

Changing Psychology with Technology: Engaging Users to Adopt mHealth Long-term

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Agenda

- Can you design behavior change?
- Everybody wants change but nobody wants TO change
 - What will it take from technology to see long-term adoption of digital health?
- Is mHealth the answer?
 - How does the consumerization of healthcare affect values-based healthcare delivery
- Gamification tools
 - Will they increase user engagement and produce positive outcomes?
 - Is this the Holy Grail?

What is the problem?

According to the CDC, chronic, behavior-based diseases account for 86% of healthcare costs.

There's an app for that...

- Health App Use Among US Mobile Phone Owners: A National Survey
 - Cross-sectional survey of 1604 mobile phone users throughout the United States
 - Many individuals use health apps (58.23%), a substantial proportion of the population does not, and that even among those who use health apps, many stop using them.
 - These data suggest that app developers need to better address consumer concerns, such as cost and high data entry burden, and that clinical trials are necessary to test the efficacy of health apps to broaden their appeal and adoption [<http://mhealth.jmir.org/2015/4/e101/>]
- Cell phone intervention for you (CITY): A randomized, controlled trial of behavioral weight loss intervention for young adults using mobile technology
 - Randomized, controlled comparative effectiveness trial in 18- to 35-year-olds with BMI ≥ 25 kg/m² (overweight/obese), with participants randomized to 24 months of mHealth intervention delivered by interactive smartphone application on a cell phone (CP); personal coaching enhanced by smartphone self-monitoring (PC); or Control.
 - Despite high intervention engagement and study retention, the inclusion of behavioral principles and tools in both interventions, and weight loss in all treatment groups, CP did not lead to weight loss, and PC did not lead to sustained weight loss relative to Control. [Obesity, Volume 23, Issue 11, pages 2133–2141, November 2015]

How can a product affect behavior?

Behavior change is based on psychology, not technology



How can technology *help* people change behavior?

- Education
 - Understand existing behavior(s)
 - Help learn how to achieve desired behavior(s)
- Compliance
 - Memory assistance and reminders
 - Encouragement
- Feedback
 - Data → information → knowledge → wisdom → actions
 - Results and outcomes to collected wisdom
- Carrot/stick
 - Gamification
 - Escalation for non-compliance

The best engagement strategies for wearables will move beyond presenting data (steps, calories, stairs) and directly address the elements of the habit loop (cue, behavior, reward) and trigger the sequences that lead to the establishment of new, positive habits.

[Endeavor Partners, Inside Wearables...]

Everybody *wants* change but nobody wants *TO* change

- We need to make a real psychological change for behavioral change to be a long term success
- Why should I want to change: extrinsic vs intrinsic motivation
 - Rewards
 - Insurance incentives (premium differentials)
 - Individual and group components
 - Personal experiences – very powerful
 - Death/illness of a loved one or friend
 - Success stories – the more personal the better
 - Fun & challenge
 - Game theory
 - Social networking
 - Negative reinforcement (seldom results in long term benefit)
 - Insurance disincentives
 - Scare tactics

Is mHealth the answer?

- mHealth provides a set of tools
 - Wireless sensors make gathering information easy
 - Mobile platforms allow for rich user experiences and ubiquitous communications
 - Cloud computing and big data bring prediction and 'intuition' for feedback, encouragement and escalation
 - Opportunity to bring it all together with personalized, tailored, real-time feedback to reach behavioral goals
- Platform for implementation of behavioral change

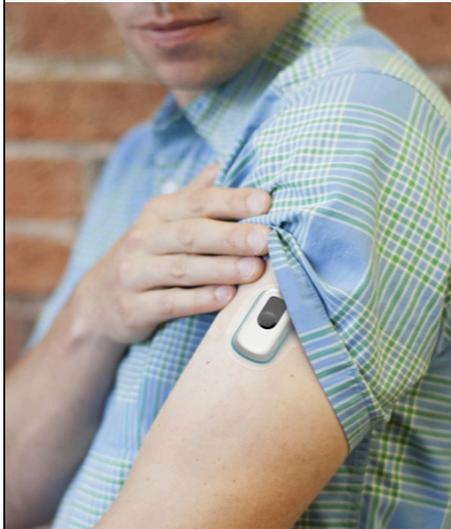
Example: Chrono Therapeutics Convergent Technology



Drug Delivery	Compliance Measurement
Behavioral Support	Data Analytics

Slides courtesy Chrono Therapeutics





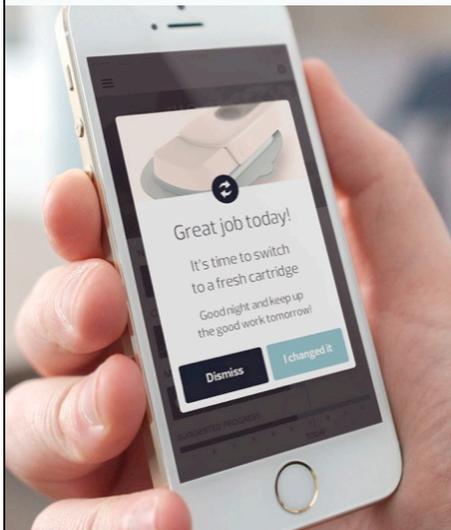
The Platform

Delivers transdermal nicotine **timed to cravings**

Contains embedded sensors to **monitor compliance**

Communicates with Chrono mobile application for **medication reminders** and **behavioral support**

Source: avenue 32



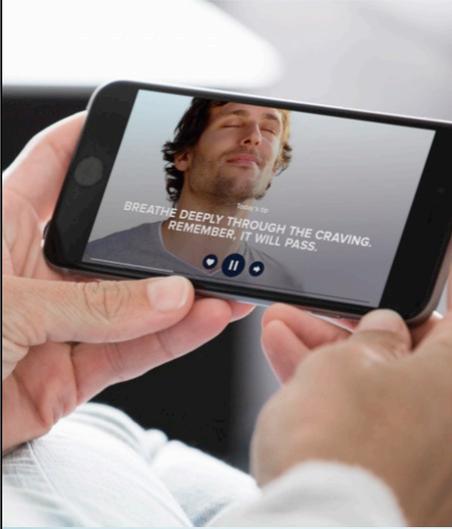
The Compliance System

Device **shares data** with the mobile coaching application

Mobile application sends proactive reminders to encourage **compliance** with the nicotine replacement program

Source: avenue 32





Behavioral Support

Timely & personalized coaching, delivered in response to cravings & user's behavior

'**Just-in-time**' coaching when cravings occur

Motivational messages and community support

Source: avenue 32

CHRONO
THERAPEUTICS

Is Gamification the Holy Grail?

- Immediate, noticeable feedback and results get people to stick with behavior change
- Gamification is another tool...
- Different people respond to different incentives: competition, social pressure, rewards, penalties, ...
- It can be tailored/adapted for the individual for behavioral change in chronic disease management

What will it take to be successful?

- Address real issues – it is often difficult to predict, understand and accept reality, but critical
 - Diagnosis
 - Disease management
 - Behavioral change
- Produce actionable information, not data
- Address Psychology, not implement Technology
- Recognize extrinsic vs intrinsic motivation
- Understand sustainable revenue model
- Affect behavioral change

What I'll be watching for today...

- What is mHealth?
 - Digital Health
 - Telemedicine
 - Home Health
 -
- How can the consumerization of healthcare affect delivery?
- How does Psychology factor into the Technology solutions? How can it affect behavior?
- Who will pay?
- Privacy/security concerns?

Enjoy the conference!

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Additional slides

So this is new, right?

- Well...
 - Pacemaker (Trans-Telephonic Monitoring)
 - Telemedicine
 - Remote monitoring
 - Telehealth
 - Home health
 - mHealth
 - Digital Health ...
- What is different?
 - Ubiquitous communications platforms
 - Internet
 - Smartphones
 - Ubiquitous wireless connectivity
 - Low power
 - Low cost



Case Study NOVU

- Customer engagement and rewards platform
- Digital health (web based) - comprehensive set of wellness tools designed to make healthy choices easier
 - Community, challenges
 - NCQA-certified programming and Health Assessment
- Rewards
 - A compliant, multi-channel rewards program that turns benefit into strategy
 - Dynamic reward options with flexible rules and activities
- Engagement & Loyalty
- Security
 - HIPAA-compliant
 - Secure, encrypted SaaS platform

