Disclosure

- I do not have a vested interest in or affiliation with any corporate organization offering financial support or grant monies for this continuing education activity, or any affiliation with an organization whose philosophy could potentially bias my presentation.

- However...

Learning Objectives

1. Outline core terminology and concepts within mobile health (mHealth)
2. Delineate the use of mHealth to enhance patient engagement and improve medication adherence
3. Explore opportunities for mHealth tools and technology to extend the role of pharmacy
4. Articulate pitfalls associated with use of mobile apps and devices

...I do have more optimism about the future of pharmacy than some evidence might dictate
Informatics = People + Information + Technology

(Pharmacy) Informatics
Bioinformatics (cellular and molecular)
Medical/Clinical Informatics (person)
Biomedical and Health Informatics
Legal informatics
Consumer Health Informatics
Public Health Informatics (population)
Chemoinformatics


What makes mobile health stand out?

"Fundamental Theorem" of informatics

Adapted from JAMIA 2009;16:169-170.

mHealth
Exploring a more opportune environment

mHealth is the use of mobile devices and global networks to deliver health services and information

Mobile devices
- phones
- iPad/TabletPC
- Glowcap
- Proteus Raisin
- USB
- Misfit Shine
- AdhereTech

How quickly mobile tech moves...
In 2009 Blackberry share was 38% and Android was 2%

Smartphone share by platform

Enhancing Patient Engagement

Source: comScore MobiLens April 2014
Paternalistic approach to healthcare*

*Legacy model

"As opposed to the doctor-centric, curative model of the past, the future is going to be patient-centric and proactive."

- NIH Director (Past)
  Elias A. Zerhouni, M.D.

Consumers want to use health apps

What is the only “health app” in the Top 5 most used apps?

(hint)

What is the only “health app” in the Top 5 most used apps?

(answer)
Five dimensions of medication adherence

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Factor</th>
<th>mHealth tool(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social and economic</td>
<td>Limited English language proficiency</td>
<td>MediBabble; Mobile medical translator (Jibbigo)</td>
</tr>
<tr>
<td>Health care system</td>
<td>Lack of positive reinforcement</td>
<td>Mango Health; Memotext</td>
</tr>
<tr>
<td>Condition-related</td>
<td>Depression</td>
<td>Mobilize</td>
</tr>
<tr>
<td>Therapy-related</td>
<td>Complexity of medication regimen</td>
<td>eMedonline; Helius; Pillboxie</td>
</tr>
<tr>
<td>Patient-related</td>
<td>Alcohol or substance abuse</td>
<td>Alcohol–Comprehensive Health Enhancement Support System (A-CHESS Mobile Platform)</td>
</tr>
</tbody>
</table>

Enhancing Medication Adherence

Target low-hanging fruit

Kairos

Leveraging mobile technology to facilitate behavior change

mHealth tools to address factors in medication non-adherence by dimension


Kairos: Greek god of the favorable moment

Fogg BJ. Persuasive Technology: Using Computers to Change What We Think and Do, 2002.
Patients would most prefer to receive a medication reminder via:

- Phone call: 43.1%
- Buzzing drug vial: 20.3%
- Email: 19.5%
- Phone alarm: 15.2%
- App: 4.1%
- Text message/SMS: 1.3%

Source: Consumer Health Information Corporation, April 2011 (n=395)
Importance of **advanced community** and ambulatory care practice settings

**Navigating the Oceans of Opportunity**

Extending Pharmacy’s Role

**Connecting the dots** between community and institutional pharmacy

**mHealth + public health = pharmacy**

Text BABY to 511411
Envia BEBE al 511411
para Español

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Personal Health Record*

“...platform that gathers patient data from multiple sources and hosts a suite of applications that use those data to help patients understand and improve their health.”

- Robert Wood Johnson Foundation, Pioneer Portfolio

My Health at Vanderbilt

https://www.myhealthatvanderbilt.com/

Benefits of PHRs

- Help control costs
- Help improve care in chronic dx management
- Reduce disparities

Challenges with PHRs

- Viability of business model
- Privacy
- Interoperability

*can be tethered or untethered

Personal Health Record* can be tethered or untethered.
Can problem solving skills developed from playing video games translate to helping with real world medical challenges?

A. It depends.

Fellowship in Academic Pharmacy Leadership and Education

This AACP Fellow will:
- develop serious educational game content
- work with a team of game designers at AACP subsidiary Professions Quest


*Gamers help solve a ten year HIV puzzle in ten days**

*More like 3 weeks…*
Breach of electronic patient health information (ePHI) by media type

Source: Department of Health and Human Services, 2012

Texting increases crash risk by 23.2 times!

Honk if you love Jesus if you're ready to meet Him!
Final Thought:
(Bubbles)

- mHealth offers opportunities to improve patient engagement and medication adherence
- mHealth can provide paths to new niches and extend pharmacy’s role
- Pitfalls with mHealth must be navigated

CHALLENGE

Stop standing at the edge of the diving board, pick one new mobile tech, and DIVE IN!

Checklist of Tools & Tech

- Patient Centered Outcomes Research Institute: http://www.pcori.org/
- Adult Meducation: http://www.adultmeducation.com/
- Pillboss: http://bit.ly/1Q0vrez
- AdherTech: http://www.adheretech.com/
- Script Your Future Free Text Reminders: http://scriptyourfuture.org
- My Meds 3.0: http://about-my-meds.com/
- Microsoft HealthVault: https://www.healthvault.com
- Text4baby: https://text4baby.org/
- Dossia Health Manager/PHR: http://www.dossia.org/
- My Health @ Vanderbilt portal: https://www.myhealthatvanderbilt.com/
- PatientsLikeMe: http://www.patientslikeme.com/
- Foldit: http://foldit.portals/
- Rock Health: http://rockhealth.com/