mHealth Applications → Data Visualization & Interpretation → Integration into Daily and Clinical Care
data driven feedback loops
Essential data driven feedback loops

Participant self-care
How is this new medication working for me?

Clinical care
How is the patient responding to new care plan?

Research evidence
What works best in different contexts?
without better sensemaking to drive these feedback loops...
Plateau of Diminished Promise
two fundamental challenges

• SENSEMAKING

• PERSONAL EVIDENCE
a pilot to drive Sensemaking: PTSD Explorer
PTSD Explorer

DATA VIEWS FOR CLINICIANS
zoomable, selectable timelines (categorical, continuous data), scatterplots, smooth lines, histograms, maps

DATA STREAM PROCESSING
feature extraction, historical trends, fusion, mashups

CAPTURE FROM APPLICATION
tool participation, self-reports, symptom severity, support types, coping, substance use, medication use, sedentary daily patterns (home/work)
personal evidence architecture
rephrasing ‘does it work?’

(Complexes of) Exposures
Text4Baby

strength of association?
individual

Outcome
Increased breastfeeding

population
Personal evidence architecture

1. Patient/care provider/researcher asks a question
2. They choose a study design template and complete the template for their question
3. An mHealth application is used to collect data and provide feedback
4. Infovis is used to analyze data based on the question and study design selected
priority components

Scripting and analysis of individual-focused validation studies (e.g., n-of-1)

Libraries of shared, validated measures (e.g., PHQ-9)

Metadata to support data aggregation
  ... about variables (e.g., datatype, code system, and value)
  ... about context (e.g., OS and version, activity state, demographics)
Plateau of Diminished Promise
how can we foster an mHealth ecosystem that creates meaningful care innovation and evidence?

...open architecture and community
open infovis for sensemaking
infovis architecture

Infovis is a set of tools for data analysis and visualization

Decentralized, innovative, co-development community needs architecture to ensure mix and match

Architecture is a small set of common principles/practices by which these modules are described and interface to one another
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PTSD Explorer

Data Visualization Units (DPUs)

Data Processing Units (DPUs)
why open?
Integration into Learning Health Systems
- Personal and Population Evidence
- Health Data Exchanges
- Best Practices

Data Analysis and Presentation (Clinical, Personal...)
- Descriptive Statistics
- Correlations
- Trends and Anomalies
- External Data, Context

Mobile Interaction, Data, Management
- Self-Reports
- Passive Monitoring
- Feedback, Engagement

PERSONAL EVIDENCE ARCHITECTURE
N-of-1 studies, shared variables

INFOVIS

mHealth Applications
Sensemaking
mission: openness, integration, evidence

FOCUS ON DEVELOPERS AND HEALTH INNOVATORS TO BUILD CODE AND CO-DEVELOP MANY MORE USE CASES
primary activities

- convene community
- seed reference architecture and implementation
Dec 2011, Launch community building, meet-ups, suggestions for working groups

Feb 2012, Code in GitHub

March 2012, PTSD Explorer Pilot

Q2 2012, Continue to build community and code base

timeline
developers
and health innovators

• Sign up to co-develop with us: http://bit.ly/codevelop
• Code available at: http://github.com/OMHealth
FEBRUARY 2012
• Google+ Hangouts
• Working Groups forming now
• Email: DEVELOPERS@OPENMHEALTH.ORG
  HEALTHINNOVATORS@OPENMHEALTH.ORG
connect with us

- Web: www.openmhealth.org
- Twitter: @open_mhealth
- email@openmhealth.org