

The Role of Technology to Support the Management of Chronic Health Conditions

Chronic Disease Self- Management Innovation Community

Presenters: Jeremy Nelson, CEO Afia Inc.

Laura Galbreath, Director, Center for Integrated Health Solutions, National
Council for Behavioral Health

Anthony Salerno, Senior Consultant, National Council for Behavioral Health

April 16, 2015

Where have we been?

The Innovation Community has involved the following informational webinars:

- The principles and practices of quality chronic disease self-management approaches
- The Stanford Model of CDSM
- The role of Peers in promoting positive outcomes
- Planning and establishing an organizationally aligned CDSM approach (Using an organizational self assessment of best practices in CDSM)
- Today's Topic: Technology- It's role in supporting health

Rationale and Purpose of this webinar

- As in most aspects of our lives, technology is playing an increasingly important role
- There are many ongoing initiatives to explore the added value of technology to support health
- Chronic disease self management for individuals with serious mental health and/or substance use problems is very challenging
- Technology may contribute to improving outcomes for individuals with mental illness, substance use and chronic health conditions

AGENDA

- Introduction Tony Salerno
- Overview of Health Related Technology Jeremy Nelson
- Lessons learned from a Learning Community on Technology and Health Laura Galbreath

Poll Question 1:

How likely is it that technology (apps, smartphones, computer assisted health communication, patient informational portals, wearable devices etc.) will play an increasingly important role in supporting health?

- A. Very likely
- B. Likely
- C. Somewhat likely
- D. Not likely (it's will fizzle out)

Poll Question 2:

What best describes your current thinking about your organizations use of technology to support CDSM?

- A.** We have comprehensively explored technology supports
- B.** We have explored in a limited way
- C.** We have talked about it but not taken any action
- D.** We haven't thought much about this topic



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Smart Devices

Internet of Health 1.0

Withings Smart Scale



Withings Blood Pressure





Withings Pulse

Glooko MeterSync



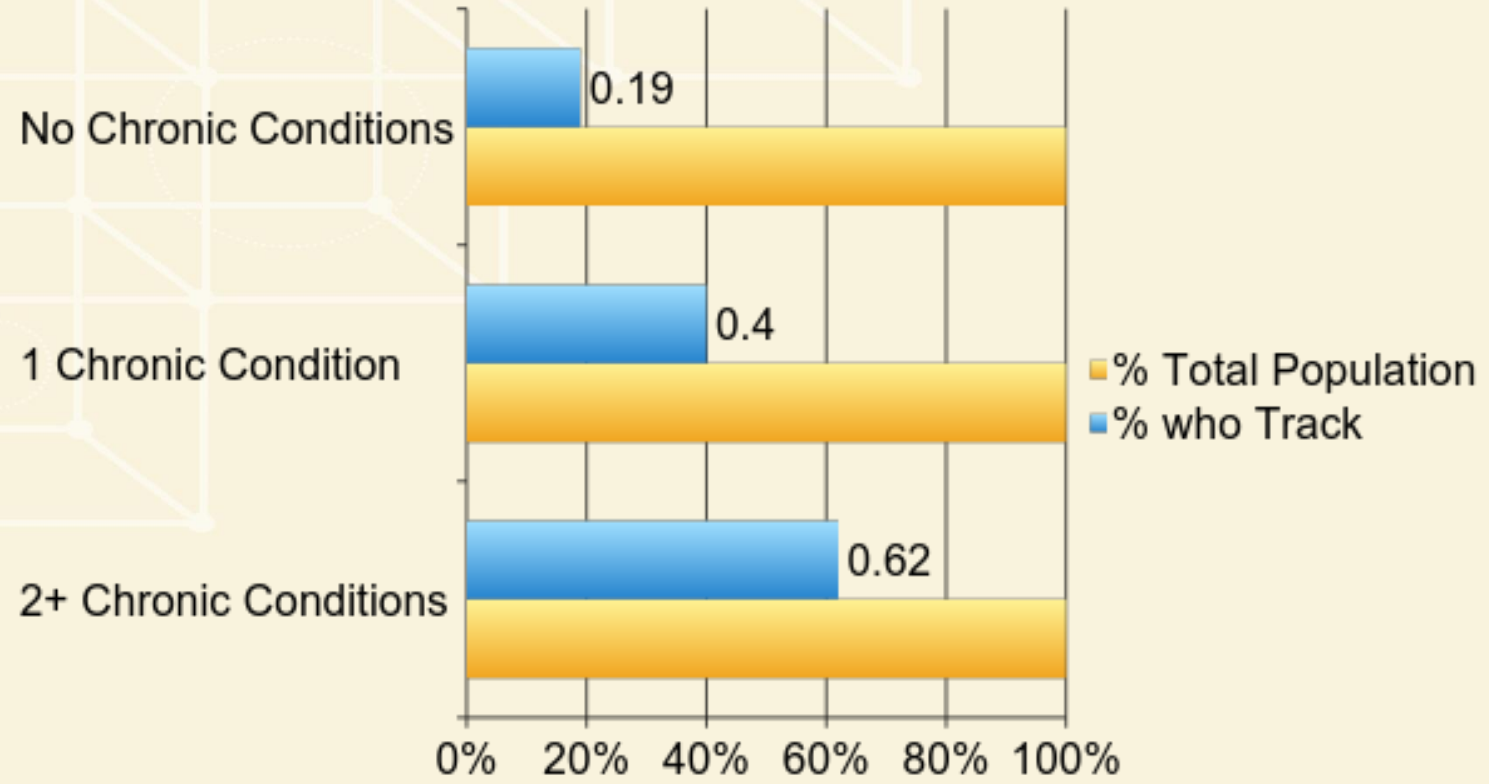
Who tracks their health?

- 45% of U.S. adults live with at least one chronic condition.

Of those who are living with two or more conditions:

- 78% have high blood pressure
- 45% have diabetes

Who tracks their health?





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“Wearables”

Show of Hands

Fitbit Flex (\$99)



STEPS TAKEN



DISTANCE TRAVELED



CALORIES BURNED



ACTIVE MINUTES



HOURS SLEPT



QUALITY OF SLEEP

SYNC YOUR STATS
WIRELESSLY





Apple Watch

Common Sensors

- Heart rate sensor
- Accelerometer
- BTLE + Wifi
- GPS (Phone)



Watch apps already available

- WebMD Med Reminders
- HealthTap – DocNow
- Vocera – Critical Notifications
- Dexcom – Continuous Glucose





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Age of Wonders Our Amazing Future

“Invisibles”

- Minimal, simple, intuitive
- Seamlessly integrated into the human body
- Potential for better adoption and engagement
- Examples



“Apple to fix Health app after blood glucose measurement issue”

“Diabetics are being warned that Apple’s Health app is not compatible with some blood glucose measurements, meaning [some users] could see inaccurate readings.” – CNET, October 15, 2014





HealthKit

+



The Children's Hospital of Philadelphia



HealthKit/Epic Integration

- Patient is downloads the MyChart app
- Doctor “prescribes” tracking of certain data points
- EHR notifies doc if data is “abnormal”

“I’m sorry, there was nothing we could do for the patient. We tried our hardest, but they had an iPhone 4S. We can’t get their data.”

HealthKit/Epic – Ochsner Health System

- Avoiding readmissions of CHF patients by monitoring weights at home via Withings scales
- Alert docs and pharmacists when weight goes up (likely water retention) to titrate medication
- “O-bar” for support a la Genius Bar



Over 200 Vetted Apps

Lessons Learned:

1. Everyone wants Patient-generated Data
2. Epic integration is 1-way
3. Current data points is just the beginning
4. Apple can't access patient data
- 5. Healthkit is reimbursable by CMS**
6. Hospitals won't leave out Android
7. Apple Glucose goof not stopping anyone
8. ResearchKit will have big implications





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Apple ResearchKit



A software framework
made specifically for
medical research

ResearchKit

- Enabled by Aggregator technology & device sensors
- Very large pool of potential participants
- Manages secure data collection, sign-ups, consents, compatible devices, etc.



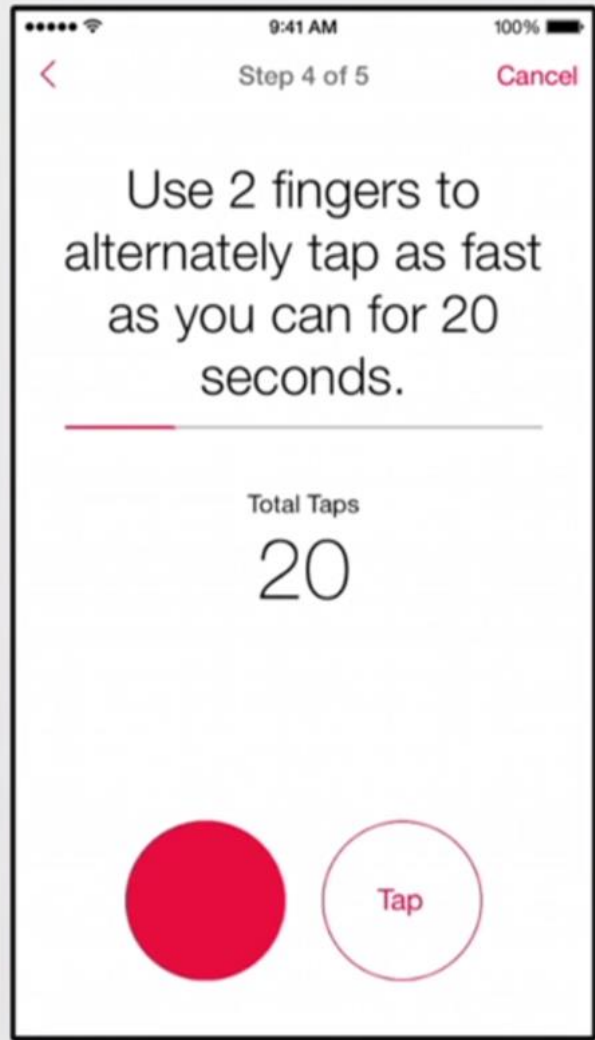
Parkinson's disease

mPower

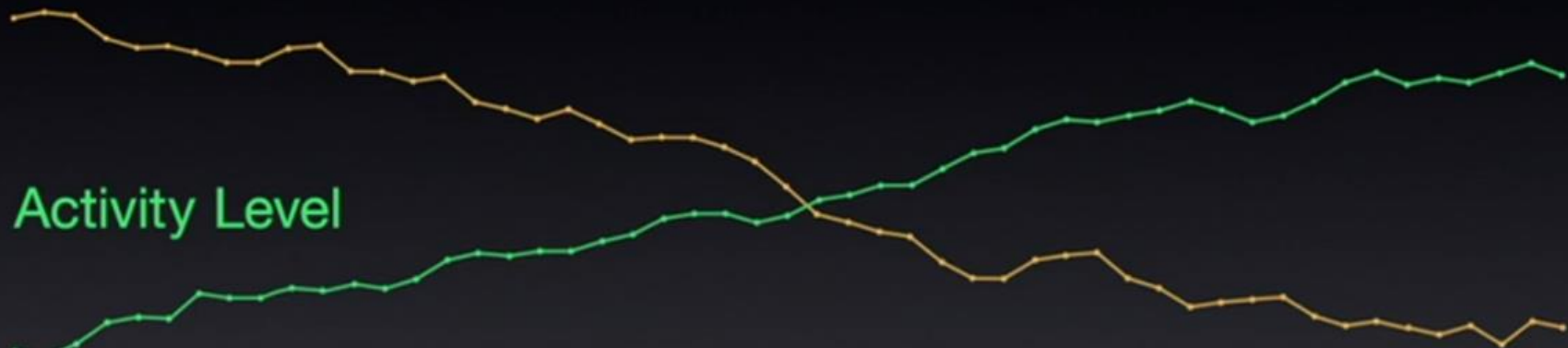
University of Rochester

Xuanwu Hospital, Capital Medical University

Sage Bionetworks



Tremor Severity



Activity Level



Breast Cancer



Diabetes



Parkinson's
Disease



Cardiovascular
Disease



Asthma



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“Full Stack” Systems

Wellframe – Clinical Tracking

- Payer-, provider-, pharma-driven
- Mobile app for health data collection
- Customizable, flexible clinical protocol
- EHR Integration



- NEW PATIENTS
 - Keith Hellickson
 - Kacey Kuehne
 - Angelika Kifer
- PRIORITY PATIENTS
 - Serena Caudell
 - Jeremy Suriel
 - Tom Dillenback
 - Beverly Conatser
 - Ashley Pratt
 - Brendan Owen
- SCHED. PATIENTS
 - Howard Wood



Keith Hellickson – PTN0192

Diabetes Management, Depression
54 years old Male

DAY 35/60

Global Risk Score **24/100**


Engagement **68%**

Adherence **45%**


Responsiveness **72%**

- Summary
- Profile
- Messages
- Medications
- Notes

Hi Keith, I'm checking up to make sure you remember to get your foot exam!



You



Keith Hellickson

Thanks Alice, I just had the exam a few hours ago. Things are feeling good!

- Keith

To: Keith Hellickson

Click here to write a message, or select from the list below

Allow patient response?

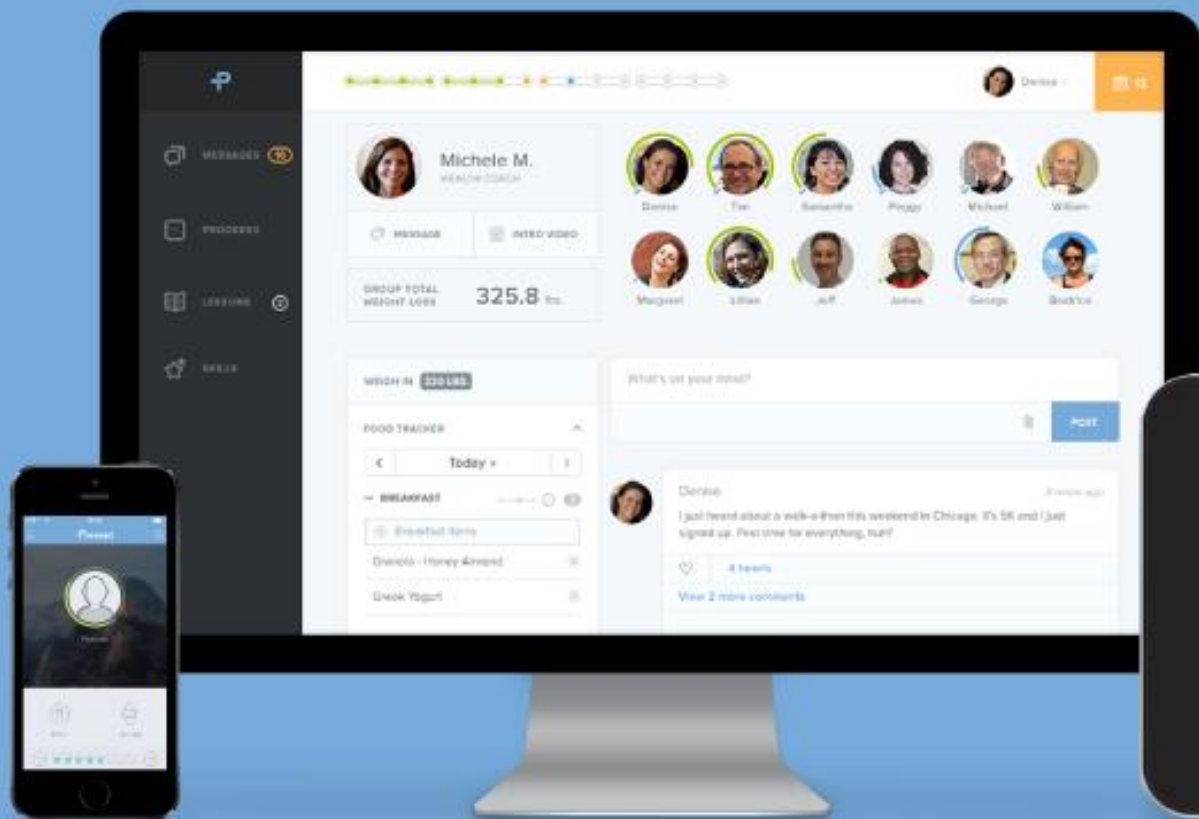
Yes No

[Send to All](#)

Suggested messages:

Omada Prevent – Prediabetes

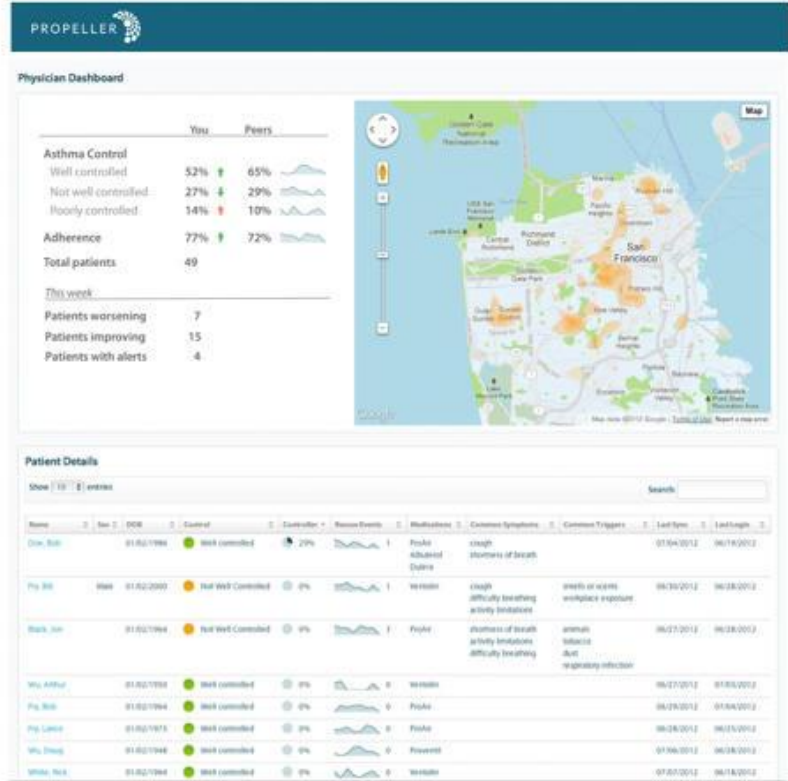
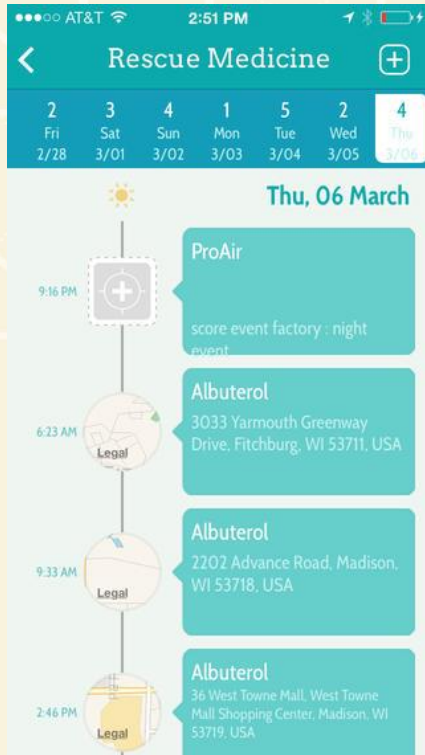
- 16-week program targeted at pre-diabetes (8 month self-directed afterwards)
- Smart scale + group chat/cohort
- Based on CDC research



Propeller Health – COPD

- Provider- and payer-driven
- Monitors inhaler use automatically
- Population health tracking (environment, etc)





Lively – Home Care

- Patient-driven
- Smartwatch included (med reminders, step counting, fall detection)
- Smart sensors available (pill boxes, motion sensors, door sensors, etc)

Lively Circle

Specific family members and caregivers can be provided "Circle" access

Safety Watch

Indicates safety—watch status, including whether it's being worn

Daily Activity

Displays certain daily activity patterns—and offers more detail when needed

The screenshot shows the Lively! dashboard for user Edna. The top navigation bar includes 'About Lively', 'Buy', 'Support', 'Settings', 'Jim Anderson', and 'Logout'. The system status is 'All systems go!' and the time is 9:29 PM Pacific Time. A notification icon with a red '2' is visible in the top right corner. The dashboard is divided into three main sections: Safety Watch, Activity Sensors, and Home/Away Activity. The Safety Watch section shows a checkmark and 'Active' status, with 4,567 steps taken today and 3.25 hours worn today. The Activity Sensors section lists four sensors: Pillbox 1 (Last: Today, 2 pm), Pillbox 2 (Last: Today, 2:15 pm), Refrigerator (Last: Today, 4 pm), and Kitchen (Last: Today, 4:20 pm). The Home/Away Activity section shows 'At home' with a house icon and a 'Contribute to LivelyGram today!' button with an 'upload photos' option.

Notifications

Set up notifications to be delivered by email, text or mobile app

Home/Away

Know when your loved one is home or away

LivelyGram

Pictures submitted to create a personalized photo mailer, delivered through the postal mail each month



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Behavioral Health



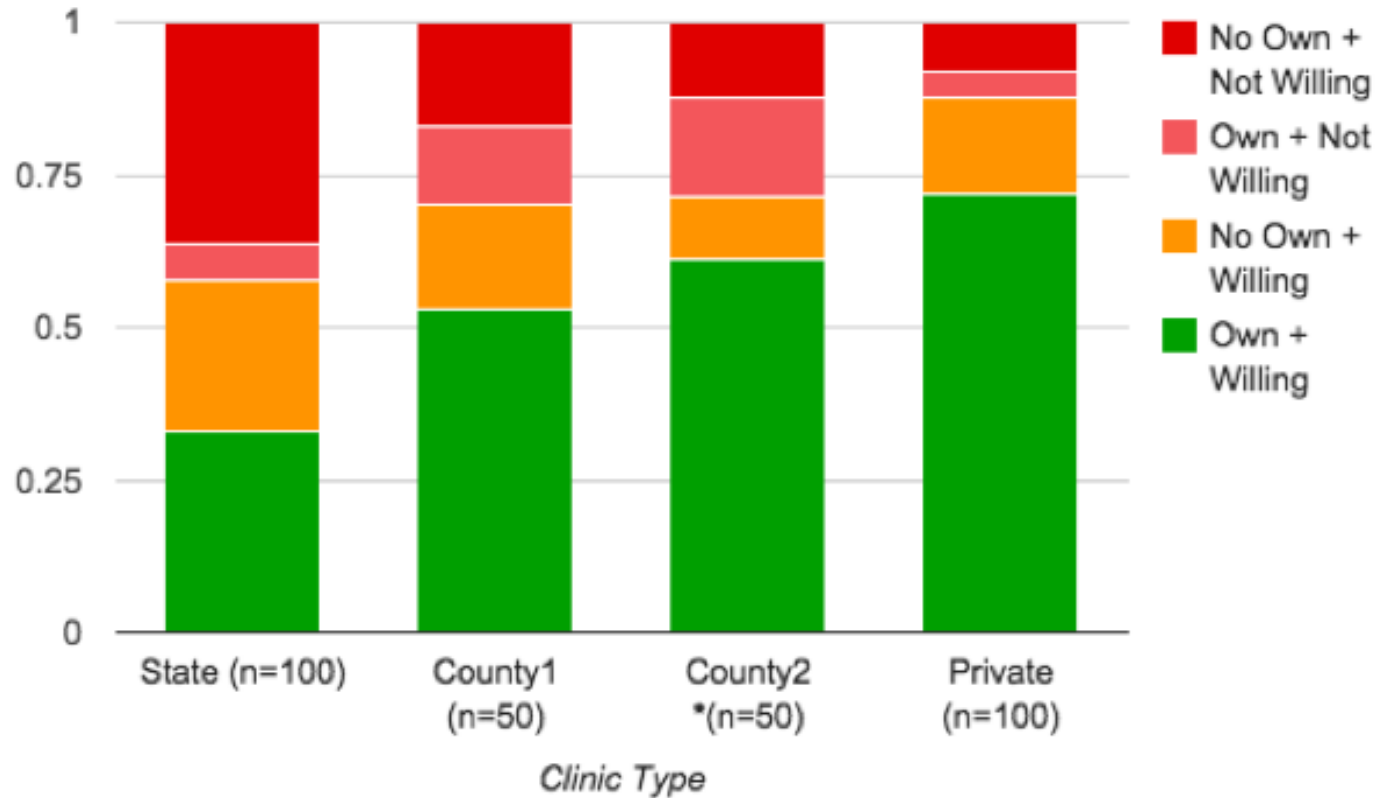
“You can now count your steps, measure your glucose levels, monitor your blood pressure and track your caloric intake from your phone or high-tech wristband. But for those dealing with depression rather than diabetes, or trying to keep tabs on their bipolar disorder rather than their weight, the pickings are slimmer.”

Newsweek, November 21st 2014

Tracking Behavioral Health

- 25% of adults experiencing from some form of Mental Illness
- 6% of adults suffer from SMI (schizophrenia, major depression or bipolar disorder)
- 89.3 million U.S. residents lack access to mental health care.

Smartphone Ownership and Willingness to Use to Monitor Mental Health by Clinic

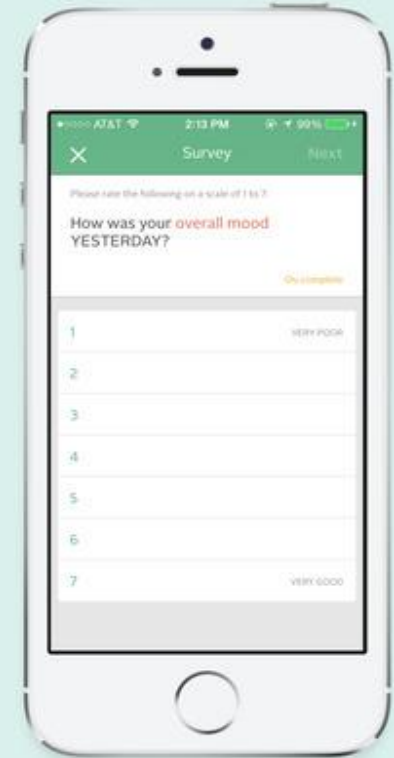




Mood Tracking & Basic Interventions

Ginger.io

- Provider-driven
- Leverages smartphone data for behavioral analytics & alerts
- Enables more timely interventions



Tactio Health

Complete, Connected & Comprehensive Health Management.

Tracking points:

- Mood
- Weight
- Body Fat
- Steps / Activity
- Blood Pressure
- Cholesterol
- Glucose
- Nutrition

Additional Info:

- Securing Device
- Connected Devices
- Sharing Data



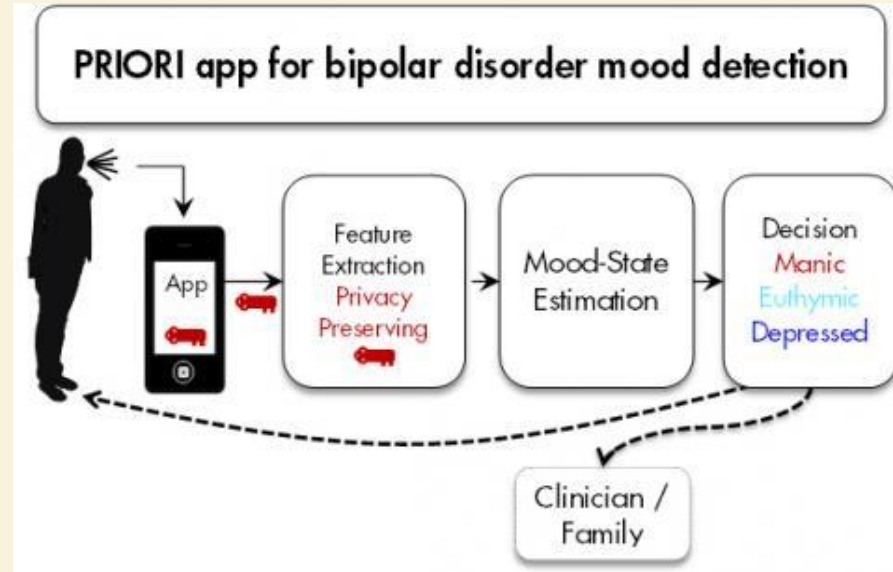


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Age of Wonders (Behavioral health edition)

PRIORI – Passive Bipolar voice monitoring

- Joint research from University of Michigan Department of Psychiatry and College of Engineering
- Uses voice recognition to monitor for manic or depressive states
- Based on MIT research – 10 second review of vocal patterns w/ 98.6% accuracy for Parkinson's



<http://www.uofmhealth.org/news/archive/201405/listening-bipolar>

Emotiv Insight

- Consumer EEG & inertial sensor
- Bluetooth integration with smartphone
- Available via API



Muse

- Guided Meditation
- Brain Training
- Improve Stress Response
- Form Habits





- ✓ 83-90% of all adults in the US own a cell phone
- ✓ In a survey of consumers with serious mental illness (SMI), 72% reported owning and using a mobile device
- ✓ Households with >\$30,000/yr text twice as much as households who make <\$75,000/yr
- ✓ Medicaid patients (79%) are more likely to use text messages than privately insured individuals

National Council Learning Community

www.TheNationalCouncil.org

Using Mobile Applications to Support Physical Health Improvements For People with Mental Health and Addictive Disorders

- Select from 1 of 3 mobile apps and implement with 25 consumers
- Collect and use data from app in the clinical setting
- Identify how to embed mobile technology more broadly into the org.

Outcomes

- Highly engaged consumers
- New treatment opportunities (group + 1:1)
- There's value to just having the data

Lessons Learned

- Access to phones & data
- Technology is tough--Android vs. iPhone, app issues, passwords, support, reporting data, EHR
- Experiment: split groups (high engagement / support vs low)

Tips & Tricks

- Affordable Android tablets
- Refurbished smartphones
- Open wifi access points (vs data plans)
- Prepare recruitment material



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Q&A

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Laura Galbreath Laurag@thenationalcouncil.org