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Evaluating Apps

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Edwin D. Boudreaux, PhD
UMass CCTS Mini-symposium
May 8, 2013

Evaluating Apps

Disclosures

- I have consulted and own shares of Polaris Health Directions, a small business that creates e-health interventions.

Objectives

- To be familiar with important considerations when evaluating apps.

- To learn about rating or evaluation agencies and websites.

- To evaluate some specific apps.
  - Mood management
  - Tobacco

- To be able to start using at least 1 app on Monday when you return to work

Evaluating Apps: Basics

- What is the target behavior, disorder, or symptom?
- Dumbphone vs. smartphone
  - Text only for dumbphone
  - Android vs. iPhone
- What features does the app have?
  - Tracking
  - Intervention

Evaluating Apps: Customer Driven

- # of downloads

- User ratings (☆'s)

Evaluating Apps: Usability

- Usability
  - No universal metric but it is really important
  - Initial usability
    - Can the individual learn to use it within 5 minutes?
  - Long-term sustainability
    - Fatigue and desensitization is a problem
  - You can often test drive them on your computer (Amazon)

Evaluating Apps: Theory Based?

- Not theory based
- Theory informed
    - Reference to a theory but not clear exactly how it's linked
- Theory driven
    - Clearly linked to a specific theory or theories

Evaluating Apps: Evidence Base?

- Not rooted in any evidence
- Evidence informed
  - App itself hasn't been studied but it is rooted in traditions that have.
- Empirically supported
  - App has been found to be superior to a control or comparison condition, or equivalent to traditional therapy, at modifying target.

"Rating" Agencies

- This aspect is in it's infancy.
- Health On Net – Internet www.hon.ch/
- Consumer reports
  - http://news.consumerreports.org/health/2009/10/there-really-is-an-app-for-that-health-interestor-will-be.html

"Rating" Agencies: Happtique

- www.happtique.com
  - http://www.happtique.com/wp-content/uploads/App-Certification-Standards-final.pdf

- Operability

- Privacy

- Security

- Content

"Rating" Agencies: Happtique

- **Content**
  - C1. App is based on one or more credible information sources such as an accepted protocol, published guidelines, evidence-based practice, peer-reviewed journal, etc.

  - C1.01 Source is documented

  - C1.02 If based on other than recognized source, documentation about how the content was formulated is provided.

Good Vetting Websites

- National Center for telehealth and technology
  - http://t2health.org/products/mobile-apps

- iMedicalApps
  - http://www.imedicalapps.com/filter/?cat-medical-specialty20=3378

Good Vetting Websites

- Telemental Health Comparisons
  - http://www.telementalhealthcomparisons.com

- Mobihealthnews
  - http://mobihealthnews.com/research/

- ABCT Technology and Behavior SIG
  - http://www.techandbehavior.com

Tobacco Cessation: Consumer Ratings

- http://www.healthline.com/health-slideshow/top-iphone-android-apps-quit-smoking
- **iQuit - Stop Smoking Counter,** iPhone - 3 stars and 59 ratings - $1.99
- **LIVESTRONG MyQuit Coach - Dare to Quit Smoking,** iPhone - 4.5 stars with 3124 ratings - $3.99
- **GottaKickit Now,** iPhone - 3 stars with 37 ratings - $4.99
- **Get Rich or Die Smoking,** Android - 4.7 stars with 10K-50K installs in the last 30 days – Free
- **Quit It Lite - stop smoking now,** iPhone - 4 stars with 96 ratings - Free
- **Quit Smoking,** Android - 4.1 stars with 100K-500K installs in the last 30 days – Free
- **My Last Cigarette - Stop Smoking Stay Quit,** iPhone - 4 stars with 1035 ratings - $0.99
- **Quit Smoking: Cessation Nation,** Android - 4.7 stars with 10K-50K installs in the last 30 days - Free
- **QuitNow!,** Android - 4.5 stars with 100K-500K installs in the last 30 days - Free
- **Tweetsmoking,** Android - 3.9 stars with 10K-50K installs in the last 30 days - Free
- **Quit Companion,** Available for iOS and Android (FREE)

Tobacco Cessation: Cochrane

- Reviews of m-health for tobacco
- Cochrane Collaboration
  - Whittaker, Borland, Bullen, Lin, McRobbie, Rodgers. Mobile phone-based interventions for smoking cessation. 2009
  - 4 RCTs that qualified
  - All text based

Tobacco Cessation: Cochrane

Brendryen 2008a *{published data only}*
- Brendryen H, Kraft P. Happy Ending: a randomized controlled trial of a digital multi-media smoking cessation intervention. *Addiction* 2008;**103:478–84. [: doi:10.1111/j.1360–0443.2007.02119.x]**

Brendryen 2008b *{published and unpublished data}*
- Brendryen H, Drozd F, Kraft P. Digital smoking cessation program delivered through internet and cell phone without nicotine replacement (Happy Ending): randomized controlled trial. *Journal of Medical Internet Research 2008;**10(5):e51.***

Free 2009 *{published and unpublished data}*
- Free C, Whittaker R, Knight R, Abramsky T, Rodgers A, Roberts IG. Txt2stop: a pilot randomised controlled trial of mobile phonebased smoking cessation support. *Tobacco Control 2009;**18:88–91.***

Rodgers 2005 *{published data only}*
- Bramley D, Riddell T, Whittaker R, Corbett T, Lin R-B, Wills M. Smoking cessation using mobile phone text messaging is as effective in Maori as non-Maori. *New Zealand Medical Journal 2005;**118** (1216):1494–504.*
- Rodgers A, Corbett T, Bramley D, Riddell T, Wills M, Lin R-B, et al.Do u smoke after txt? Results of a randomised trial of smoking cessation using mobile phone text messaging. *Tobacco Control* 2005;**14:255–261. [: doi: 10.1136/tc.2005.011577]**

Tobacco Cessation: Text

- Text2stop

- Additional RCT: Free C, Knight R, Robertson S, Whittaker R, Edwards P, Zhou W, Rodgers A, Cairns J, Kenward MG, Roberts I. Smoking cessation support delivered via mobile phone text messaging (txt2stop): a single-blind, randomised trial. Lancet, 2011; 378(9785):49-55. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3143315/

- Searched the web for 30 minutes, couldn't find out how to sign up

- Tried to text from my Blackberry, didn't work

Tobacco Cessation: Text

- Txt2stop, Happy Endings, txt2quit are from other countries so you may not actually get messages

- http://smokefree.gov/smokefreetxt/default.aspx is the only free US program I could find

- I tried it, and it is functioning. Has some poorly tailored messages (congratulated me for 24 hours when I said I hadn't quit).

Tobacco Cessation

- Abroms, Padmanabhan, Thaweethai, Phillips. iPhone apps for smoking cessation: A content analysis. Americal Journal of Preventive Medicine, 2011;40:279-285.

- Compared apps against USPHSTF 2008 Clinical Practice Guidelines
  - Established 20 criteria
  - Gave 0 to 3 rating across each
  - Range could be 0 to 60
  - Used by others to evaluate internet websites

Tobacco Cessation

- Searched iTunes in June 2009
  - Found 47 unique apps related to smoking cessation

- Some specific to smoking, some generic to behavior change

Tobacco Cessation

- Categorized into:
  - Calculator – tracked dollars saved, health benefits
  - Calendar – tracked days until and after quit
  - Hypnosis – hypnosis techniques, visual, auditory
  - Rationing – rate fading, scheduled smoking
  - Other – virtual cigarettes, connect to support

- Hypnosis apps were very popular

Tobacco Cessation

- Mean = 7.8, range 0 - 30 (out of possible 60)

- Top 3 apps:
  - Quit Smoking-Cold Turkey (expanded and Lite) (score = 30)
  - iGuides-Stop Smoking, Now! (score = 29.5)
  - My Stop Smoking Coach with Allen Carr (score = 23)

- More frequently downloaded were less adherent to guidelines

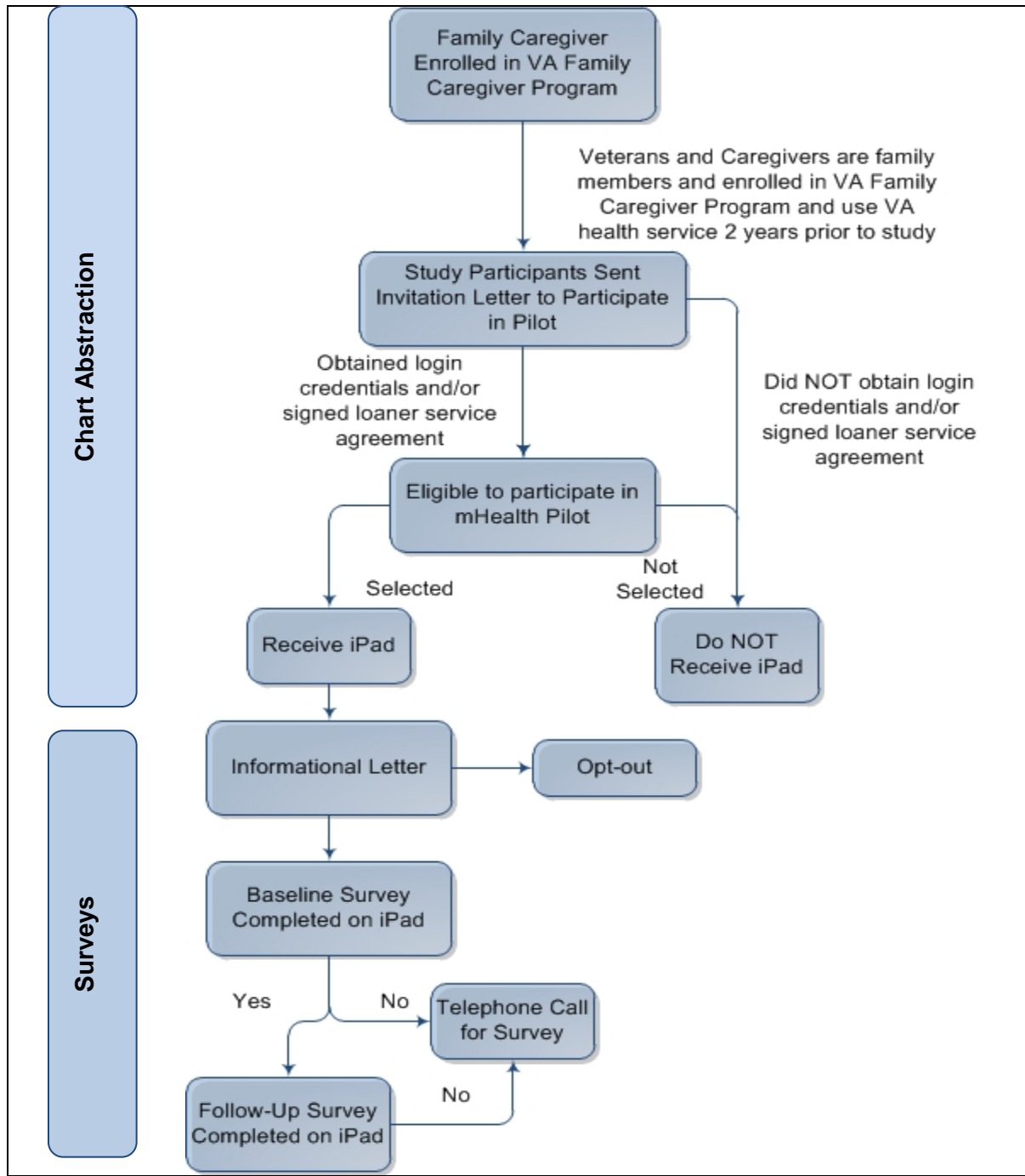# Tobacco Cessation

- Questionable goodness of fit of guidelines intended for human-based interventions to be applied to apps
  - Ask tobacco use status: None of the apps achieved this criteria, because app-store presupposes you have the problem for which you're searching for the app
  - Advise every user to quit: Many apps didn't do this, because presupposes you're accessing the app to help you quit

Clinic-in-Hand Methods

- Veteran/Caregiver pairs enrolled in the VA Family Caregiver program
- **Aim 1:** Conduct a chart review study of existing records on veterans within the VA electronic medical record to compare changes in caregiver-reported burden, pain and activities of daily living among Veteran/caregiver pairs receiving iPads with mHealth apps, and those who do not receive the iPads. Outcomes data is collected from the EHR and administrative data from the corporate data warehouse. We will also examine changes in VA healthcare utilization patterns before versus after receiving the iPads.
- **Aim 2:** Recruit Caregivers receiving iPads with Suite of Apps to participate in baseline and follow-up surveys using a pop-up survey app on the iPad. We will contact the caregivers via telephone if surveys are not completed using the app.

Mobile Health Participant Processing for the Clinic-in-Hand Evaluation

Chart Abstraction

Family Caregiver Enrolled in VA Family Caregiver Program

Veterans and Caregivers are family members and enrolled in VA Family Caregiver Program and use VA health service 2 years prior to study

Study Participants Sent Invitation Letter to Participate in Pilot

Obtained login credentials and/or signed loaner service agreement

Did NOT obtain login credentials and/or signed loaner service agreement

Eligible to participate in mHealth Pilot

Selected

Not Selected

Receive iPad

Do NOT Receive iPad

Surveys

Informational Letter → Opt-out

Baseline Survey Completed on iPad

Yes

No

Telephone Call for Survey

Follow-Up Survey Completed on iPad

No

Thank You!