



Available on the
App Store

Apps for Physicians and Patients

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Conflicts of Interest

Disclosure of Commercial Support

Presenter Disclosure

- ❖ No financial interests, no commercial support
- ❖ Similar talks for University of Ottawa CME (with Dr. Brendan Connelly) and at Every Step Conferences in the past
- ❖ OntarioMD Physician Peer Leader
- ❖ Involved with Fountain of Health (one of the apps I am presenting)

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 is very limited. The suggestions made are for Apps that seem to be most used by physicians.
- ❖ Most Apps available on Android or Google Play, as well as iTunes.

Objectives:

- ❖ Identify useful apps to use in practice
- ❖ Identify useful apps to offer patients
- ❖ How to evaluate an app before downloading or recommending



Why use Apps?



**an app a
day keeps
the doctor
away**

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? Does it work?
- ❖ Is it possible to give feedback?
- ❖ Is it Peer Reviewed?
- ❖ Is the app's primary purpose to inform health professionals? Patients?
- ❖ Issue with Privacy?

Government?

- ❖ NHS in United Kingdom: has government-approved medical mobile apps and a library that stores them
- ❖ 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
- ❖ Health Canada: new division for premarket review of digital health technologies. The new Digital Health Review Division will handle licensing of wireless medical devices, mobile medical apps, software as a medical device (SaMD), AI, cybersecurity and related digital health products.
- ❖ 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

Mobile Apps for Docs

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



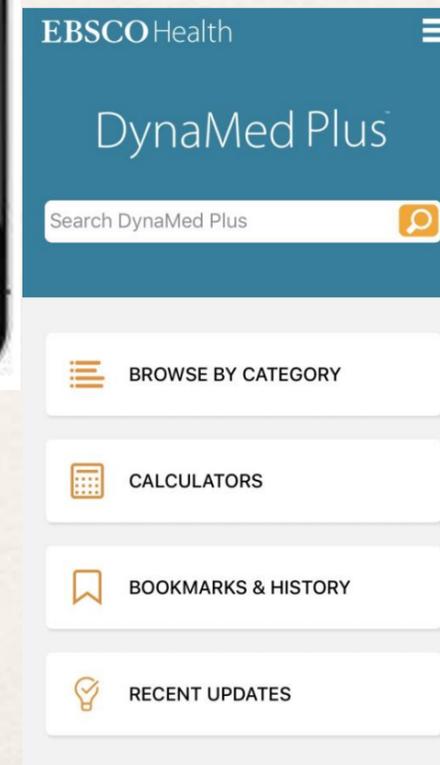
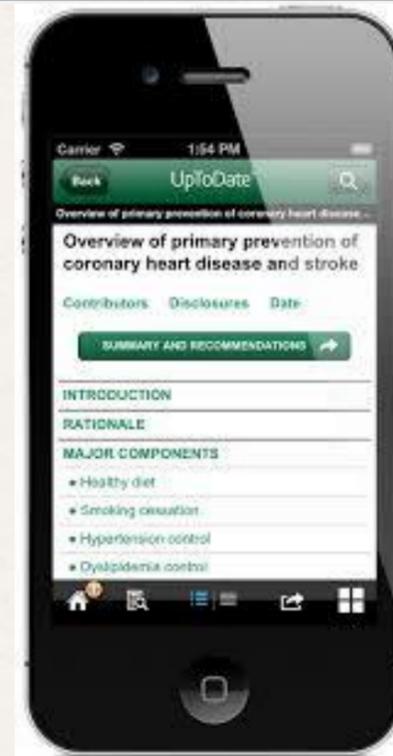
Point of Care

Up to Date discount for CMA/CCFP/CFCMS members (USD\$519 Mobile Complete app inclu.) Residents USD\$199). By far the most comprehensive

Joule (Dynamed (Plus) (\$395US/year) free with CMA membership (\$195Cdn)

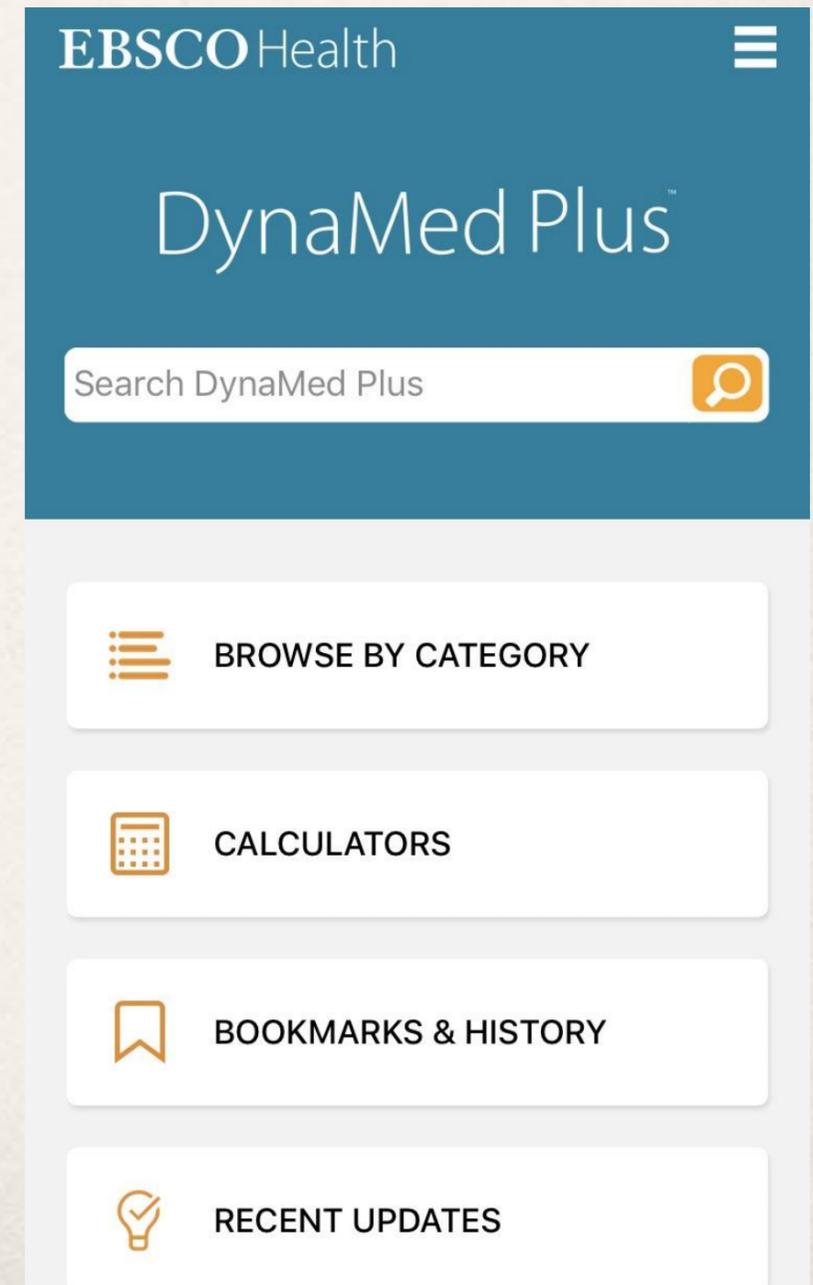
Medscape (free)

Pepid (\$299.95 US/year)



DynaMed Plus:

- Point of Care App made acquired by EBSCO and founded by a 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 \$195)****



Drug Wars!



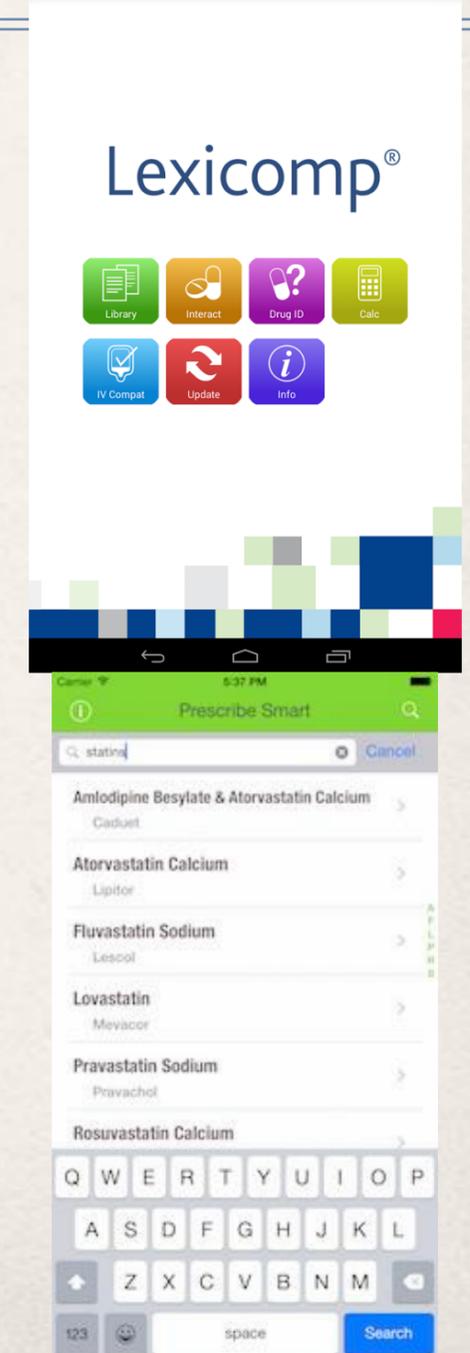
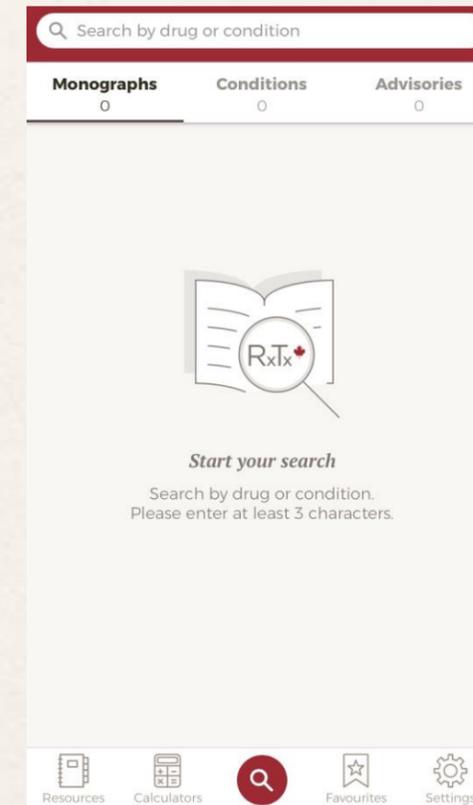
Epocrates (free with in-app purchases) US data and drugs

RxTx Mobile (subscription) Canadian Pharmacists Assoc., bilingual

Lexicomp (price varies, used in Up-to-Date)

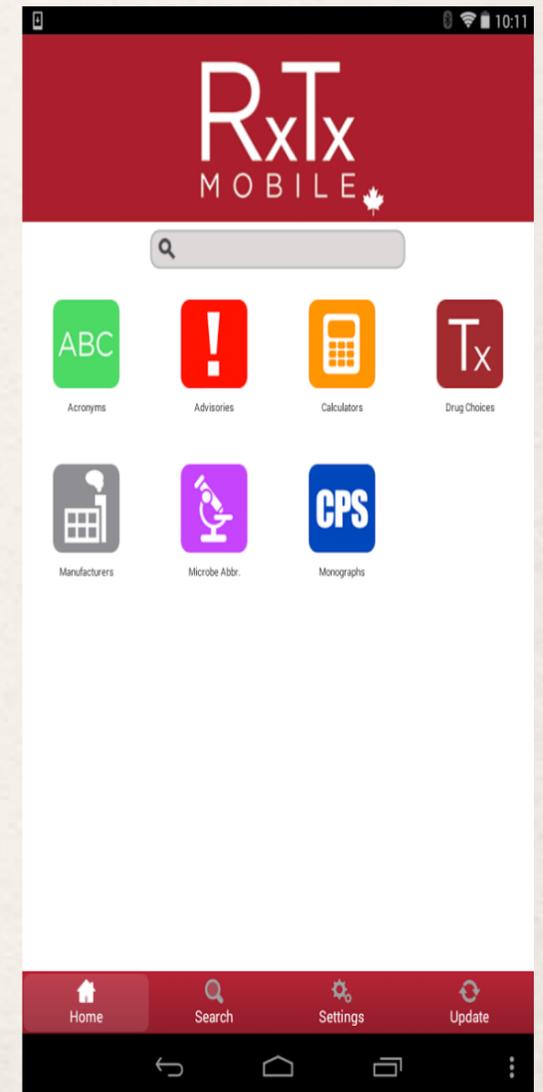
Micromedex (drug reference) for essentials

Prescribe Smart (free), Canadian, LUCodes, prices, available Apple only



RxTx:

- ❖ Canadian Pharmacists Association
- ❖ **PROS:** Canadian, 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, cost is \$239, \$569, \$799 depending on package bought, Free with CMA membership
- ❖ **ASSESSIBILITY:** Free, bilingual, Apple/Android, iPad app, regularly updated

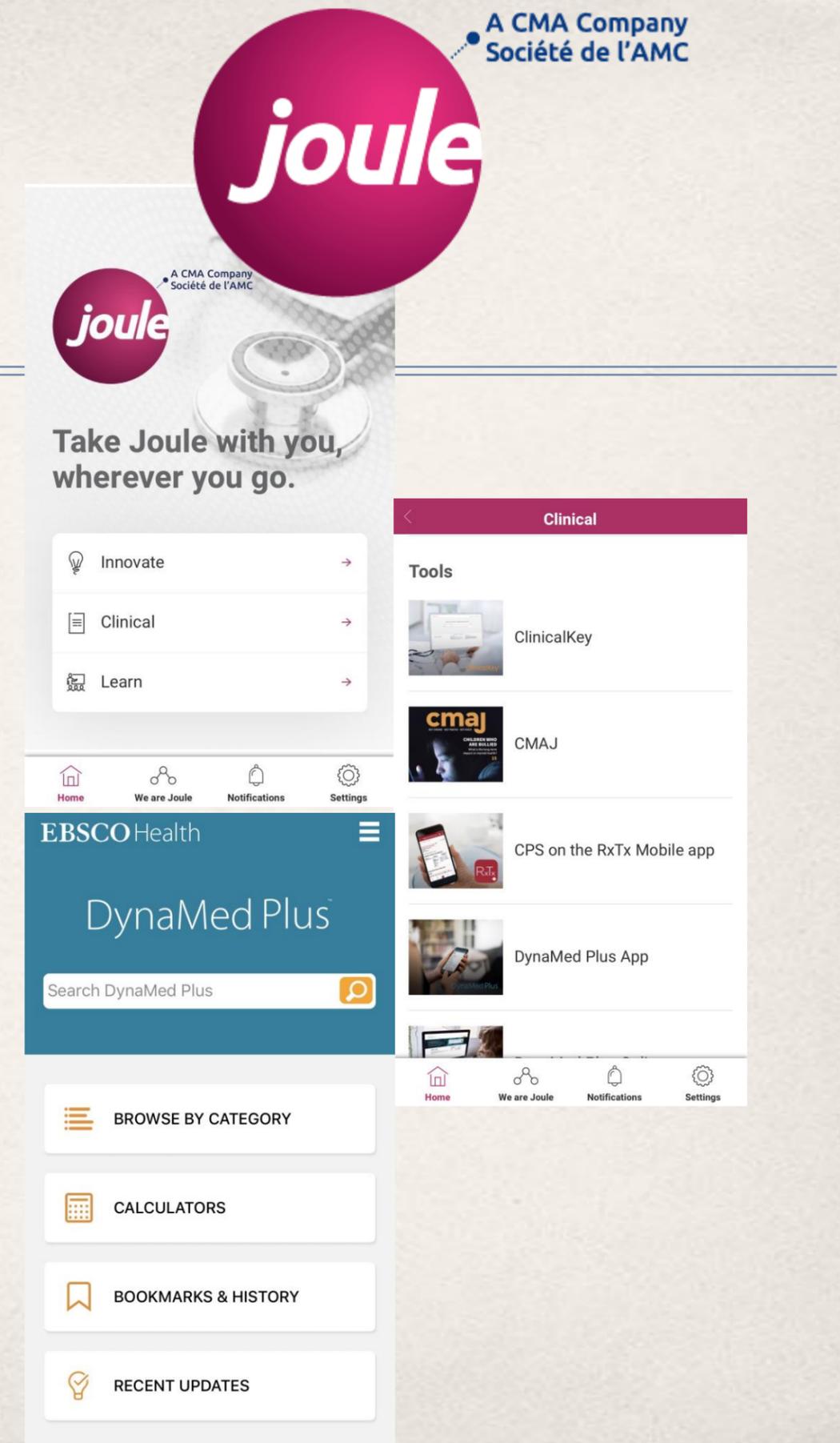


Joule: CMA App

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 \$195)****



Guidelines Apps

- ❖ CPG (Diabetes Canada)
- ❖ iCCS (Canadian Cardiovascular Society)
- ❖ CDN STI-ITS (free)
- ❖ INESSS: Quebec govt (free)
- ❖ Thrombosis Canada (free) EXCELLENT!
- ❖ ASCCP: Cervical cancer and colposcopy (\$13.99)
- ❖ Ortho 911: University of Laval, Ortho, French



Guideline Apps:



☞ MUMS 2019 Anti-infective Guidelines (\$24.99)

☞ Bugs and Drugs (\$14.99) Alberta Health Services

☞ Trekk: Translating Emergency Knowledge for Kids

☞ Spectrum: CHEO formulary

☞ Pedi-Stat: \$6.99: Rapid response in the ER or Critical care environment

☞ Choosing Wisely: Free



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:** Continuously updated, Apple/Android, free, English mainly. Some of the app can be switched to French. Has a privacy policy present and important to read.



INESSS

- French App (now in English) which is put out by the Institut national d'excellence en santé et en services sociaux. Series of practice guides and tools for clinicians for Alzheimer's, Antibiotics, anticoagulants and more
- Pros:** English and French, easy to use
- Cons:** Can't think of any
- Accessibility:** Updated 6 months ago, Android and iPhone, privacy policy is present (Quebec gov't)



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, updates, accessible without internet
- CONS:** Not entirely searchable, not as detailed as Sanford or Hopkin’s guides, Apple only
- ACCESSIBILITY:** \$24.99, Apple only, English only, 2019 update



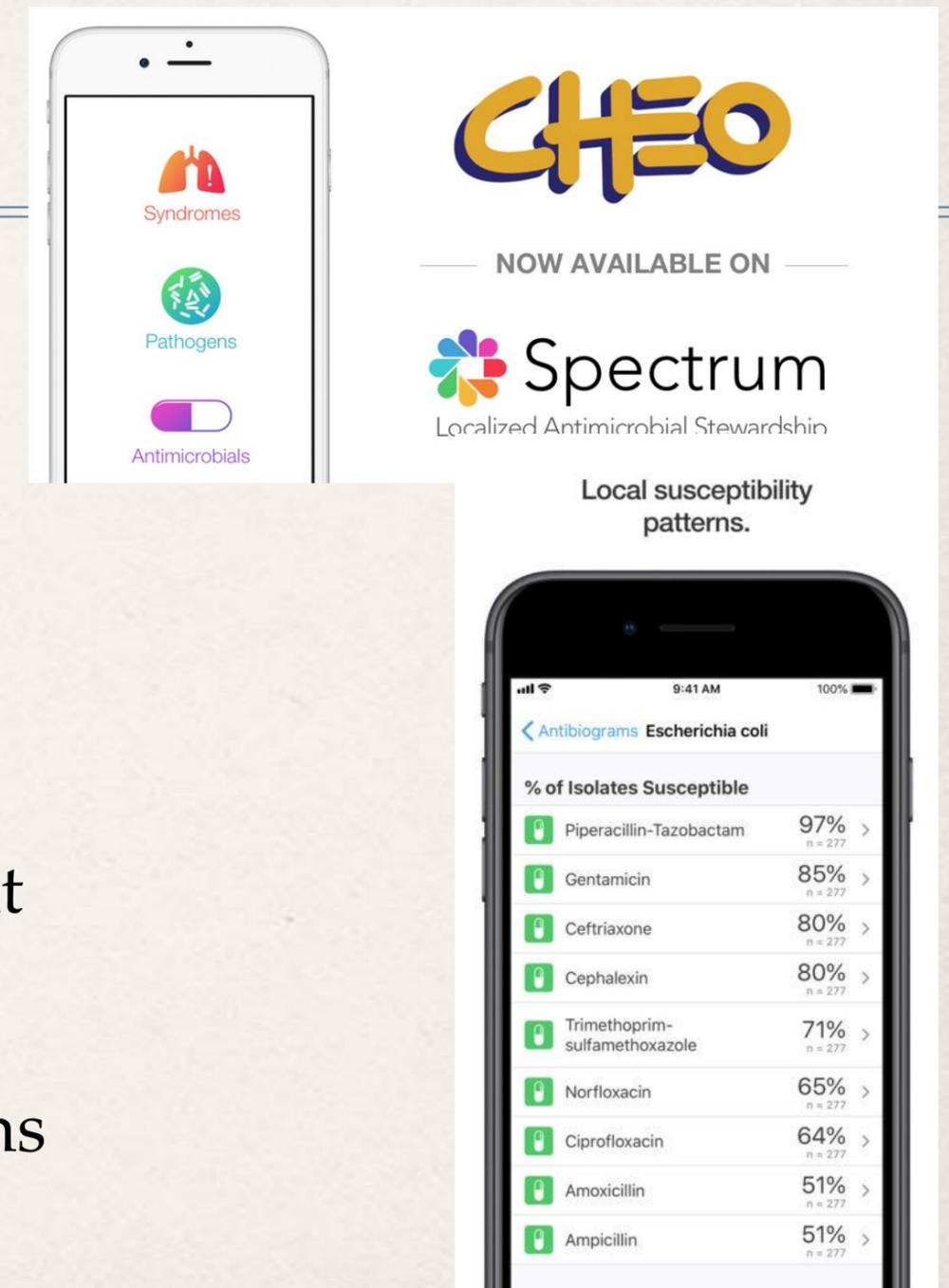
Spectrum

Think “what would CHEO do?” ...or many other hospitals. App can be specific to a particular institution in Canada. It’s like a combination of Sanford Guide and the “Orange book”.

Pros: Local guidelines and resistance patterns, very comprehensive including specimen collection, treatment suggestions based on syndrome ie. Tick bite management, cellulitis antibiotic choice and duration, inpatient or outpatient pneumonia etc... Taste profile of antibiotics

Cons: Focus on Pediatrics since linked to CHEO, not all regions included. Level of evidence not linked.

Accessibility: iOS and Android. Developed in Canada University of Calgary Critical Care and ID



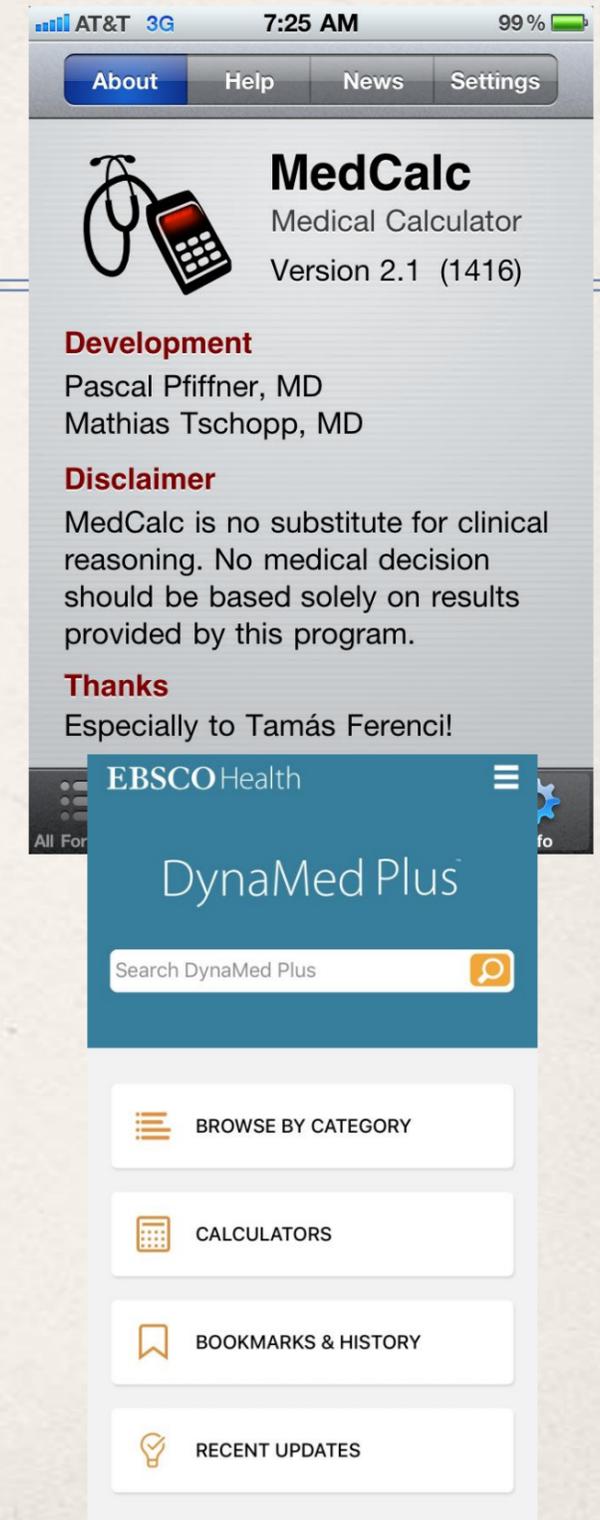
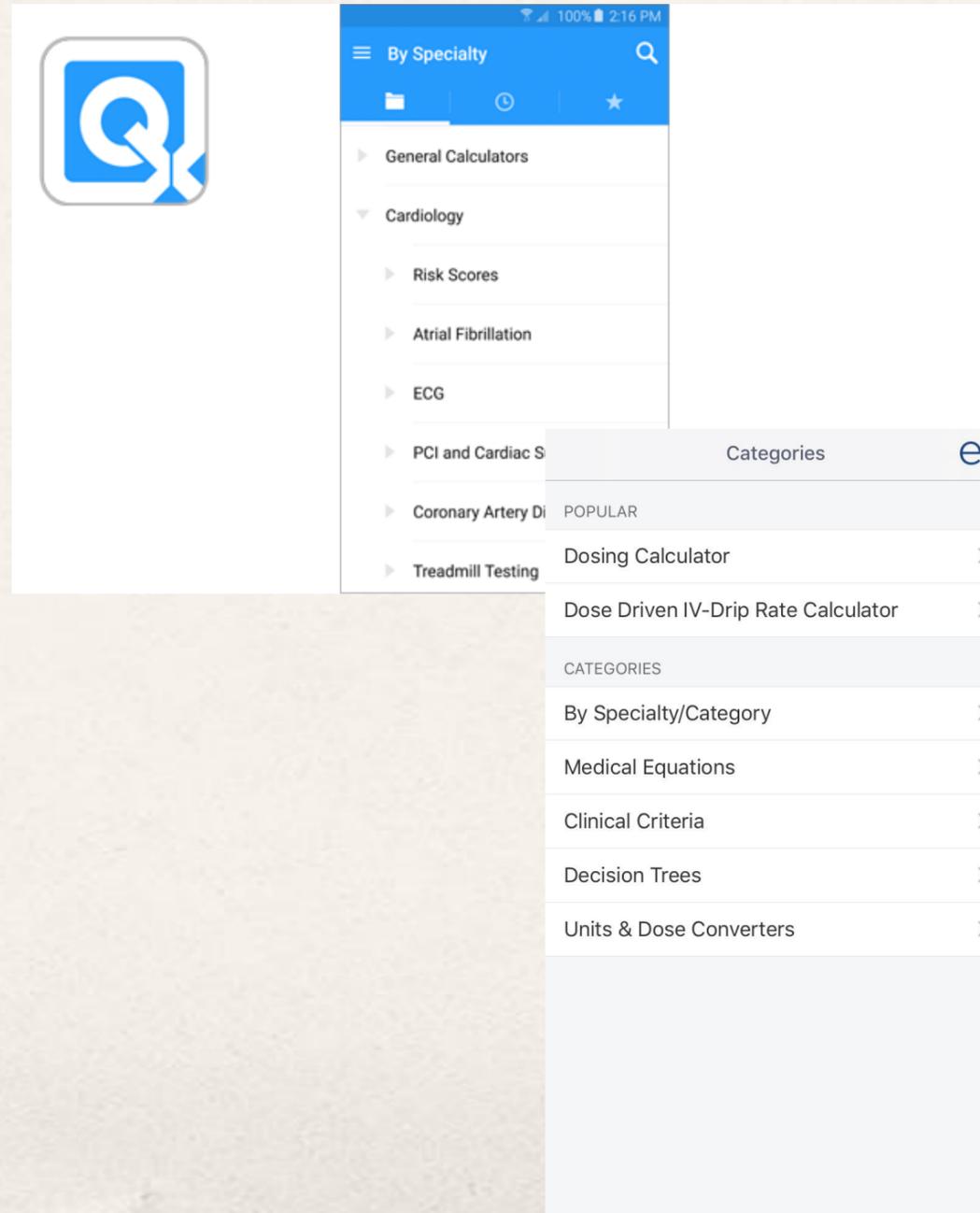
Medical Calculator Apps:

QxCalculate

Epocrates

MedCalc

DynaMed Plus



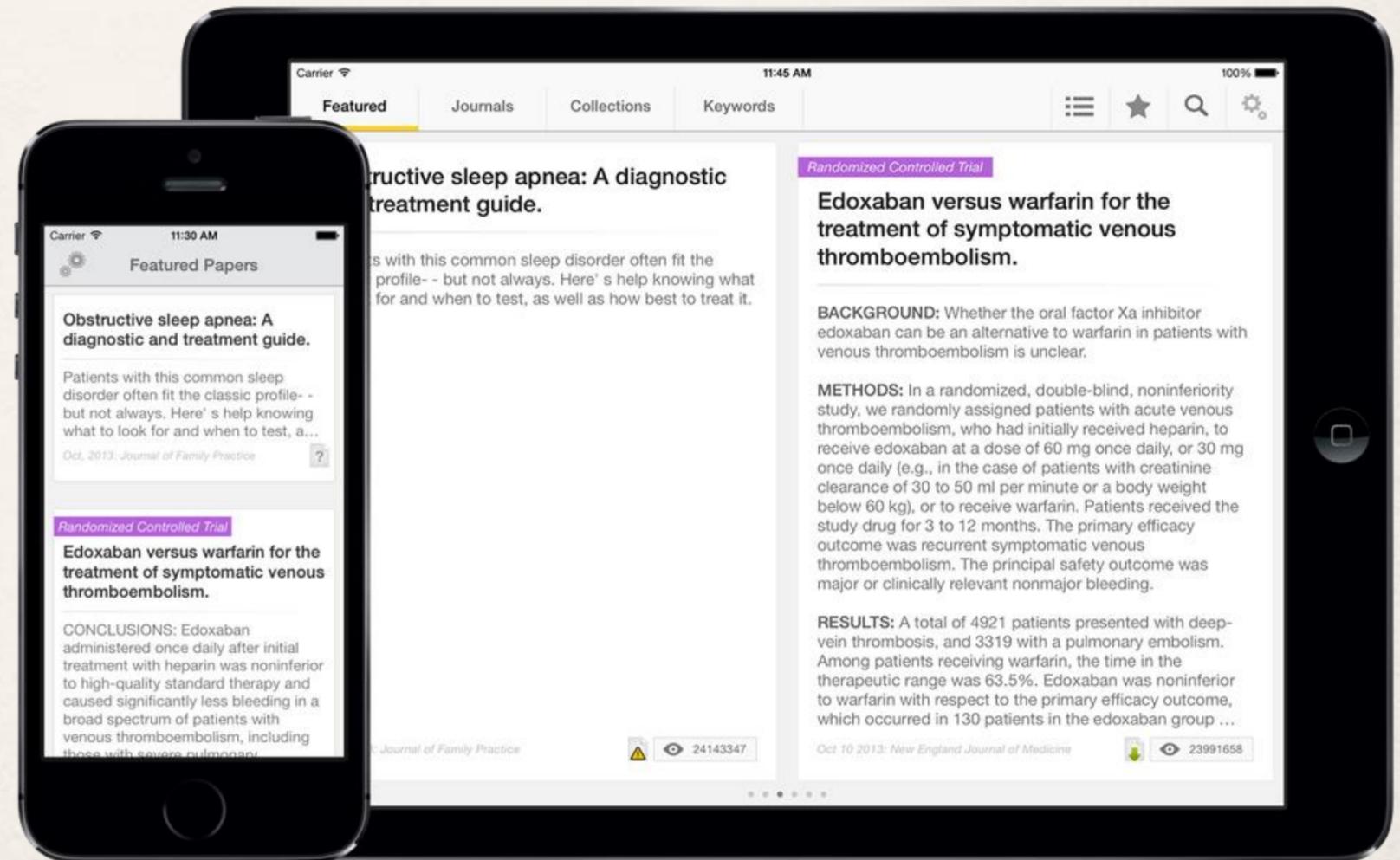
Journals

- ❖ Read by QxMD

or pick your favourite journal

- ❖ Joule

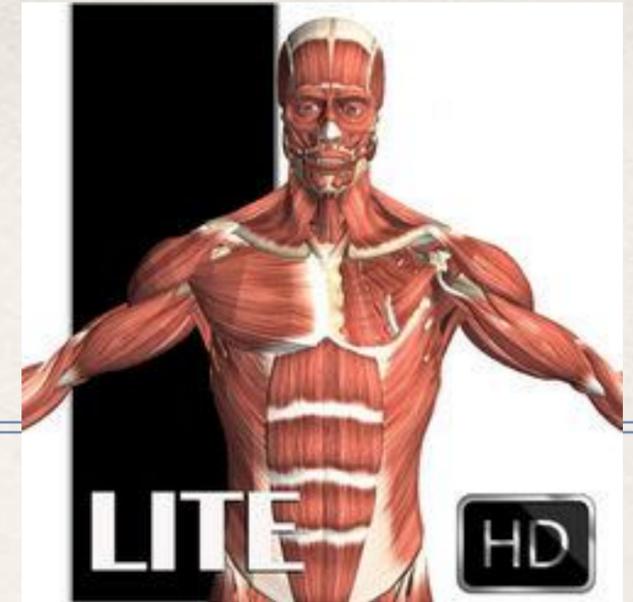
- ❖ CMAJ, AFP, Lancet, BMJ, NEJM etc...



Other Apps to consider:



Visual Anatomy Lite

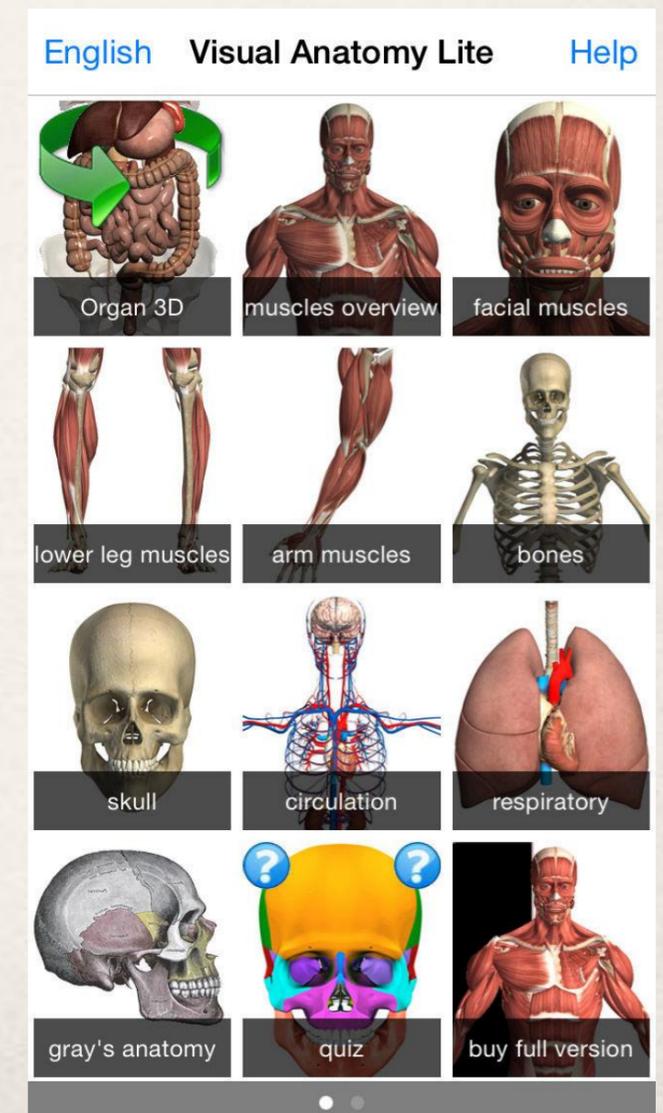


Many anatomy apps in App Store

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



GRC-RCMP

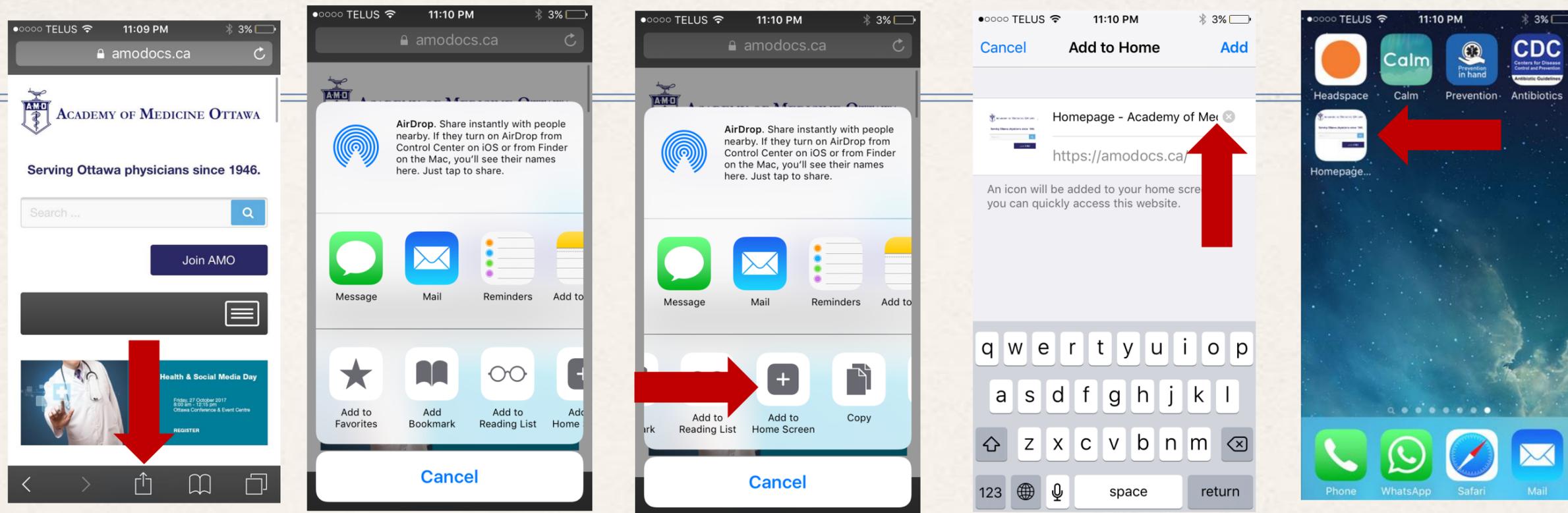
PRO: Where else can you learn about illegal drugs and all the names that are used to refer to them? Talks about drug, effects, visible signs and symptoms, myths and truths, info for parents, legal status and more

CON: Doesn't have all the drugs, missing some terms but there are so many terms

ACCESSIBILITY: Free, iPhone and Google Play, updated 1 month ago when changed legal status of cannabis, Privacy policy is present. French and English.



Make any website into an app!



- 1) Go to website you use often
- 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.

Great websites to make into Apps:

🔗 Medstopper.com

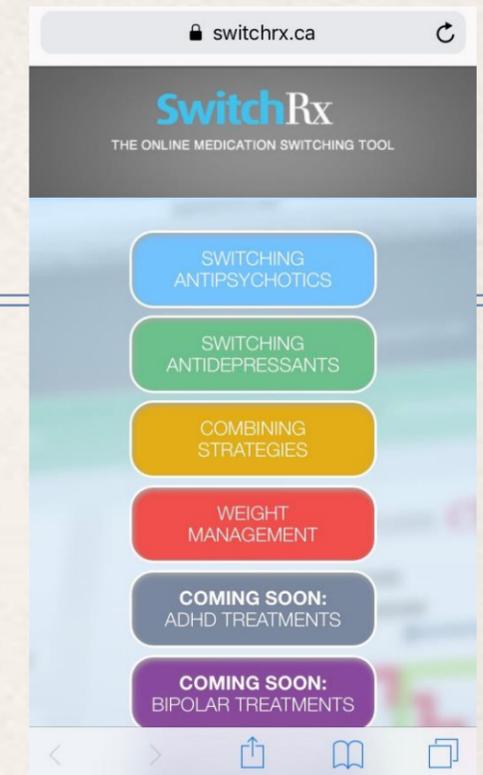
🔗 SwitchRx (switchrx.ca) the online medication switching tool for antipsychotics, antidepressants and treatment guidelines

🔗 Frax (fracture risk assessment tool)

🔗 eConsult (Champlain BASE)

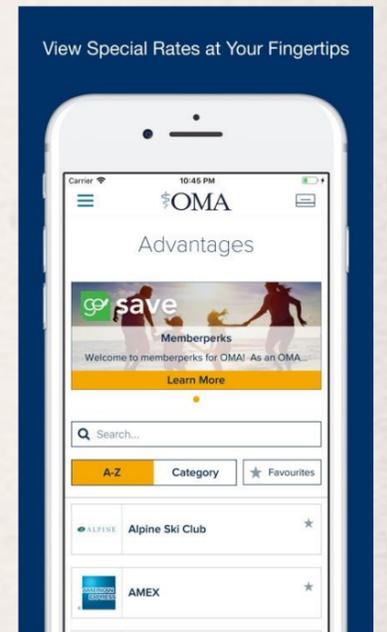
Arrange medications by: **Stopping Priority**

Stopping Priority GREEN=Lowest	Medication/ Category/ Condition	Why Improve Symptoms?	Why Reduce Risk for Future Issues?	Why Cause Harm?	Suggested Taper Approach	Possible Symptoms when Stopping or Tapering	Notes/ TIPPs/ Comments
Red	haloperidol haloperidol Parkinson	😊	😞	😞	Tapering not required		None
Orange	metformin ER metformin ER diabetes	😊	😞	😊	Tapering not required		None
Orange	gabapentin gabapentin general anxiety disorder	😊	😞	😞	Tapering not required		Details
Orange	gabapentin gabapentin pain disorder/ anxiety	😞	😞	😊	It used to be recommended to taper gabapentin over 6-8 weeks. However, some studies have shown that it can be stopped abruptly without significant withdrawal symptoms. 75% of the previously tapered cases.	Return of symptoms headache, nausea	Details
Orange	amoxicillin amoxicillin antibiotics	😊	😊	😞	Tapering suggestions should be discussed with a specialist		Details



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, latest update gives you OHIP error codes
- CONS:** Can't think of any
- ACCESSIBILITY:** Free, Canadian, Apple/Android, English only



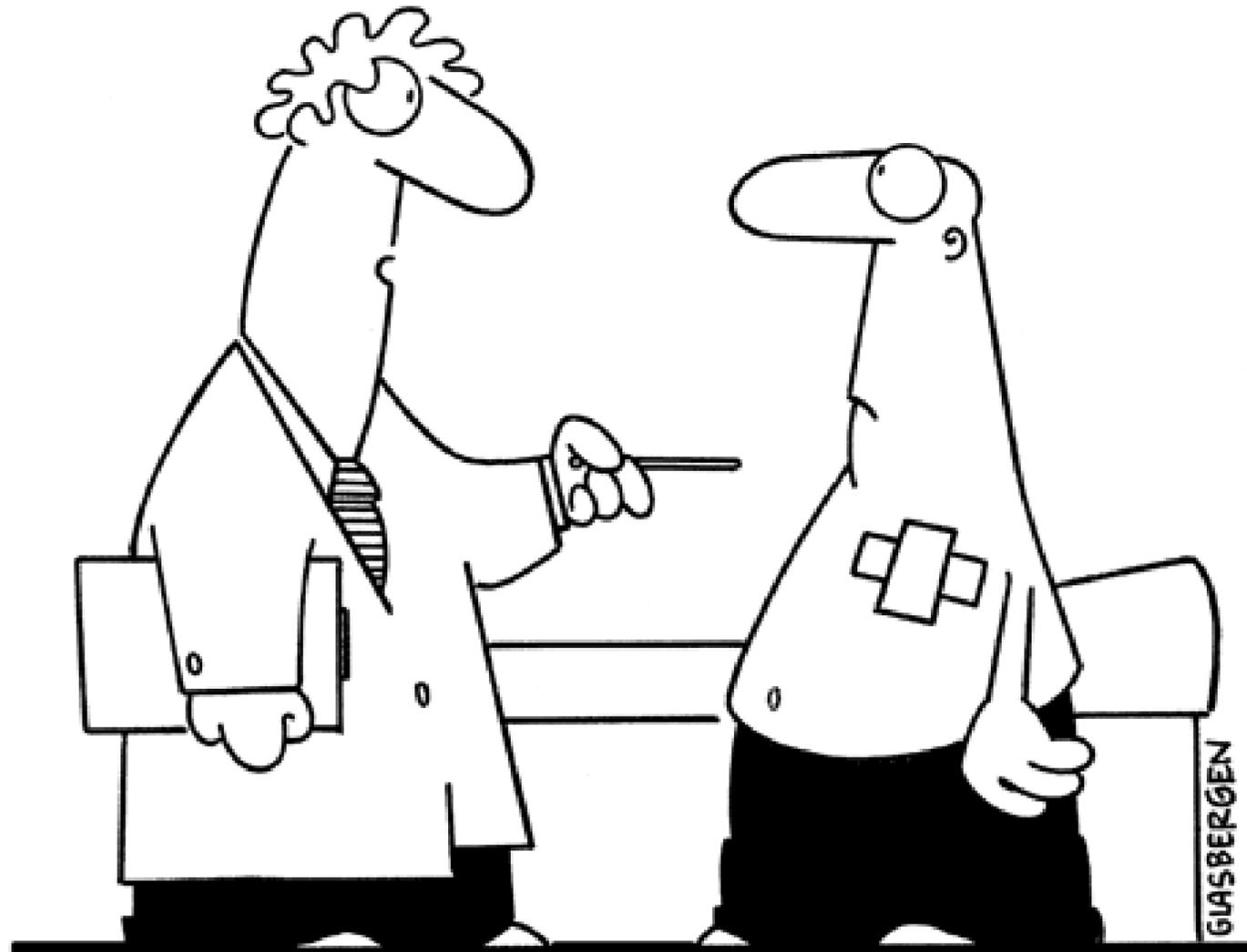
TELUS EMR Mobile

- ❖ **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. Can dictate directly into the EMR note now.
- ❖ **CONS:** Can't prescribe or fax
- ❖ **ACCESSIBILITY:** Only for TELUS App, Free with EMR, updated regularly



Patient Apps

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www.glasbergen.com



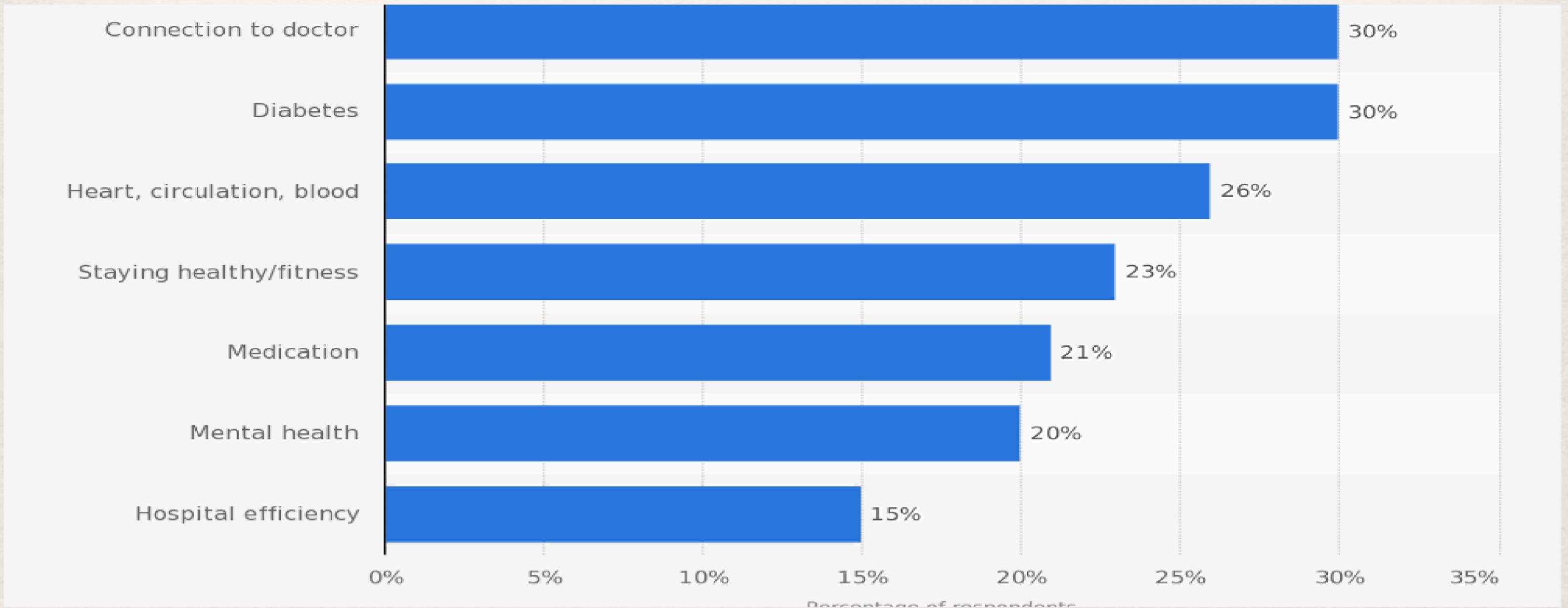
**“It’s a pacemaker for your heart,
plus you can download apps for your
liver, kidneys, lungs, and pancreas!”**

Health Apps Downloads



- ❖ Estimated 4.68 Billion people using a cell phone in 2019
- ❖ 60% will have downloaded a mobile health application
- ❖ More than 318 000 health and fitness apps are available for download.

Most attractive healthcare sectors for mHealth app companies 2017



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: practicalapps.ca (OTN), psyberguide.org, or imedicalapps.com

Health Apps vs mHealth Apps



- ❖ Both health apps and mHealth solutions can be used on-the-go to learn more about a specific illness and for self-monitoring purposes
- ❖ Health apps are only for users
- ❖ mHealth solutions improve the collaboration between patients and healthcare professionals, they deliver health
- ❖ Many mHealth solutions offer different types of information sharing such as data collection through patient self-assessments, electronic questionnaires, and sensor data

Guiding Principals for Recommending Mobile Health(mHealth) Apps to Patients (2015)



- Endorsement by a professional or recognized association or medical society or health care organization
- Usability (interface, design, recommend to look at updates)
- Reliability of information (how does the patient intend to use the info)
- Privacy and security (access to personal info)
- Avoid Conflict of interest (advise patient to look at developers)
- Does not contribute to fragmentation of health information (recommend ones that contribute to robust existing data repositories)
- Demonstrates its impact on patient health outcomes (validate this)

CMPA

- When recommending an app, physicians should review privacy policies of the apps to ensure third parties do not have access to identifiable personal health information without consent
- Both physician and patient must agree to be accountable for the protection of the patient's personal health information
- Consent: patients should provide their informed consent to using an mHealth app when suggested by a physician. CMPA has a "Consent to use electronic communications" form in guiding and documenting consent discussion. Document in chart.



CANImmunize

- ❖ Developed with Canadian Physicians
- ❖ **PROS:** Great digital alternative to paper records
- ❖ Will now synchronize with Ottawa Public Health and KFL&A Public Health (Kingston, Frontenac and Lennox & Addington)
- ❖ **CONS:** At times proactive advice was not always accurate
- ❖ **PRIVACY:** Stored locally and complies with Ontario's Personal Health Information Protection Act 2004 (PHIPA) and password protected, doesn't synchronize with Public Health database
- ❖ **ACCESSIBILITY:** Free, Apple/Android, Bilingual



The advertisement features the CANImmunize logo at the top, which includes a stylized blue bird icon. Below the logo is the text "A digital immunization record for Canadians". The central focus is a smartphone displaying the app's interface, which shows a family photo, the app name, and navigation options like "My Records" and "Information". A "Download Now!" button is visible at the bottom of the phone screen. To the right of the phone, a blue box contains the text: "CANImmunize is a free, bilingual tool that helps you track your immunizations and get vaccinated on time". Below this text is a "Learn more >" link. At the bottom of the advertisement, the logo for The Ottawa Hospital / L'Hôpital d'Ottawa is displayed.

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



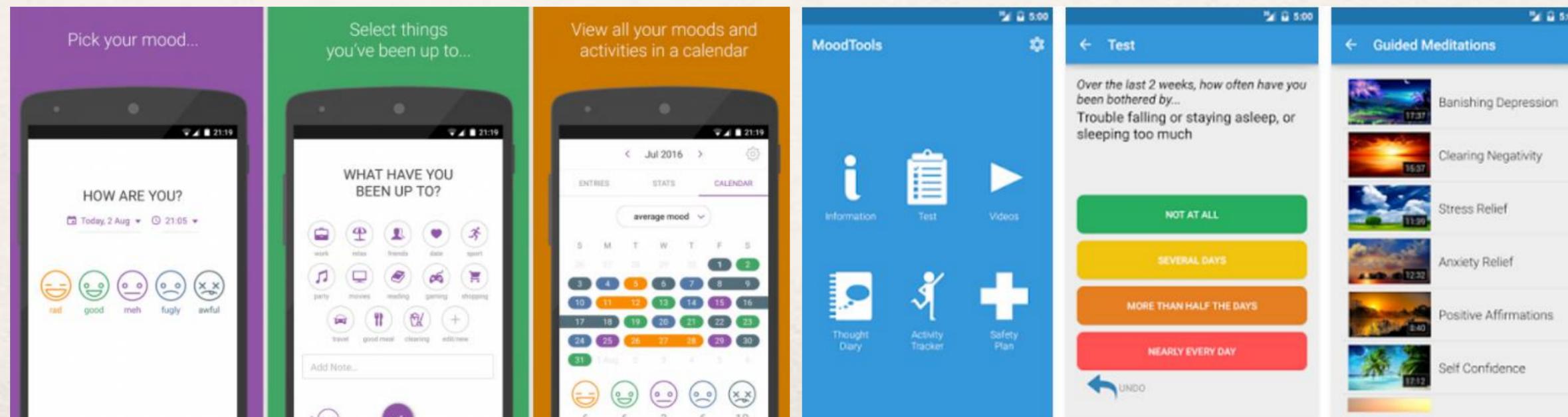
New Mood Related Apps

Daylio

- ❖ **Free**
- ❖ **Pro:** Gives calendar of mood with activities to gain insight into daily life. Easy tap icons and no typing
- ❖ **Con:** Limited to tracking mood only

MoodTools

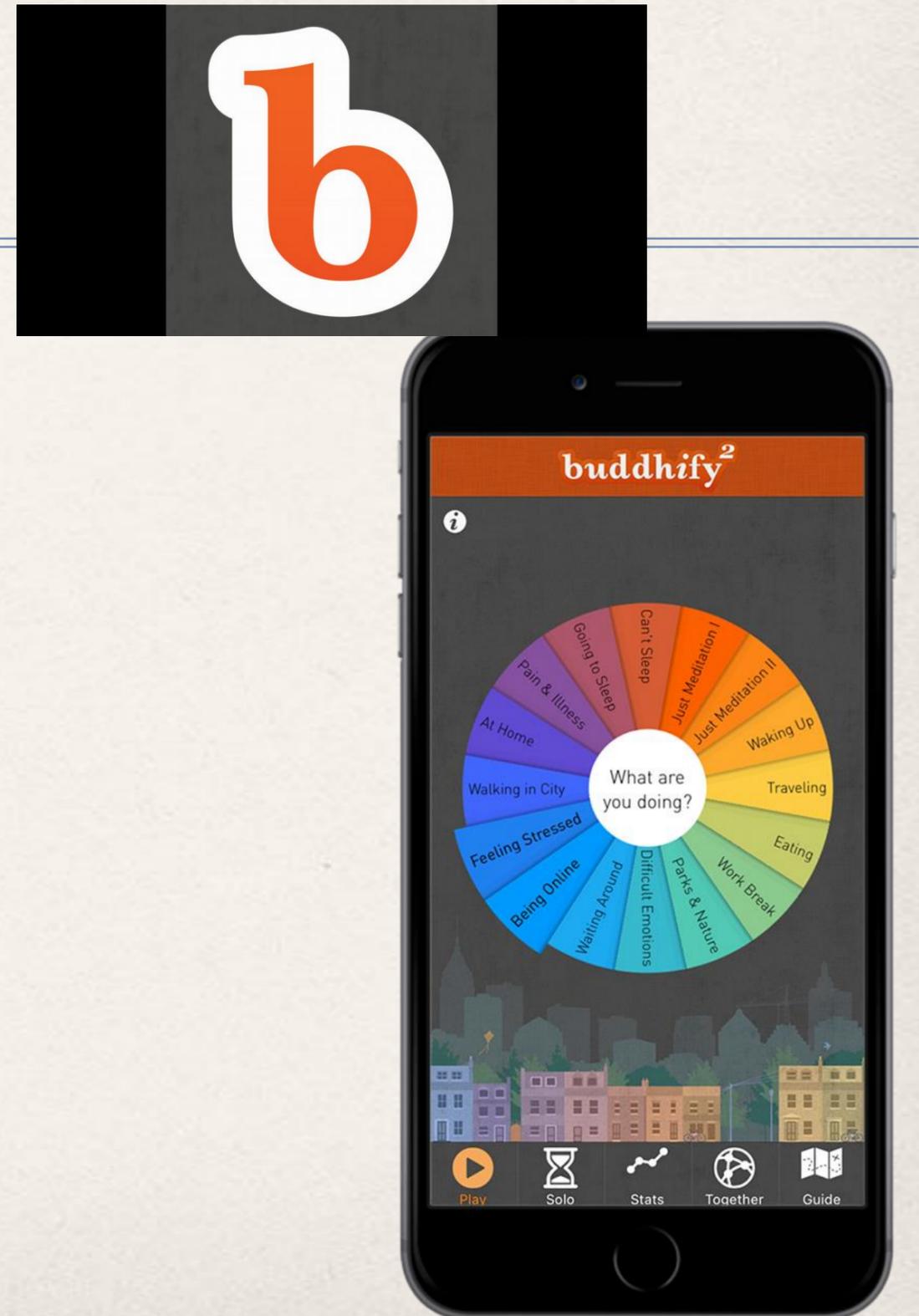
- ❖ **Free** + \$ for added content
- ❖ **Pro:** Great links to meditation videos, calming sounds, TED Talks. Includes thought diary and PHQ 9 questions.
- ❖ **Con:** Seems more focused on depression alone



buddhify:

modern mindfulness for busy lives

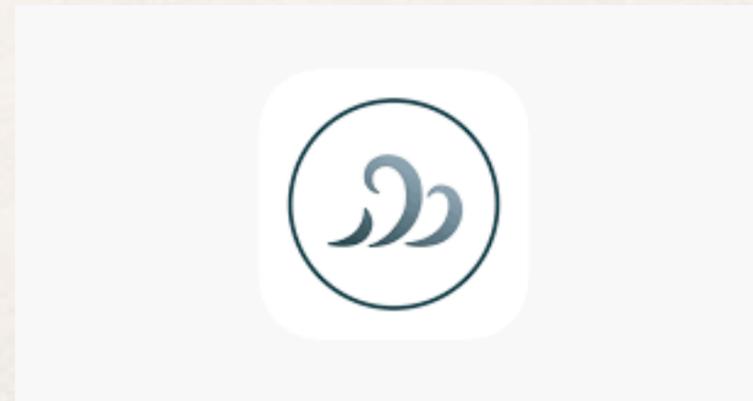
- ❖ Made by Mindfulness, everywhere in UK
- ❖ **PROS:** Urban meditation, >80 guided meditations, easy to use, beginner to expert
- ❖ **CONS:** No data on efficacy, little background info on meditation, no reminders given to meditate
- ❖ **PRIVACY:** Requests info from users, no registration required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



UHN Mobile Apps



- ❖ uhn.ca gives you a list of health and wellness mobile apps that can be recommended for your patients
- ❖ UHN's Centre for Global eHealth Innovation have also developed a few apps of their own and have looked into regulating apps.
- ❖ My favourites are Bant (for Diabetes), Breathe for COPD

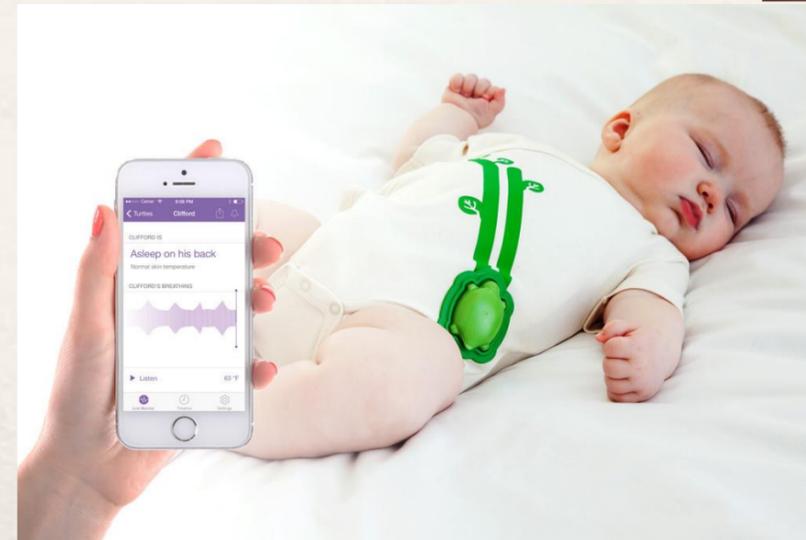


Future of Digital Health:

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



Wearables:



Mobile ECG abilities



AliveCor

- ❖ FDA-cleared and Health Canada Licensed electrocardiogram ECG monitor for Atrial Fibrillation
- ❖ 2 finger ECG approved in Canada
- ❖ \$129.99 on Amazon



Patients generating reliable data



Apple watch series 4

- ❖ Falls detection with emergency call
- ❖ Heart rate too low
- ❖ American Heart Association & FDA Approved in the USA only (no date set yet for Health Canada):
- ❖ Irregular rhythm detection: A. Fib
- ❖ ECG anytime in 30 sec (lead 1)
- ❖ Encrypted Health & Fitness data



Digital Stethoscopes



Blood Pressure Monitor



Made for
iPod iPhone iPad

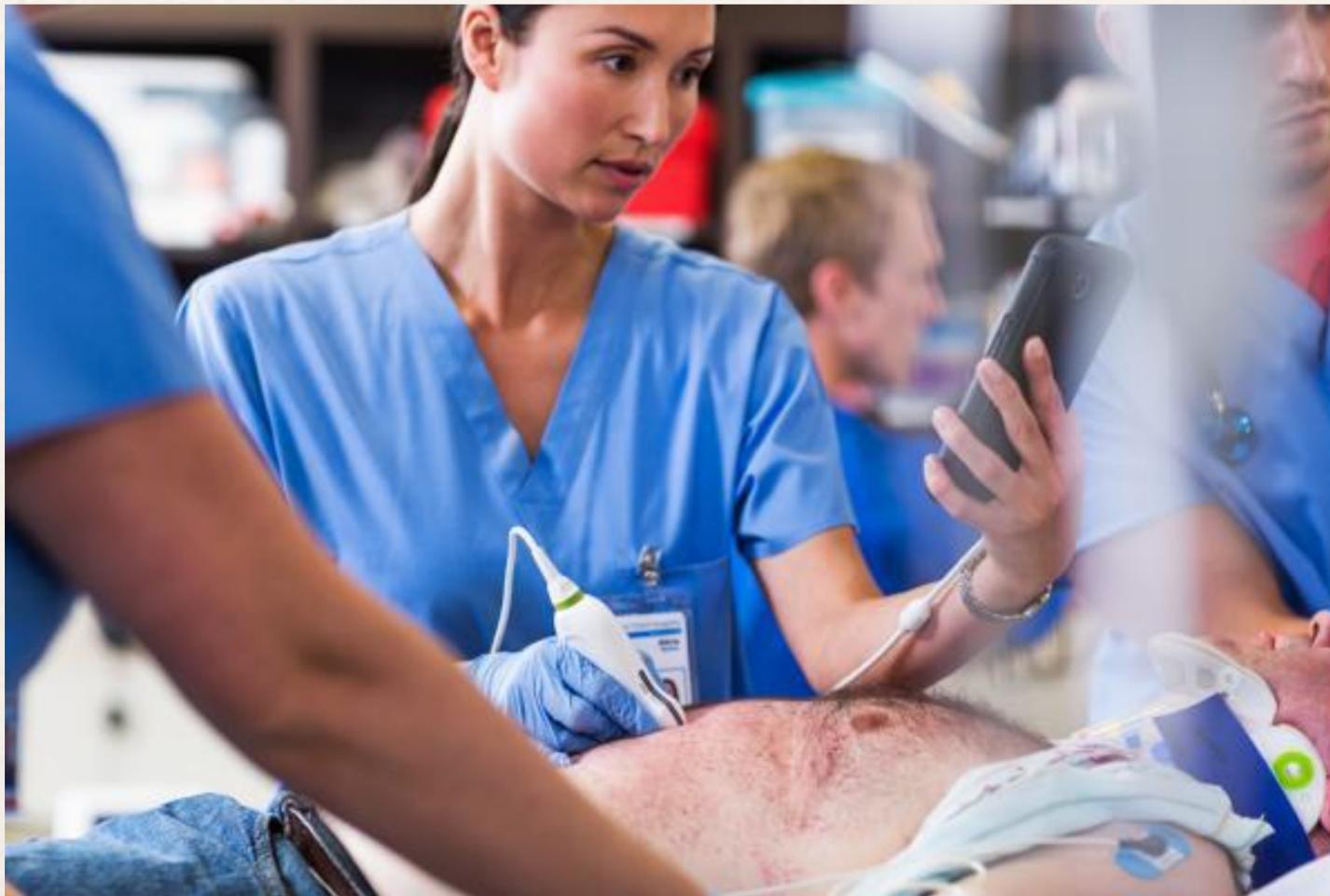
Pulse Oximetry



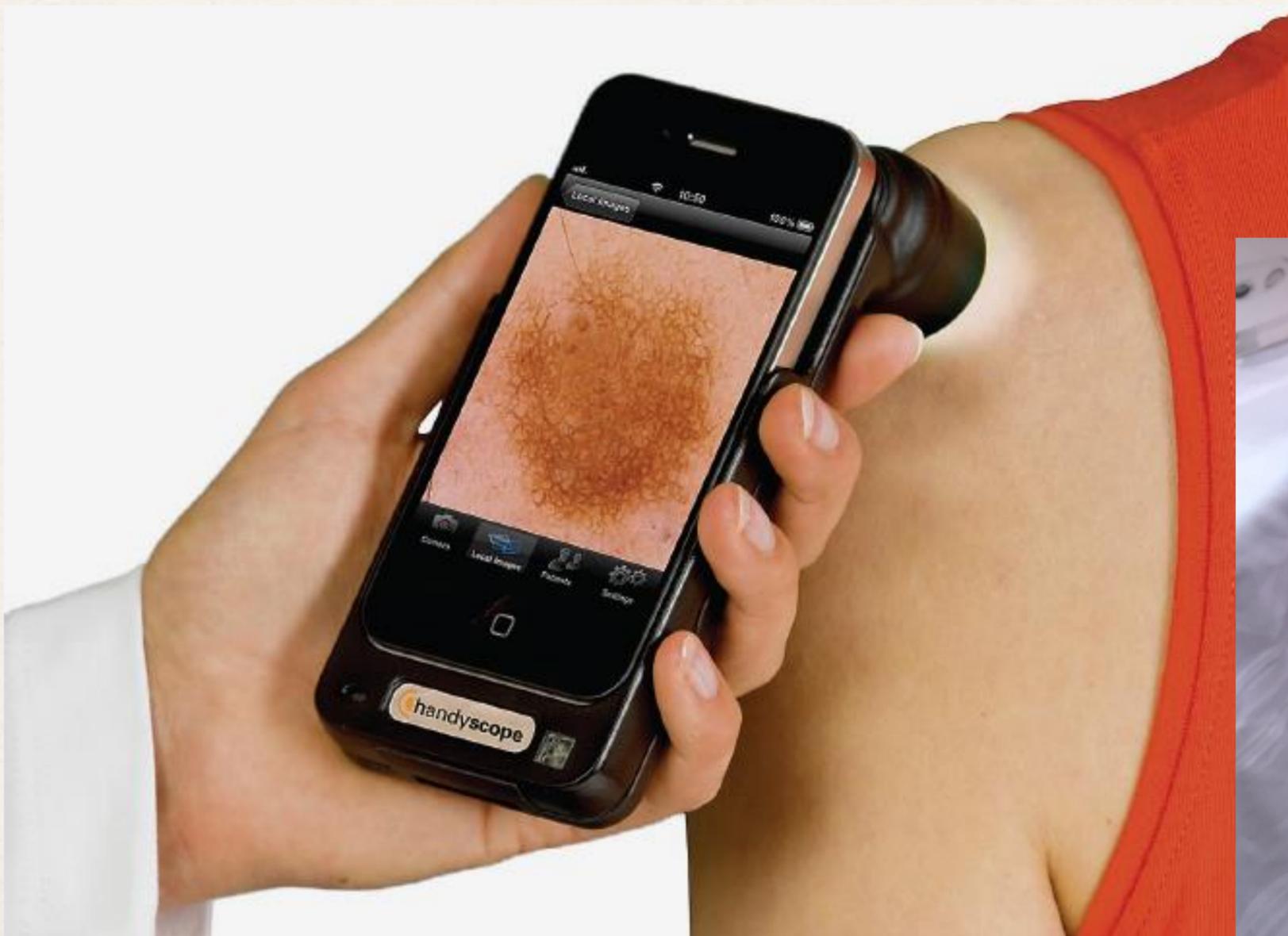
Glucometer:



Smartphone Ultrasound



Dermatology





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



DermaGo.ca

- ❖ Direct-to-Consumer dermatology using a smartphone camera since Dec 2017. Ontario, Quebec and Alberta but expanding. Prescription can be phoned in, or a biopsy in their nearest office arranged if necessary.
- ❖ It costs \$179.99 to get an answer within 72 hours, and \$249.99 within 24 hours.
- ❖ Ethical? Telemedicine from patient to physician is not a service currently provided by the provincial health.



A horizontal banner for the dermaGO website. On the left, a smiling female dermatologist in a white lab coat is shown from the chest up. The background is teal. On the right, there is text in French. At the top left of the banner is the dermaGO logo. At the top right, there are navigation links: LA MISSION, PARTENAIRES, F.A.Q., BLOGUE, ENGLISH, and a Facebook icon. A red button labeled 'MON DOSSIER' is also present. The main text reads: 'Consulter un dermatologue en ligne dès maintenant!'. Below this, it says: 'Vous pouvez consulter un dermatologue certifié en ligne et obtenir diagnostic & prescription en moins de 72h pour 179.99\$'. Further down, it says: 'Vous êtes pressés?! Pas de problème, nous offrons également le service en 24hr pour 249.99\$'. At the bottom right, there is a red button labeled 'CONSULTER UN DERMATOLOGUE'.

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**



THANK YOU!





**KEEP
CALM
AND TURN
YOUR
PHONE ON**