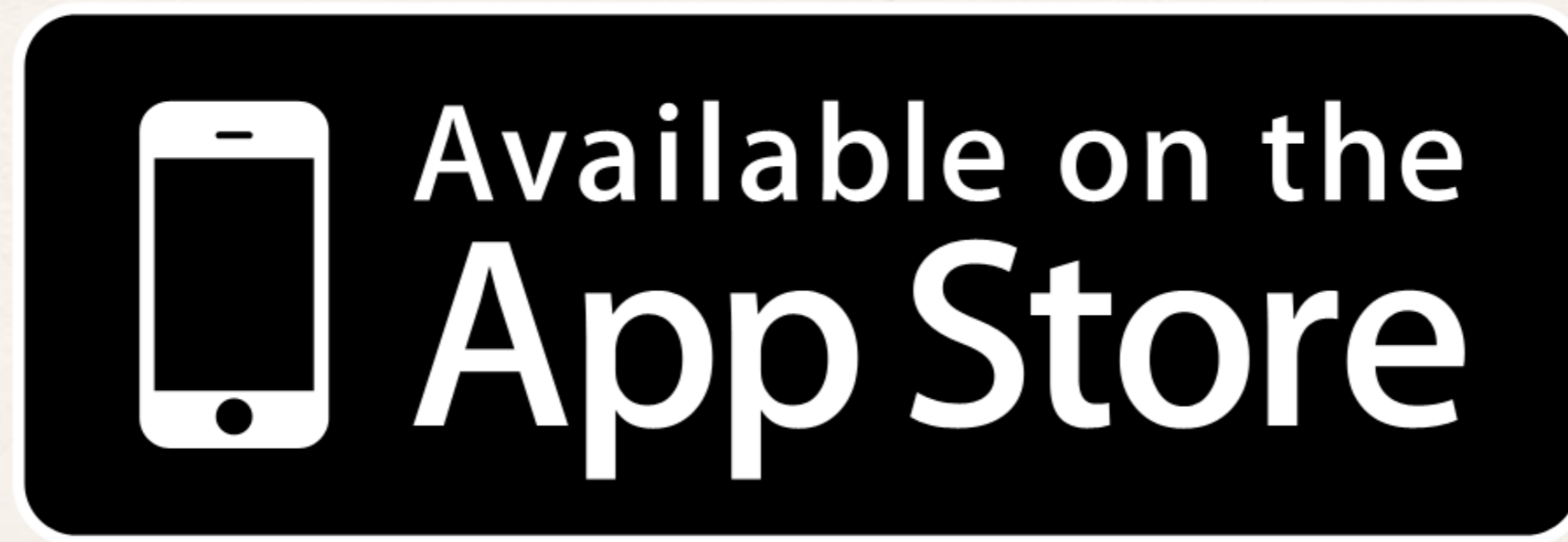


Medical Apps for Physicians and Patients



Dr. Chandi Chandrasena CCFP

OntarioMD EMR: Every Step Conference, September 27, 2018

Conflicts of Interest

Disclosure of Commercial Support

Presenter Disclosure

- ❖ Dr. Chandrasena has no conflicts to declare and no financial interests.
- ❖ OntarioMD Peer Leader

Commercial Support for this talk

- ❖ None

Potential for conflicts of interest

- ❖ iPhone user with a TELUS Health EMR

Mitigating Potential Bias

- ❖ Most of the Apps are free!
- ❖ Evidence for each App or website is very limited.
- ❖ Most Apps available on Android or Google Play, as well as iTunes.
- ❖ The audience is the expert! We invite you to share your best Apps!

Objectives:

- ❖ Identify useful apps to use in practice
- ❖ Identify useful apps to offer
- ❖ Share apps that other doctors will find useful



Why use Apps?



Research is limited

[In Search of Mobile Applications for Urogynecology Providers.](#) Wallace SL, Mehta S, Farag S, Kelley RS, Chen KT. Female Pelvic Med Reconstr Surg. 2018 Apr 11. doi: 10.1097

133 iTunes, and 235 Google Play Apps, only 8 determined to be accurate and useful, only 4 available in both stores

[Evaluation of the Accuracy of ECG Captured by CardioChip through Comparison of Lead I Recording to a Standard 12-Lead ECG Recording Device.](#) Lo CI, Chang SS, Tsai JP, Kuo JY, Chen YJ, Huang MY, Lee CH, Sung KT, Hung CL, Jia-Yin Hou C, Lai E, Yeh HI, Chang WL, Chang WH.

[Photoplethysmography using a smartphone application for assessment of ulnar artery patency: a randomized clinical trial](#) CMAJ April 03, 2018 190 (13) E380-E388; DOI: <https://doi.org/10.1503/cmaj.17043>

...and others but very specialized with little clinical patient data.

In this issue



CMAJ

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3 Apr 2018

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**KEEP
CALM
AND TURN
YOUR
PHONE ON**

What to ask before downloading

- ❖ Who produced it? (medical journal, medical publisher? institution, drug company?) Conflict of interest?
- ❖ Is it regularly updated?
- ❖ Is it properly referenced?
- ❖ Is it possible to give feedback?
- ❖ Is it Peer Reviewed?
- ❖ Is the app's primary purpose to inform health professionals? Patients?
- ❖ Issue with Patient Privacy?

Government?

- ❖ NHS in United Kingdom: has government-approved medical mobile apps and a library that stores them
- ❖ Health Canada: some can be found if related to a medical device with an active license but scant
- ❖ FDA: will regulate apps that transform your mobile device into a regulated medical device or apps that are used as an accessory to a medical device
- ❖ UK, USA and Canada all use medical device regulations for licensing mobile medical apps and have similar risk-grading systems. In Canada, high risk apps are those that aid in diagnosis and treatment

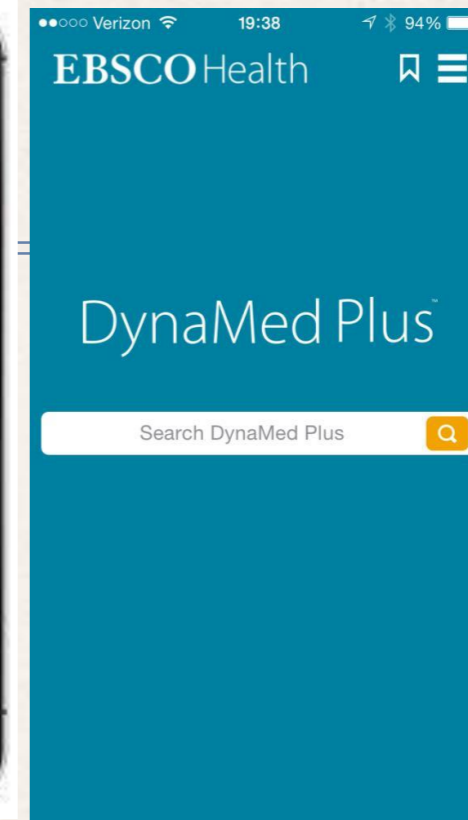
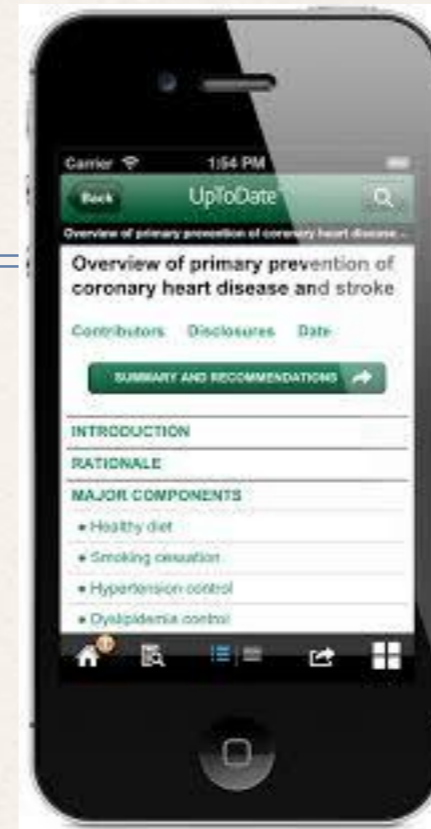
Medical Apps for Docs

- ❖ Point of Care Apps
- ❖ Prescription Databases
- ❖ Guideline Apps
- ❖ Medical Calculators
- ❖ Journal Apps
- ❖ Other Apps



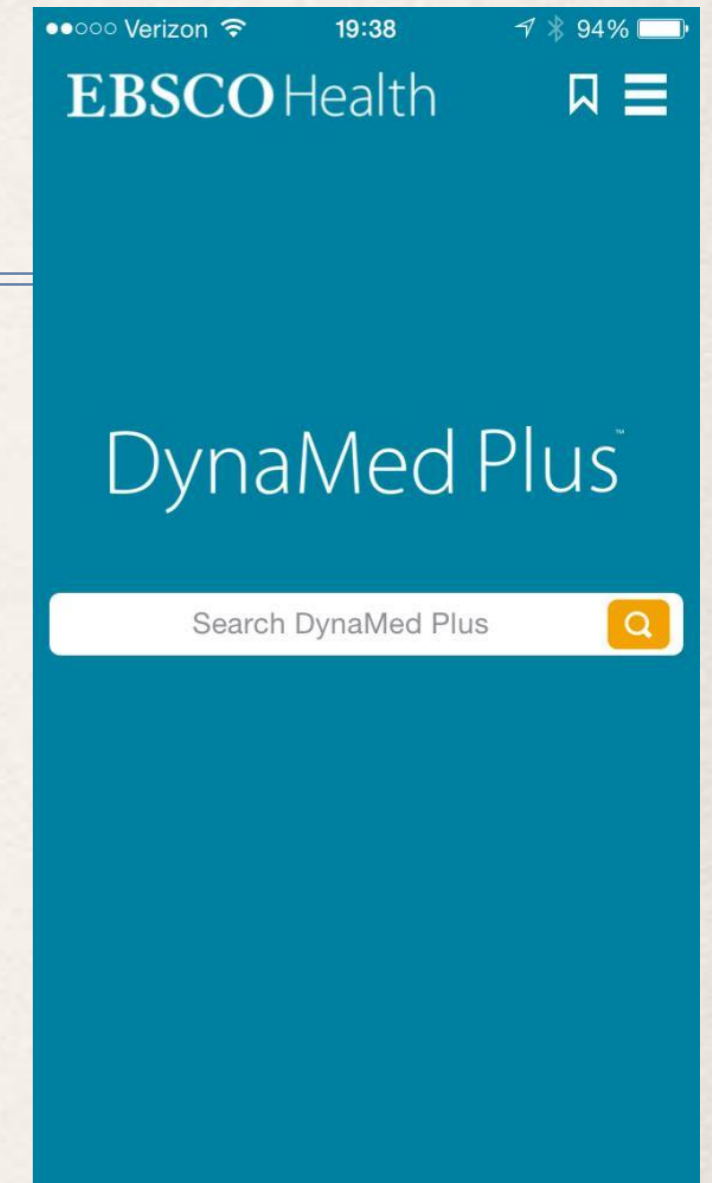
Point of Care

- ❖ Up-to-date (\$439US + \$30US for mobile app (discount with CMA) \$519 CDN/yr)
- ❖ Joule (Dynamed (Plus) (\$395/year) free with CMA membership)
- ❖ Medscape (free)



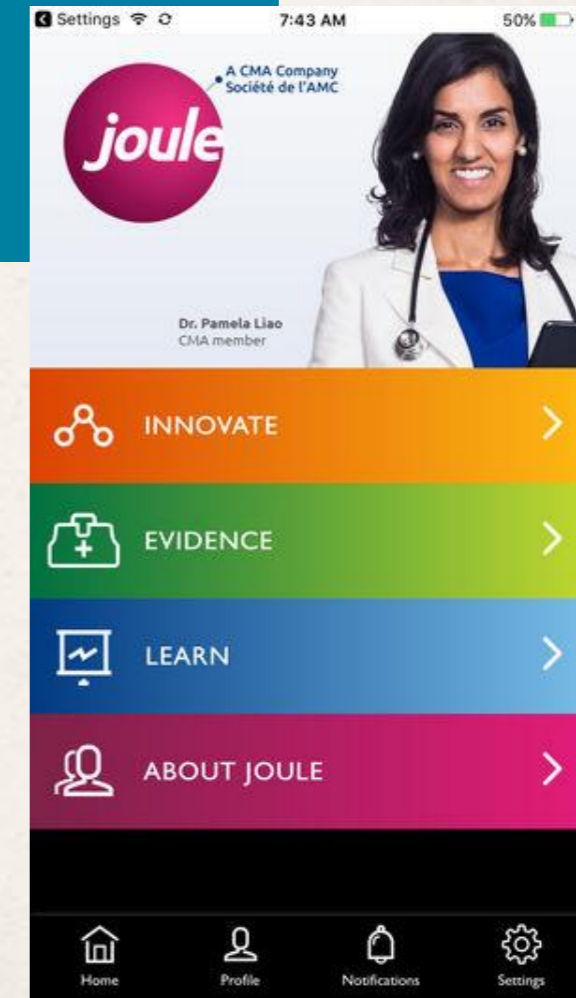
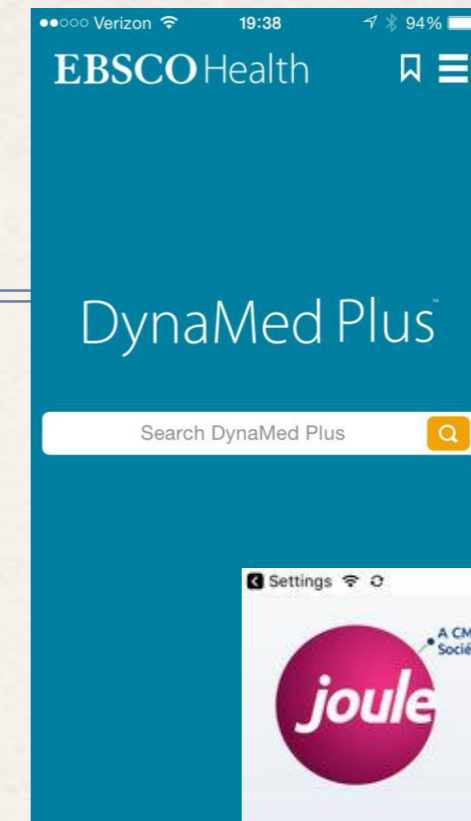
DynaMed Plus:

- ❖ Point of Care App made by EBSCO founded by family physician
- ❖ Covers 3200 topics and monitors over 500 journals
- ❖ **PROS:** easy to use, Micromedex drug content integration, thousands of photos/graphics
- ❖ **CONS:** less comprehensive than up-to-date
- ❖ **ACCESSIBILITY:** Apple/Android, \$395/year, Canadian, (free with CMA membership)****

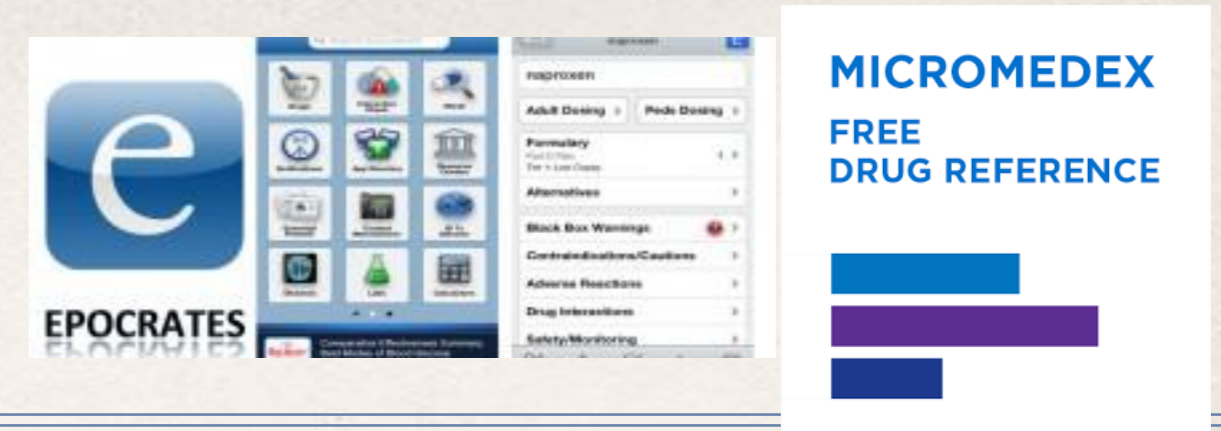


Joule: CMA App

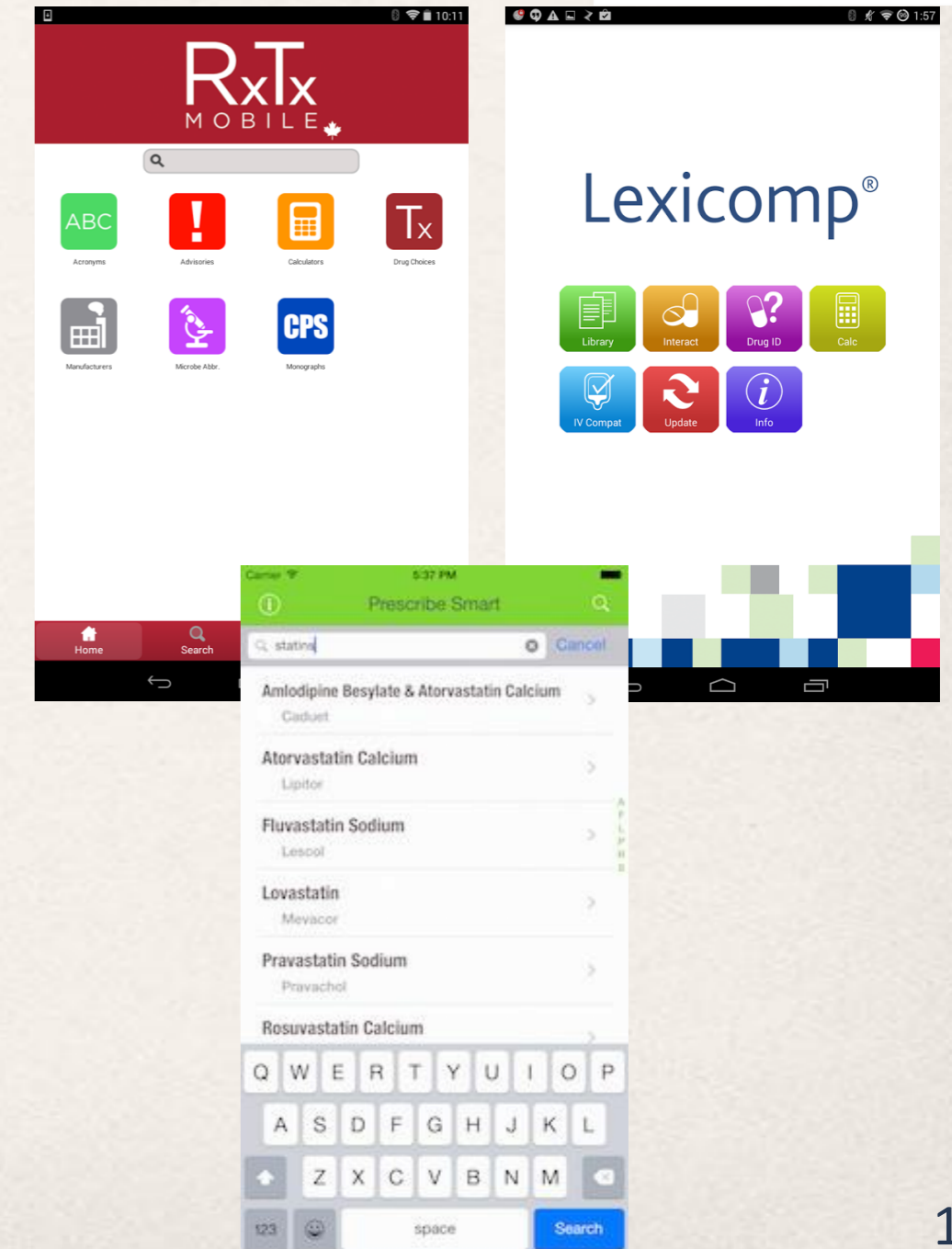
- ❖ **PROS:** easy to use, searchable database Infopoems and InfoPratique, free Dynamed Plus, access to Clinical Key (1000+ texts, 600 journals, handouts, videos), journals (AFP, Lancet, BMJ, NEJM, etc.) Clinical Practice Guidelines, RxTx, CMAJ podcasts
- ❖ **CONS:** need to remember login and password!
- ❖ **ACCESSIBILITY:** Apple iPhone/Android, iPad, Canadian, (cost of CMA membership \$495)**** soon to be lowered



Drug Wars!

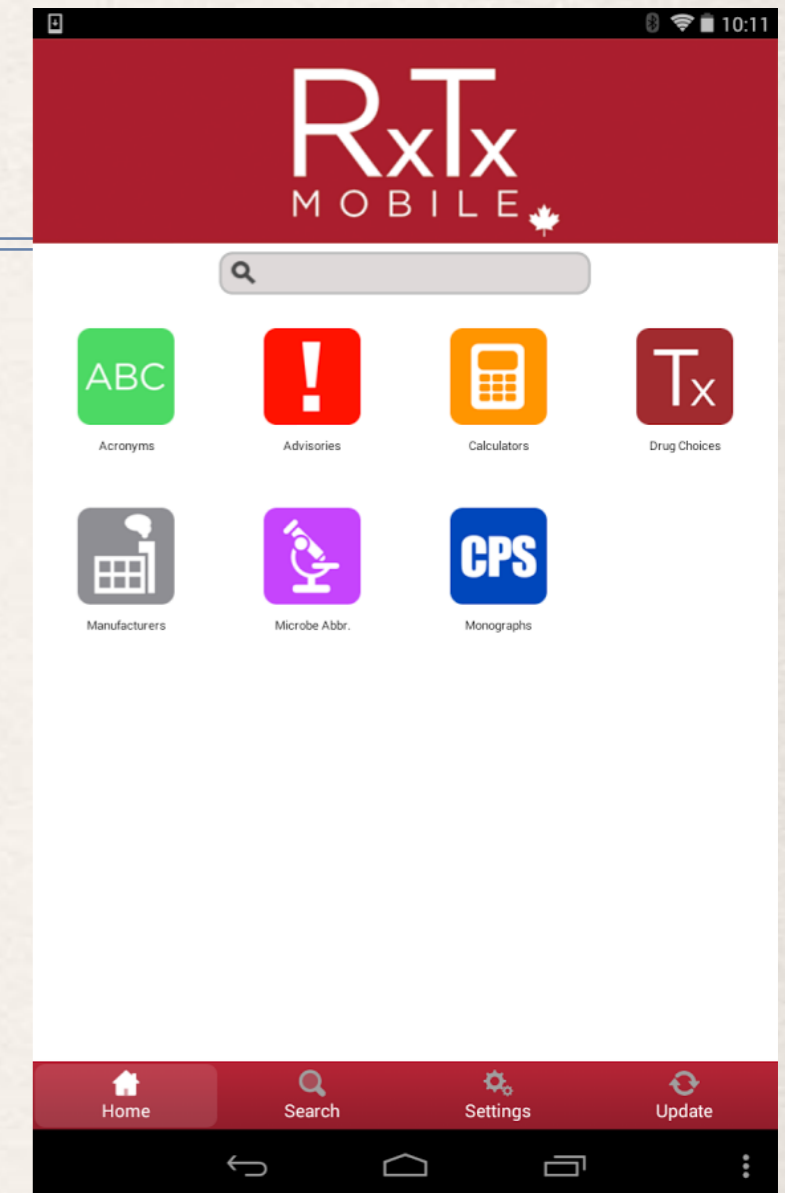


- ❖ Epocrates (free with in-app purchases) US data and drugs
- ❖ RxTx Mobile (free) Canadian Pharmacists Assoc., bilingual
- ❖ Lexicomp (price varies)
- ❖ Micromedex (drug reference) for essentials 2.99\$/year
- ❖ Prescribe Smart: (free), Canadian, LUpCodes, prices, Apple only



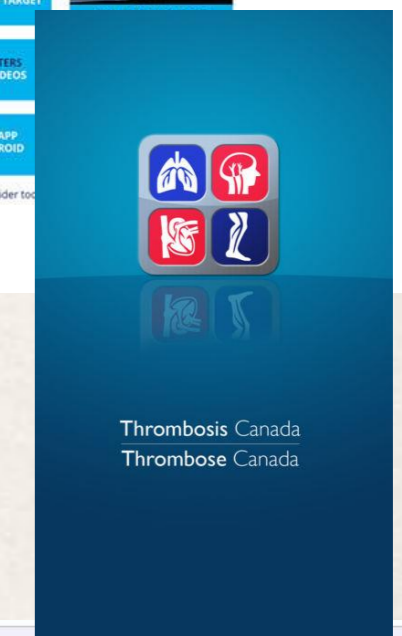
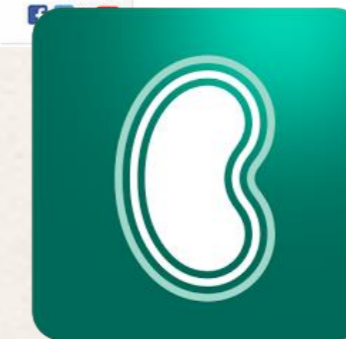
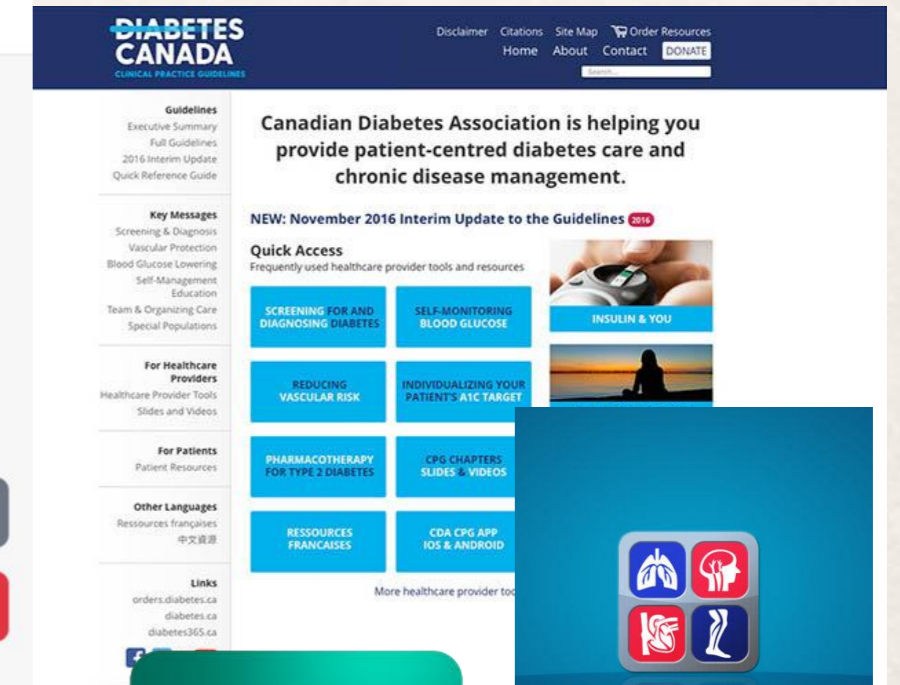
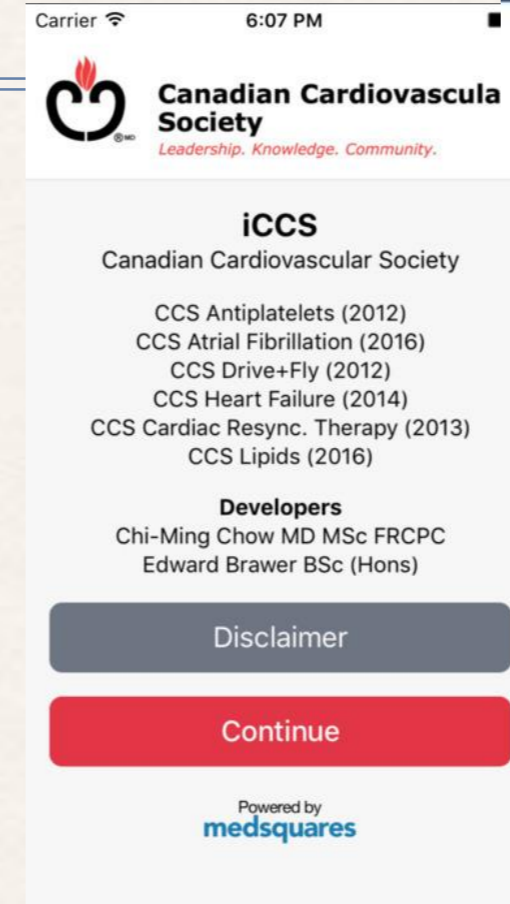
RxTx:

- ❖ Canadian Pharmacists Association
- ❖ **PROS:** Canadian, free, CPS in your pocket, Health Canada Advisories, medical calculator
- ❖ **CONS:** can't do multidrug interactions, can't search by pill colour and shape, no LU codes
- ❖ **ASSESSIBILITY:** free, bilingual, Apple/Android, ipad app. Last update July 2018




Guidelines Apps www.cfpc.ca

- ❖ CCO (Cancer Care Ontario)
- ❖ CDA (Canadian Diabetes Association)
- ❖ iCCS (Canadian Cardiovascular Society)
- ❖ CDN STI-ITS (free)
- ❖ KidneyWise (free)
- ❖ MUMS 2016 anti-infective Guidelines (\$24.99)
- ❖ Thrombosis Canada (free) EXCELLENT!



Free App – Guidelines at Your Fingertips!
 For more information and/or to download the Ontario Cervical Screening Program App, scan the QR code or choose your app store below:



Download on the **App Store** | Get it at **BlackBerry World** | **GET IT ON Google play** | Download from **Windows Phone Store**

Mums

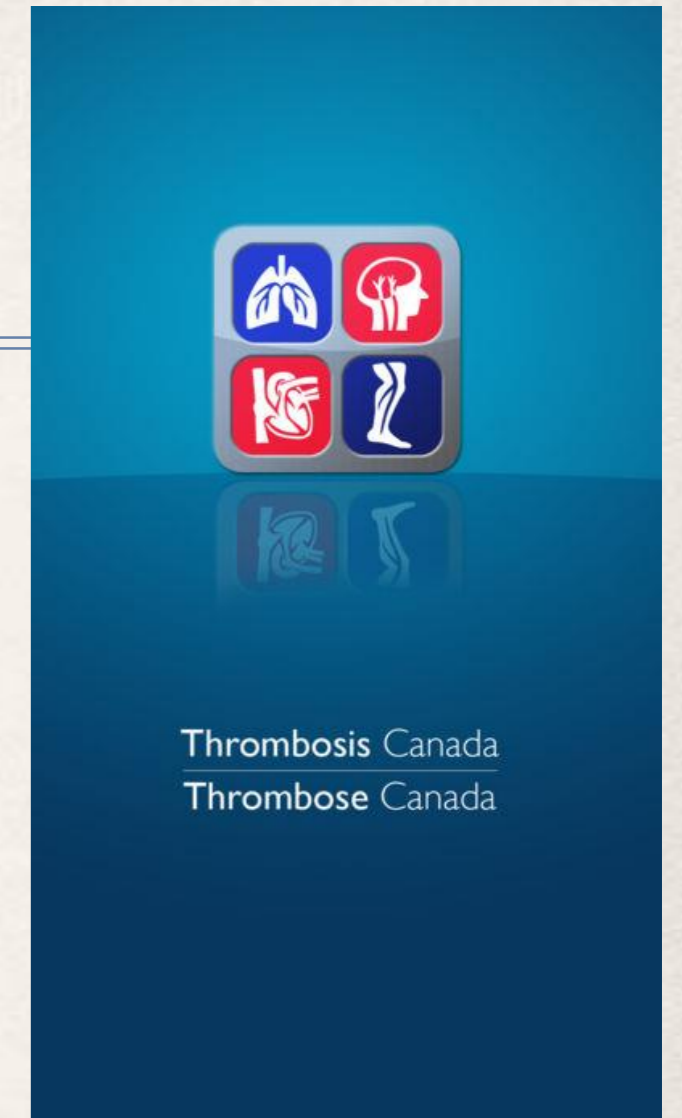
Anti-infective Guidelines



- ❖ Well known “orange book” that we all love! PAACT (Partners for Appropriate Community Therapy)
- ❖ **PROS:** the “orange book” that we love so much, ease of use, price comparisons
- ❖ **CONS:** not entirely searchable, not as detailed as Sanford or Hopkin’s guides, Apple only
- ❖ **ACCESSIBILITY:** \$24.99, Apple only, English only, v 1.0.2 updates to Jan. 2019 (so no more updates until then I presume)

Thrombosis Canada

- ❖ Made by Thrombosis Canada
- ❖ **PRO:** Clinical guidelines and algorithms for the use of antiplatelet agents and oral anticoagulants, easy to use, can put in patient data for proper dosage
- ❖ **CONS:** really can't think of any
- ❖ **ACCESSIBILITY:** Updated June 2018, Apple/Android, free, English mainly
Some of the app can be switched to French



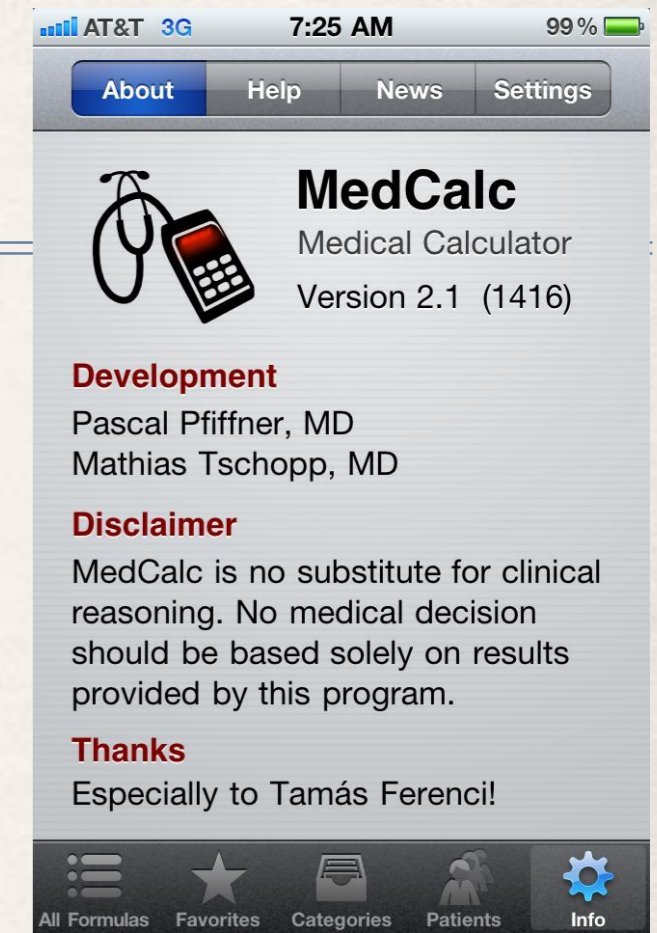
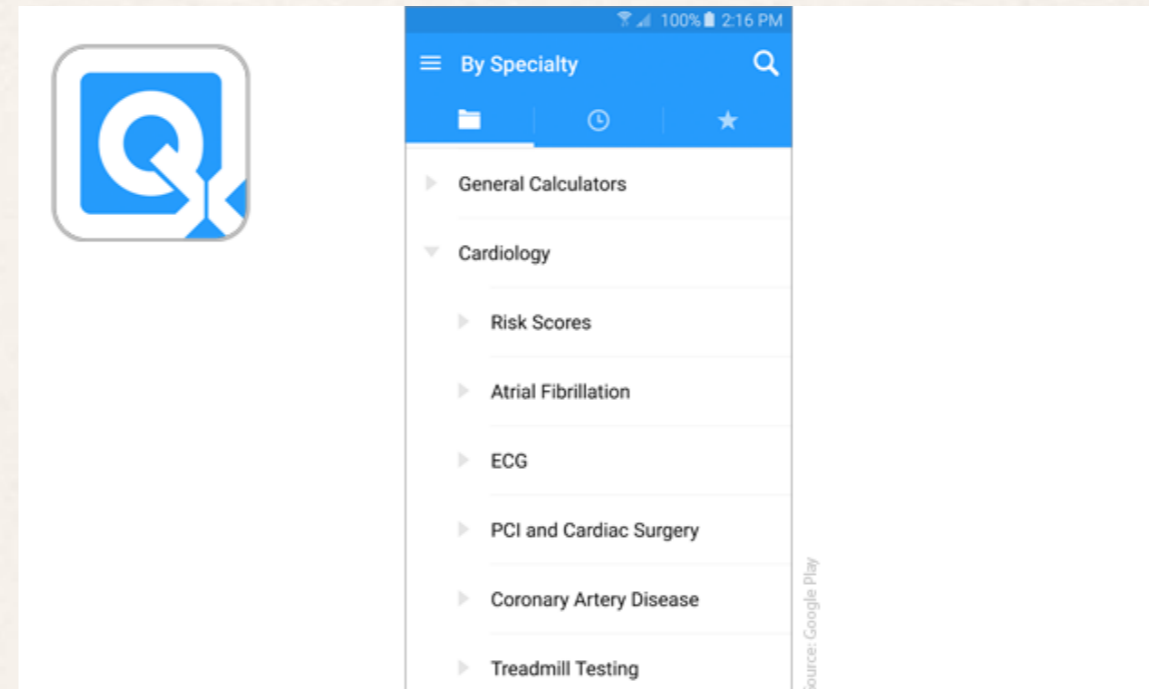
STI-ITS



- ❖ Developed by Health Canada for the Canadian Guidelines on Sexually Transmitted Infections
- ❖ **PROS:** Canadian up-to-date guidelines, last updated 2 weeks ago!
- ❖ **CONS:** not easily searchable
- ❖ **ACCESSIBILITY:** free, Canadian, Android/Apple

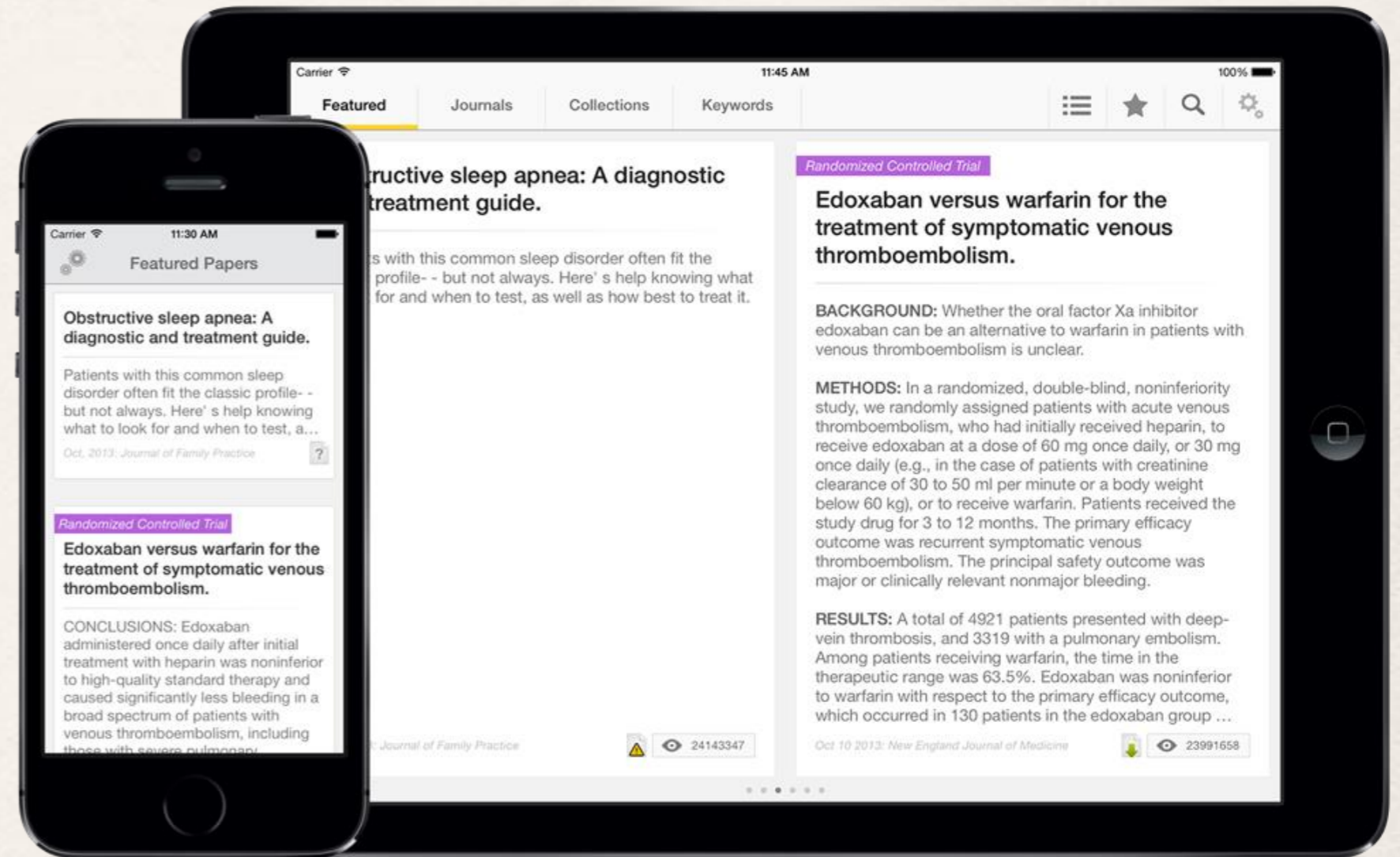
Medical Calculator Apps:

- ❖ ePocrates
- ❖ MedCalc
- ❖ QxCalculate



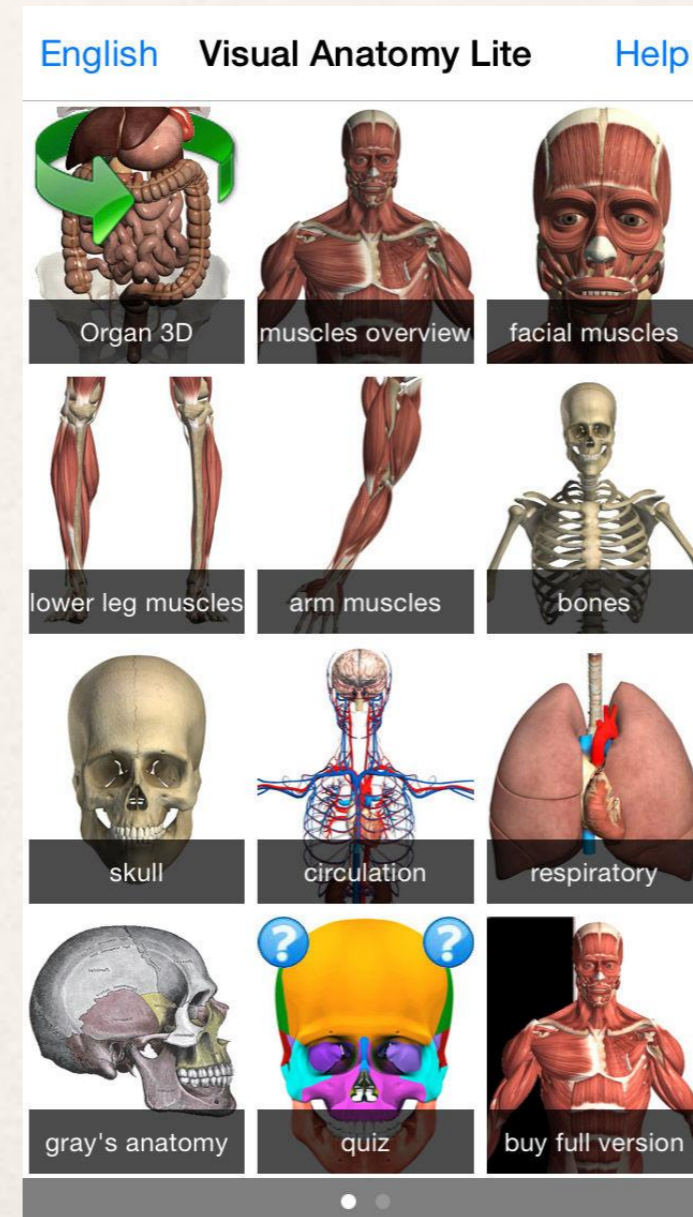
Journals

- ❖ Read by QxMD
- ❖ or pick your favourite journal



Visual Anatomy

- ❖ Many anatomy apps in App Store
- ❖ **PRO:** Free, Covers MSK, Circulation and Organs. Good information on innervation and insertion of muscles.
- ❖ **CON:** advertisement links. Less dynamic and no 3D layering compared to higher paying Apps
- ❖ **ACCESSIBILITY:** Free, iPhone and Google Play



Credible Meds

- ❖ **PROS:** Great source for QT drugs list and clinical factors associated with QT and TdP
- ❖ **CONS:** not the easiest app to use
- ❖ **ACCESSIBILITY:** iPhone and Google Play, English only Jan. 2018, US



TELUS EMR Mobile



- ❖ **PROS:** Ease of use, can look at schedule, patient demographics, patient record, can use camera and take pics to upload directly into EMR , now can send and read messages
- ❖ **CONS:**, can't chart but there is a work around where your can take a photo and enter a chart note, can't prescribe or fax
- ❖ **ACCESSIBILITY:** Only for TELUS App, Free with EMR, updated 2018

OMA App



- ❖ Developed by OMA as a companion app for all members
- ❖ **PROS:** OMA card to Apple wallet, ease of use, LU codes, ODB formulary, Diagnostic Codes, Schedule of Benefits, OMA Advantages
- ❖ **CONS:** have to login to app and I always forget my username and password!
- ❖ **ACCESSIBILITY:** free, Canadian, Apple/Android, English only

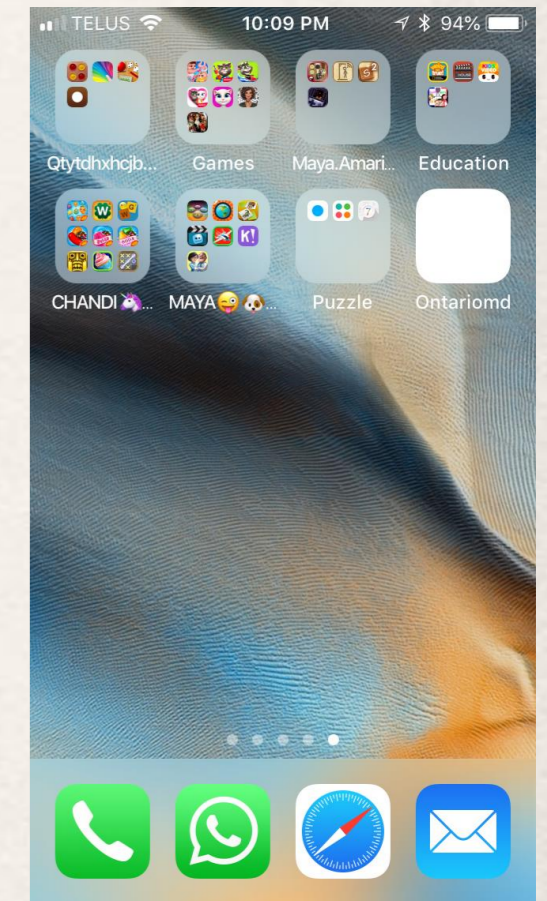
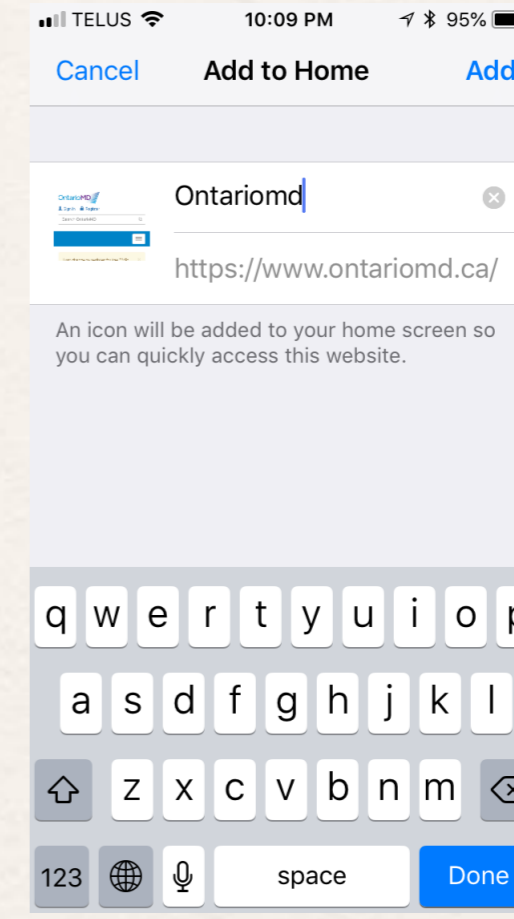
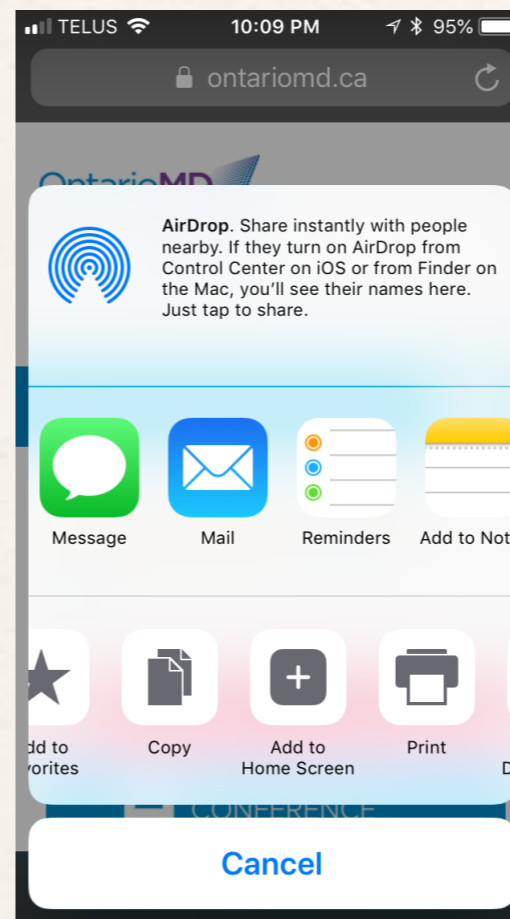
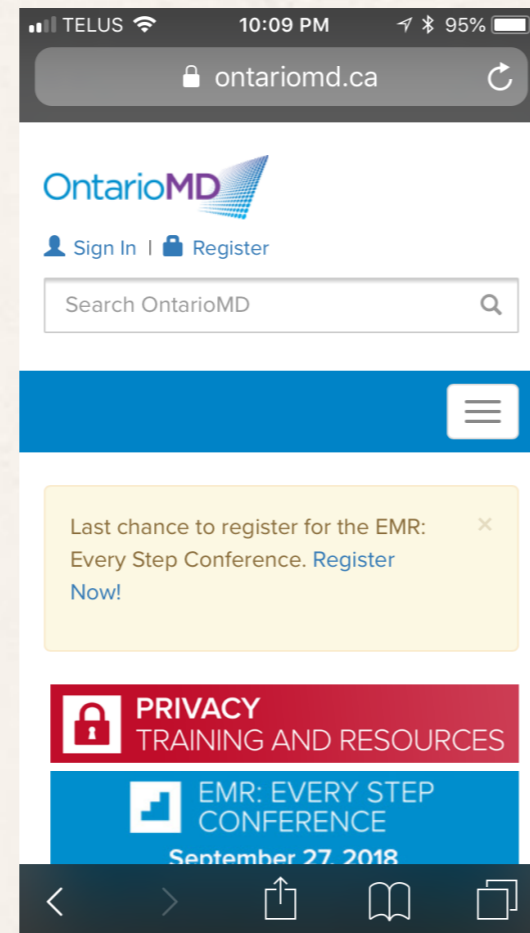
Fountain of Health



- ❖ Raise public awareness about science of brain health and give practical steps to promote resilience, emotional well being and health
- ❖ 5 factors for optimizing brain health and preventing dementia and chronic diseases.
 - ❖ Physical Activity, Social Activity, Brain Challenge, Positive Thinking, Mental Health
 - ❖ There is an App that patients can download and use. Allows patients to take a quiz to look at where they can improve and provides CBT techniques to help with change.
- ❖ www.fountainofhealth.ca

Make any website into an app!

- 1) Go to website you use often (e.g., OntarioMD.ca)
- 2) There is an icon on bottom of page that looks like a square with an arrow pointing up (press that)
- 3) Scroll across to icon “add to home screen” (press that)
- 4) Name your “app” and it will show up on your home screen.



Medstopper.com

- ❖ Example of making your own App
- ❖ Great website or frail elderly which helps you de-prescribe
- ❖ Go to website, and find square icon with arrow and push.
- ❖ Find “add to homescreen” and add



Arrange medications by:

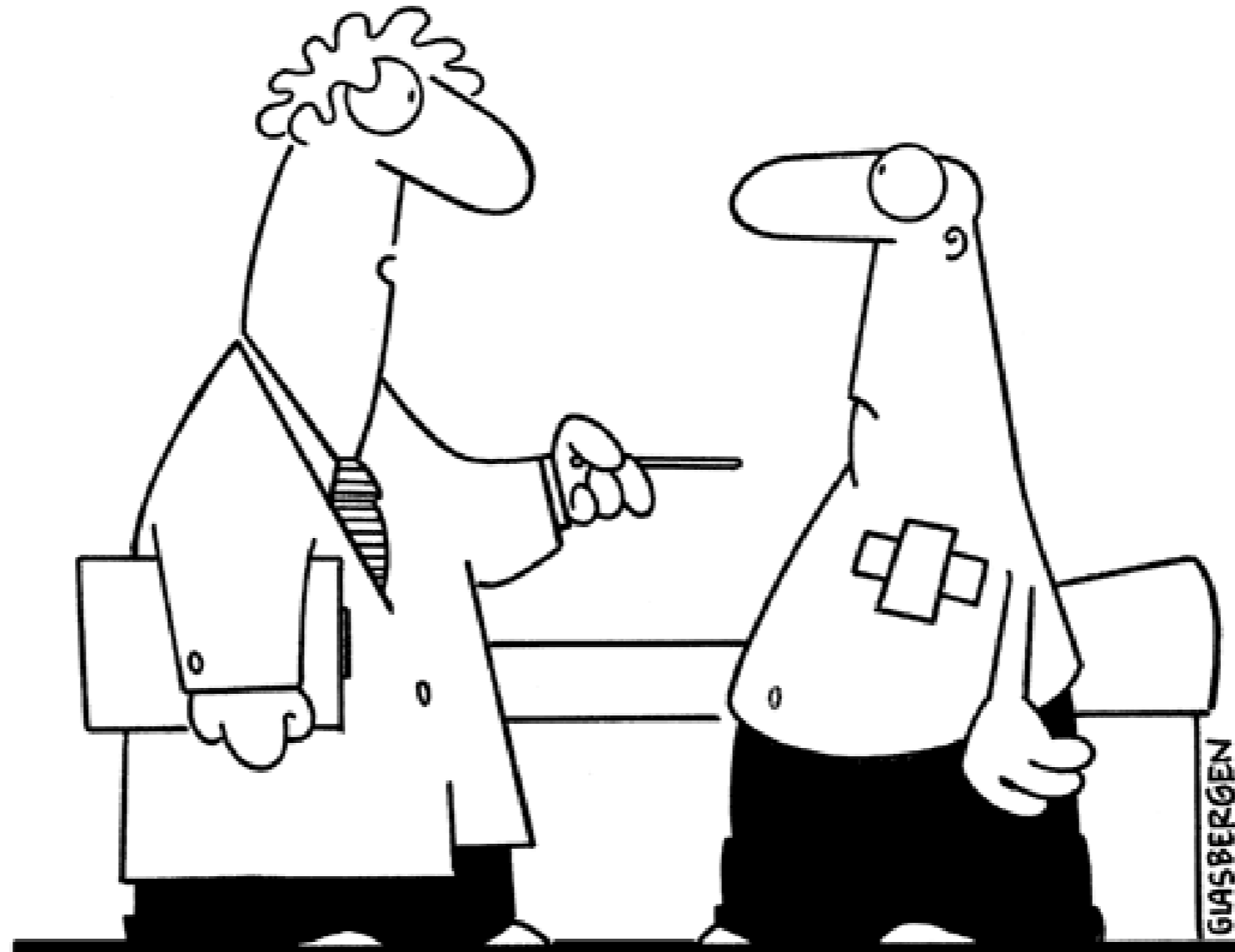
Stopping Priority RED=Highest GREEN=Lowest	Medication/ Category/ Condition	May Improve (Symptoms?)	May Reduce Risk for Future Illness?	May Cause Harm?	Suggested Taper Approach	Possible Symptoms when Stopping or Tapering	Stops/ ET CDP Criteria
	gabapentin (Lyrica) / gabapentinoids / Painkillers				Tapering not required		None
	gabapentin (Lyrica) / gabapentinoids / Painkillers				Tapering not required		None
	gabapentin (Lyrica) / gabapentinoids / Painkillers				Tapering not required		Details
	gabapentin (Lyrica) / gabapentinoids / Painkillers				If used daily for more than 30 days, reduce dose by 50% every 1 to 2 weeks. Once at 25% of the original dose and no withdrawal symptoms have been seen, stop the drug. If any withdrawal symptoms occur, go back to approximately 75% of the previously started dose.	Headaches, dizziness, nausea, reflux	Details
	gabapentin (Lyrica) / gabapentinoids / Painkillers				Tapering suggestions should be discussed with a specialist		Details

Other great websites to make into Apps:

- ❖ Frax (fracture risk assessment tool)
- ❖ SwitchRx (switchrx.ca) the online medication switching tool for antipsychotics, antidepressants and treatment guidelines
- ❖ eConsult (Champlain Base LHIN)
- ❖ Drugshortagescanada.ca: (website operated by Bell Canada under contract with Health Canada)

Patient Apps

© Randy Glasbergen
www.glasbergen.com



**“It’s a pacemaker for your heart,
plus you can download apps for your
liver, kidneys, lungs, and pancreas!”**

Medical Apps Downloads

- ❖ Weight loss (50 million)
- ❖ Exercise (26.5 million)
- ❖ Women's health (10.5 million)
- ❖ Sleep and meditation (8 million)
- ❖ Pregnancy (7.5 million)
- ❖ Tools and instruments (6 million)
- ❖ Other (18 million)



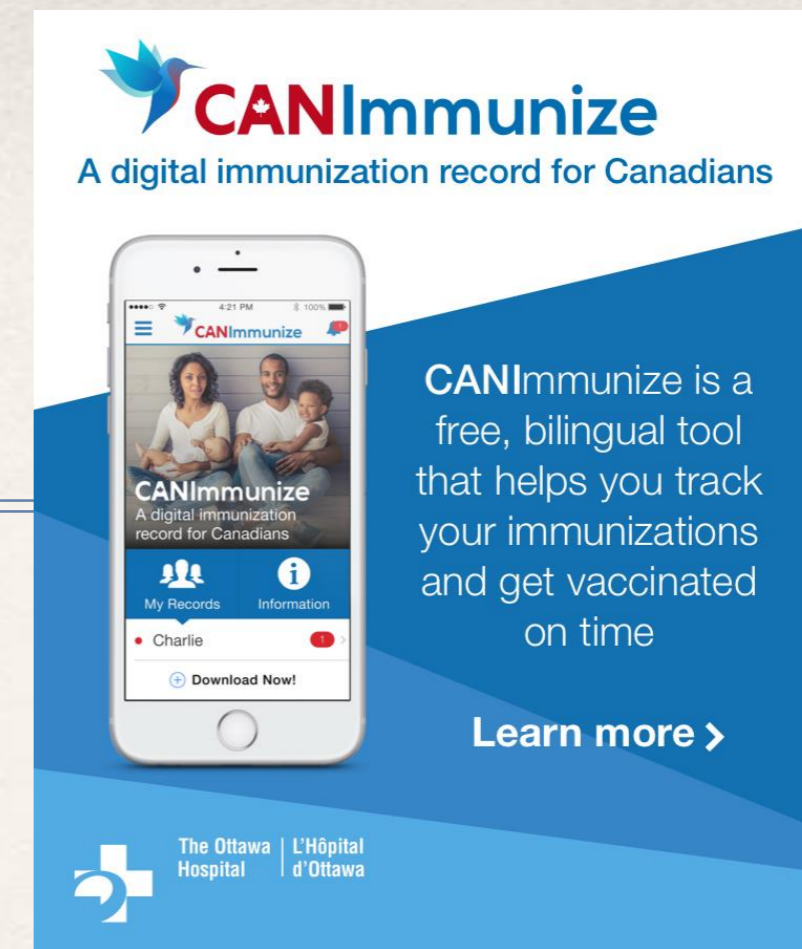
Apps for Patients...It's almost unlimited

- ❖ Important to consider Privacy of the apps before you recommend them
- ❖ Important to consider efficacy - do some research before recommending
- ❖ Great websites to get information on this is on practicalapps.ca, psyberguide.org, or imedicalapps.com

CANImmunize

- ❖ Developed with Canadian Physicians
- ❖ **PROS:** Great digital alternative to paper records
- ❖ **CONS:** at times proactive advice was not always accurate
- ❖ **PRIVACY:** stored locally and complies with Ontario's Personal Health Information Protection Act (PHIPA) 2004 and password protected, doesn't synchronize with Public Health database
- ❖ **ACCESSIBILTIIY:** free, Apple/Android, Bilingual

❖ Practicalapps.ca



Prevention in Hand

- ❖ Developed by the College of Family Physicians of Canada and Public Health Agency of Canada
- ❖ **PROS:** quick access to lifestyle resources and evidence-based health care information for patients, links to different websites
- ❖ **CONS:** some links are not working
- ❖ **PRIVACY:** no registration requirement and does not collect personal information
- ❖ **ACCESSIBILTIIY:** free, Apple/Android, Bilingual, last update Nov. 2015, iPad



MyFitnessPal

- ❖ Developed by Under Armour (private company in US)
- ❖ **PROS:** calorie/exercise tracker, great list of culturally relevant foods, instant feedback, community access, connects to Fitbit and Apple Watch
- ❖ **CONS:** see privacy policy and have to upgrade to premium to get other services, have to have access to wireless signal, based on BMI and calorie counting which is not always accurate
- ❖ **PRIVACY:** have to register and information is used to operate business, advertise and rarely to third parties (Patients to be aware)
- ❖ **ACCESSIBILTIIY:** free but can upgrade, Apple/Android, Bilingual, last update was 1 week ago

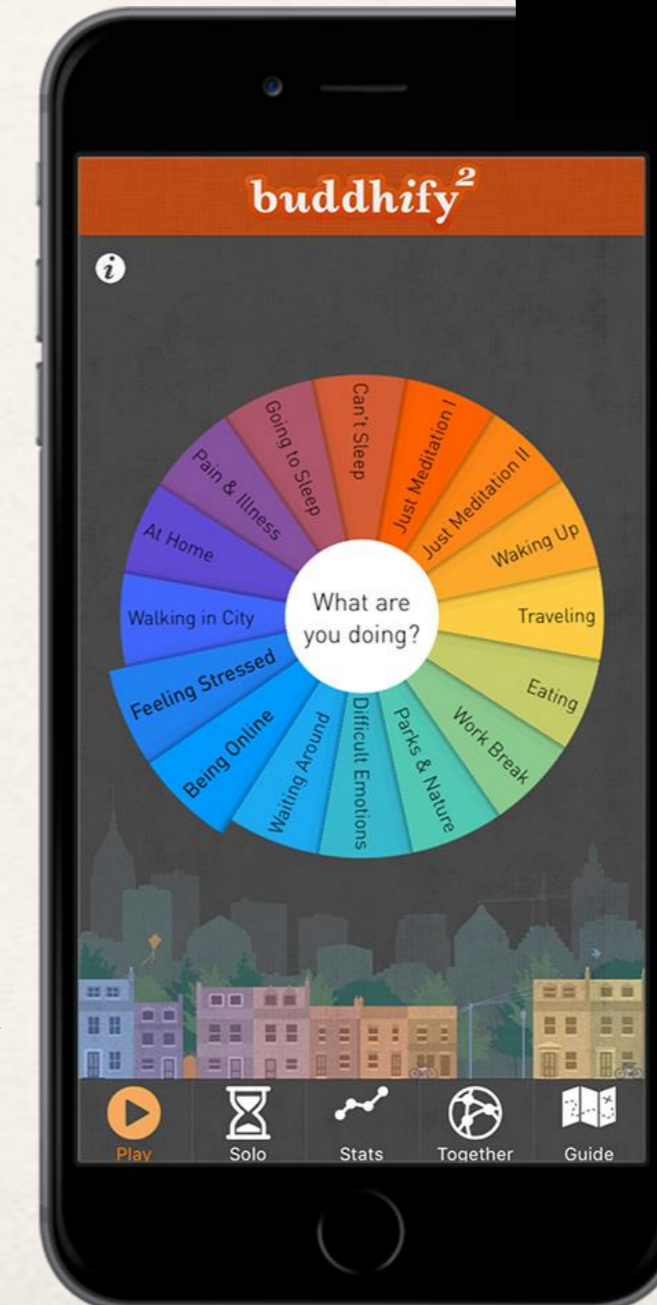


buddhify:

modern mindfulness for busy lives



- ❖ Made by Mindfulness Everywhere in UK
- ❖ **PROS:** urban meditation, >80 guided meditations, easy to use, beginner to expert
- ❖ **CONS:** no data on efficacy, little background info on meditation, no reminders given to meditate
- ❖ **PRIVACY:** requests info from users, no registration required
- ❖ **ACCESSIBILITY:** Apple/Android, English only, \$6.99, no monthly subscription fee, free samples on soundcloud.com



Mindshift

- ❖ Developed by Anxiety BC, BC Children's Hospital and Provincial Health Services Authority to help those struggling with anxiety
- ❖ **PROS:** ease of use, great icons, CBT for youth and young adults, can set a password if required
- ❖ **CONS:** bit overwhelming with all the information, must have excellent grasp of English, and may not remember to use every day
- ❖ **PRIVACY:** nothing disclosed, no need to sign in to use
- ❖ **ACCESSIBILITY:** Apple/Android, free, English only, last update August 2016



Pacifica

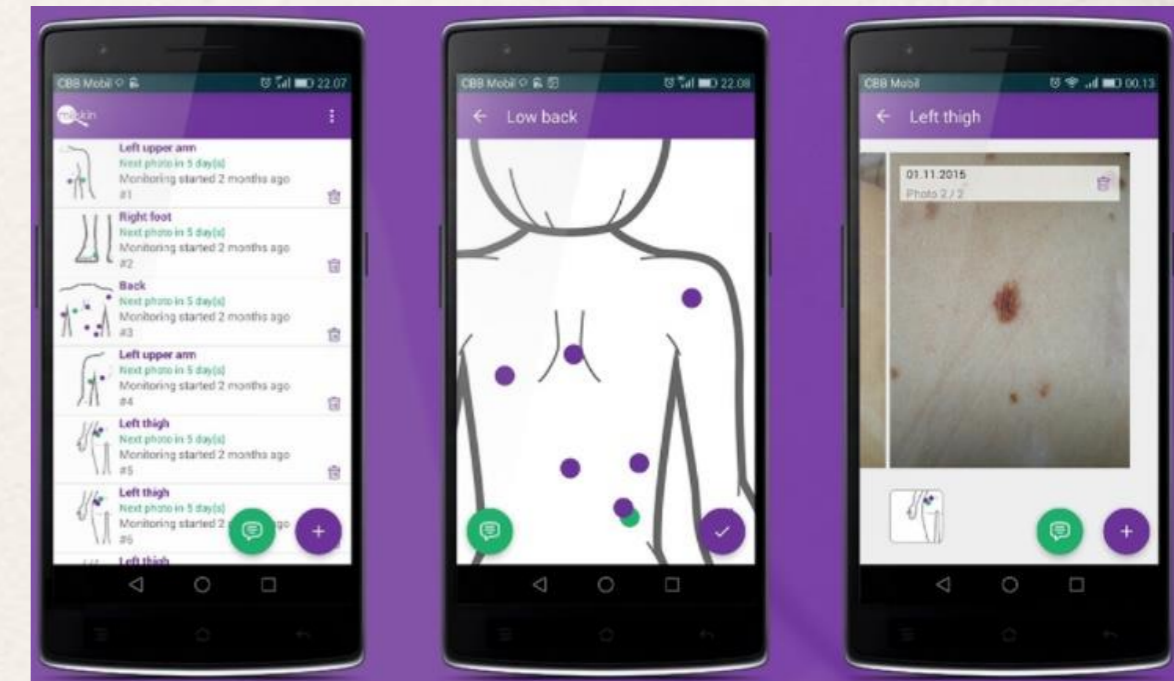


- ❖ Goal of bringing well proven therapies for stress, anxiety and depression for adults.
- ❖ **PROS:** ease of use, CBT for adults, audio based meditations and mindfulness practice, integrates with Apple HealthKit
- ❖ **CONS:** bit overwhelming with all the information, must have excellent grasp of English, and may not remember to use every day
- ❖ **PRIVACY:** personal info only for account and to provide service
- ❖ **ACCESSIBILITY:** Apple/Android, \$8.49/month, English only, updates regularly

Miiskin



- ❖ Simple tool to document/organize photos of moles for comparison over time
- ❖ **PROS:** ease of use, can take serial photos and set reminder to take new ones. Supported by the Canadian Skin Cancer Foundation
- ❖ **CONS:** can back up photos require a subscription fee, can't import pictures (can export pictures so most won't need to pay fee)
- ❖ **PRIVACY:** found easily online, safeguards to storing personal info, nothing mentioned about photos
- ❖ **ACCESSIBILITY:** Apple/Android, English only, updates regularly
- ❖ Practicalapps.ca



Future of Digital Health:

- ❖ Wearables
- ❖ Medical Device Apps
- ❖ Telehealth Apps



Wearables:



Digital Stethoscopes



Blood Pressure Monitor



Pulse Oximetry



Glucometer:



Mobile ECG



Smartphone Ultrasound



Dermatology



Allen Test:

- ❖ Smartphone heart rate- monitoring App can accurately assess Ulnar Artery Patency (better accuracy than modified Allen test)
- ❖ Turns the iPhone camera into a plethysmography
- ❖ Camera is placed on patient's index finger and the app (Instant Heart Rate: Barbeau Test) begins to record the heart rate. The clinician performing the test occludes both ulnar and radial arteries and releases ulnar artery, monitoring is displayed
- ❖ iPhone vs Doppler: 91.8% vs 81.7% specificity





Akira/Maple/EQ virtual:

Doctor on demand apps

- ❖ **PROS:** lets patients connect with a doctor/NP via text message or video chat. Doctors can then diagnose, prescribe and order labs. Timely and after-hours availability.
- ❖ **CONS:** lacks continuity of care, ?ethical issue, second tier medicine for those who can afford, increased duplicate testing, and polypharmacy?
- ❖ **PRIVACY:** EQ: servers in Canada, third party aggregate data, AKIRA: PHIPA and PIPEDA, MAPLE:
- ❖ **ACCESSIBILITY:** AKIRA \$9.99/mth, bilingual, apple only, EQ virtual is \$49/visit, only English, MAPLE: \$49/visit and increases depending on time



InkBlot

- ❖ **PROS:** Psychotherapy on your terms. From your home, or office. No need to go anywhere. More cost effective at \$75/hour vs \$200+. Developed by Dr. Arash Zohoor MD-psychotherapist founded company in Toronto.
- ❖ **CONS:** Paradigm shift? Secure? Safety concerns? Over age 18.
- ❖ **ACCESSIBILITY:** Canadian, iPad, iPhone, English
- ❖ **Other companies, TranQool**





"... 'take better care of my health.' Okay, Doctor, I will try to find an app for that."

THANK YOU!



**KEEP
CALM
AND TURN
YOUR
PHONE ON**