Tech Assessment in the Mobile Age:

Thoughts From the Trenches and Benches

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Mobile Evolution
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Today’s Talk

A Definition of mHealth
mHealth Programs
mHealth Technology
Thoughts from the test lab
The role of assessment (and how to do it)
Defining mHealth

To summarize the formal definitions by the World Health Organization, National Institutes of Health and the mHealth Alliance …
Defining mHealth

“mHealth is using mobile devices for health-related purposes [not especially useful definitions]”
My Definition

Delivery of healthcare services in any of three distinct use cases:
• Provider-Centric Data Capture
• Patient-Provider Communication
• Patient-Oriented Data Capture
My Definition, part two

“Using mobile devices to support other health-related activities:
• Data access
• Videoconferencing
• General computing”
Provider-Centric Data Capture

Imaging and/or monitoring devices
Requires clinician to operate
Data typically stays with physician
Patient-Provider Communication

Monitoring devices and/or apps
Used by the patient or caregiver
Data is sent by patient to provider
Patient-Oriented Data Capture

Monitoring devices and/or apps
Used by the patient or caregiver
Data is retained by patient
The Programs – SMS “Texting”

Educational, encouraging, challenging
Targeting behavioral change
Minimal technological requirements
The Programs – Data Collection

Activity trackers & calorie counters
Medical device interfaces
Electronic logs
The Programs – Support Apps

Extension of data collection
Shares results, informs of non-compliance
Provides information about conditions
The Technology – Hardware

Basic / Feature Phones
Smart Phones
Peripherals
The Technology – Software

App Stores
Application Programming Interfaces
The Technology – Servers

Patient data storage / access
Provider access
TTAC Testing
TTAC Testing

- BP Monitors
- Body fat analyzers
- Scales
- Glucometers
- Activity trackers

- Dermascopes
- Otoscopes
- Ophthalmoscope
- Wearables
- Stands and cases
Application quality can vary widely
Some great devices have terrible software
Some great software has terrible devices
TTAC Testing

Young market, lots of hype
IMS Institute for Healthcare Informatics
Gartner’s Hype Cycle
mHealth on Gartner Hype Cycle

- Technology Trigger
- Peak of Inflated Expectation
- Trough of Disillusionment
- Slope of Enlightenment
- Plateau of Productivity
Regulations - FDA

Mobile Medical Applications Guidance (Sep. 2013)
Medical Device Data Systems (June 2014)
Changing Financial Models

Accountable Care Organizations
CMS Penalties for Readmission
Employee Wellness Programs
Technology Assessment for Mobile
Technology Assessment for Mobile

A few processes
A few challenges
A few resources
Assessment Process Overview

- Establish Requirements
- Review the Market
- Procure the Devices
- Plan the Tests
- Test the Plan
- Select a Device
- Deploy and Support
Establish Requirements

• Gather input from all stakeholders
• Create shared meaning around the requirements
• Think through a wide range of requirement types:
  – Functionality
  – Portability
  – Interoperability of Interfaces
  – Interoperability of Data
  – Usability

If this is all you do, you will be ahead of those who just head to the market immediately.
Review the Market

• Use online resources – Google, Bing, Amazon, etc.
• Phone a friend – TRCs, OAT Grantees, TTAC
• Talk to organizations that have existing programs
• Contact manufacturers and vendors

If you find yourself doing this before you have a firm grasp on requirements, go back a step.
Procure the Devices

• Manufacturers and vendors can be very useful
  – Loaners are a great thing!
• Buy and borrow what you need
• Keep it all organized
• Try to get devices in at the same time

Your budget and time may not allow this – consider finding a way to get access to the devices at a store, conference, or from another telehealth program.
Plan the Test

- Quantity your requirements
- Develop methods to test against the requirements
- Planning and testing can be iterative

This does not need to be an all-inclusive, massive test suite – determine what you are really looking for with these tests.
Test the Plan

• Test independently or in a group setting
  – Independent tests can prevent “group think”
  – Collaboration can foster new discussions

• Document EVERYTHING

• Be consistent

• Update the test as needed

Have the right people involved at the right time – you can save a lot of frustration and repeated (or unnecessary) effort if the equipment is evaluated by the correct people.
Select a Device

- Get the reviewers together
- Discuss the scores – clarify discrepancies
- Consider bringing in the initial requirements team
- Be prepared for a second review of top devices
- Make a decision and share your results

This will happen regardless of how many of the previous steps you have taken – your exact process here will vary depending on your other efforts.
Deploy and Support

- Device Staging
- Configurations
- Spares
- Warranties

- Customer Support
- Troubleshooting
- Training
- Replacing Equipment

This requires its own plan, process, and work that will likely be somewhat unique to each technology, organization, and deployment size.
The Challenges

Lack of clear use cases for mobile services
Need to develop a mobile plan at the org level
Changing technological and regulatory landscape
The Resources - Other

imedicalapps.com
mobihealthnews.com
Happtique
ATA mHealth SIG
NIST Special Publication 800-163
IMS Institute for Healthcare Informatics
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