COMMUNITY HEALTH CARE ASSOCIATION of New York State

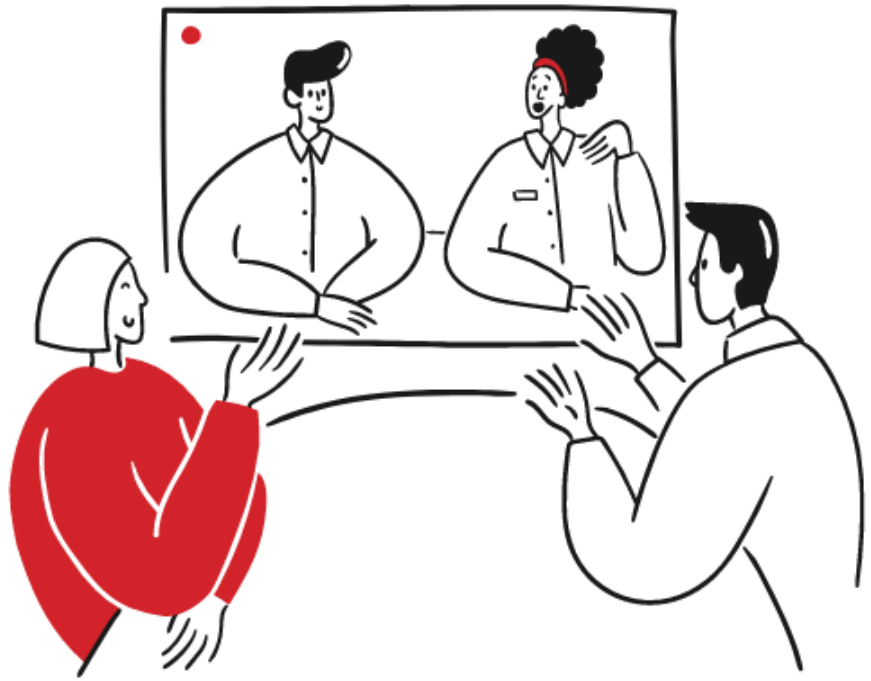
CHCANYS NYS-HCCN presents

The Heart of Healthcare: Harnessing Technology and Innovation to Improve Patient Experience

Day 1 – June 6, 2023

Zoom Guidelines

- You have been muted upon entry. Please respect our presenters and stay on mute if you are not speaking.
- Please share your questions in the chat. CHCANYS staff will raise your questions to our speakers and follow up as needed if there are unanswered questions.
- The workshop is being recorded and slides will be shared after the session.



New York State HCCN Objectives

Project Period 2022-2025

1. **Clinical Quality**
2. **Patient-Centered Care**
3. **Provider and Staff Wellbeing**

2022-2025 Project Period

- Patient Engagement
- Patient Privacy & Cybersecurity
- Social Risk Factor Intervention
- Disaggregated Patient-level Data (UDS+)
- Interoperable Data Exchange & Integration
- Data Utilization
- Leveraging Digital Health Tools
- Health IT Usability & Adoption
- Health Equity and REaL Data Collection*
- Improving Digital Health Tools- Closed Loop Referrals*

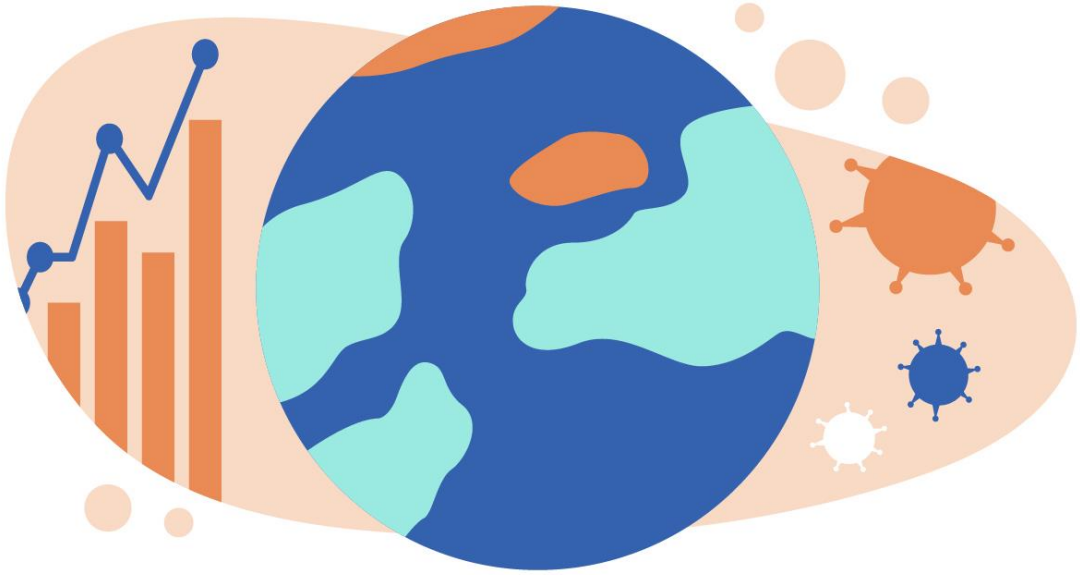
** - Applicant Choice Objective*
Bold- Objective Carried over into 2022-2025

Agenda

1. Dr. Thomas Mason & Lana Moriarty (Office of the National Coordinator, HHS) on HIT & Patient Engagement

2. Dr. David Bates (Brigham & Women's Hospital, Mass General, Harvard Medical School) on Third Party Apps

3. Rimidi and TrueCare on Remote Patient Monitoring



ONC Patient Engagement Playbook

Dr. Thomas A Mason, MD

Chief Medical Officer, Office of the National Coordinator

Lana Moriarty, MPH

Senior Policy Advisor, Office of the National Coordinator

Q&A

COMMUNITY HEALTH CARE ASSOCIATION of New York State

Using Third Party Apps

Dr. David Bates, MD, MS

Chief of the Division of General Internal Medicine & Primary Care at Brigham and Women's Hospital

Medical Director of Clinical and Quality Analysis, Information Systems at Mass General Brigham

Using Third-Party Apps

CHCNYAS, 2023

David W. Bates, MD, MSc

Brigham and Women's Hospital and Harvard Medical School

Disclosures

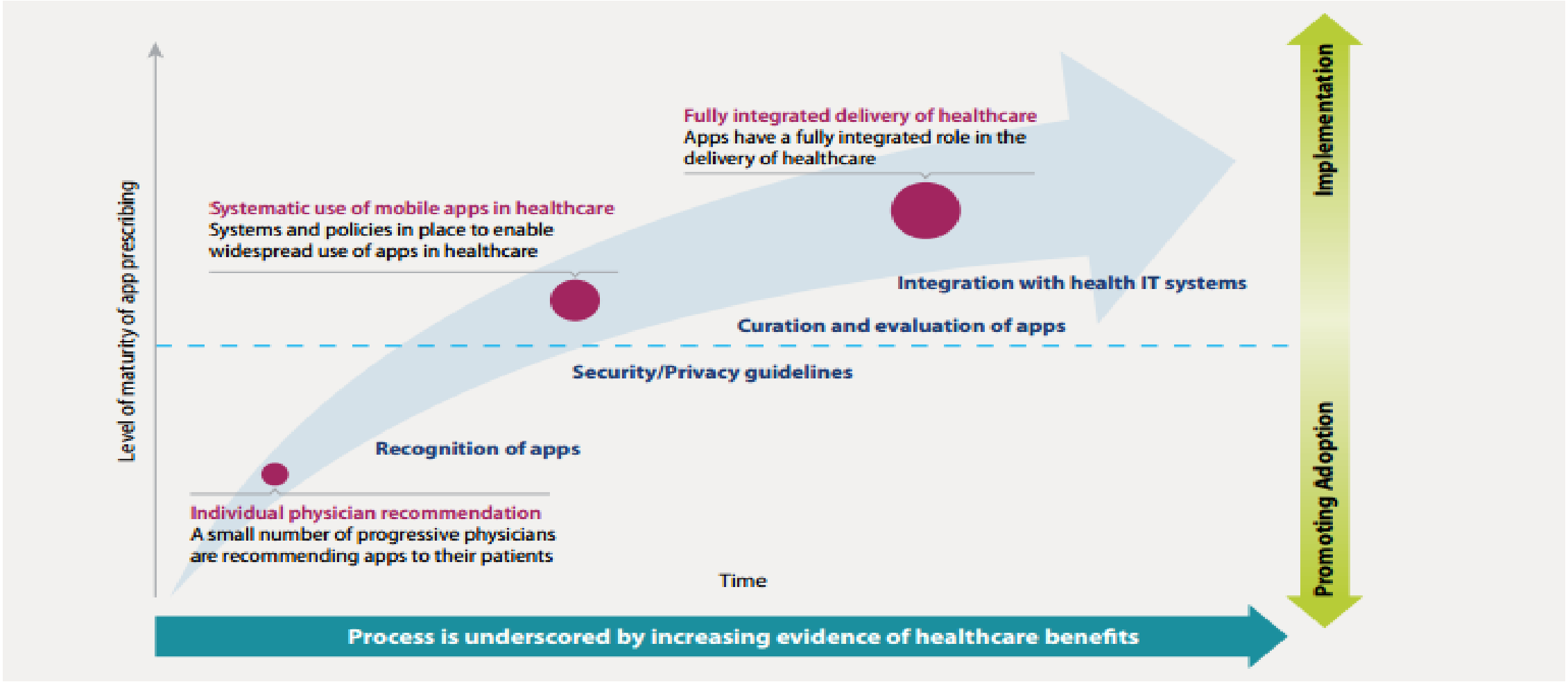
- Dr. Bates reported consulting for EarlySense, which makes patient safety monitoring systems. He receives cash compensation from CDI-Negev Ltd, which is a not-for-profit incubator for health information technology startups. He receives equity from ValeraHealth, which makes software to help patients with chronic diseases; from Clew, which makes software to support clinical decision-making in intensive care; and from MDClone, which produces deidentified versions of clinical data.

Overview

- Background
  - Some earlier work on apps
  - The marketplace
  - JAMA policy paper
- Methods/results of this study on rating apps
- Connecting apps to EHRs
- Marketplace observations, perspective and a way forward

The App Marketplace

As of 2013, 43,000+ apps exist relating to health or wellness



IMS Institute for Healthcare Informatics. *Patient Apps for Improved Healthcare: From Novelty to Mainstream.*; 2013.

The App Marketplace (2019)

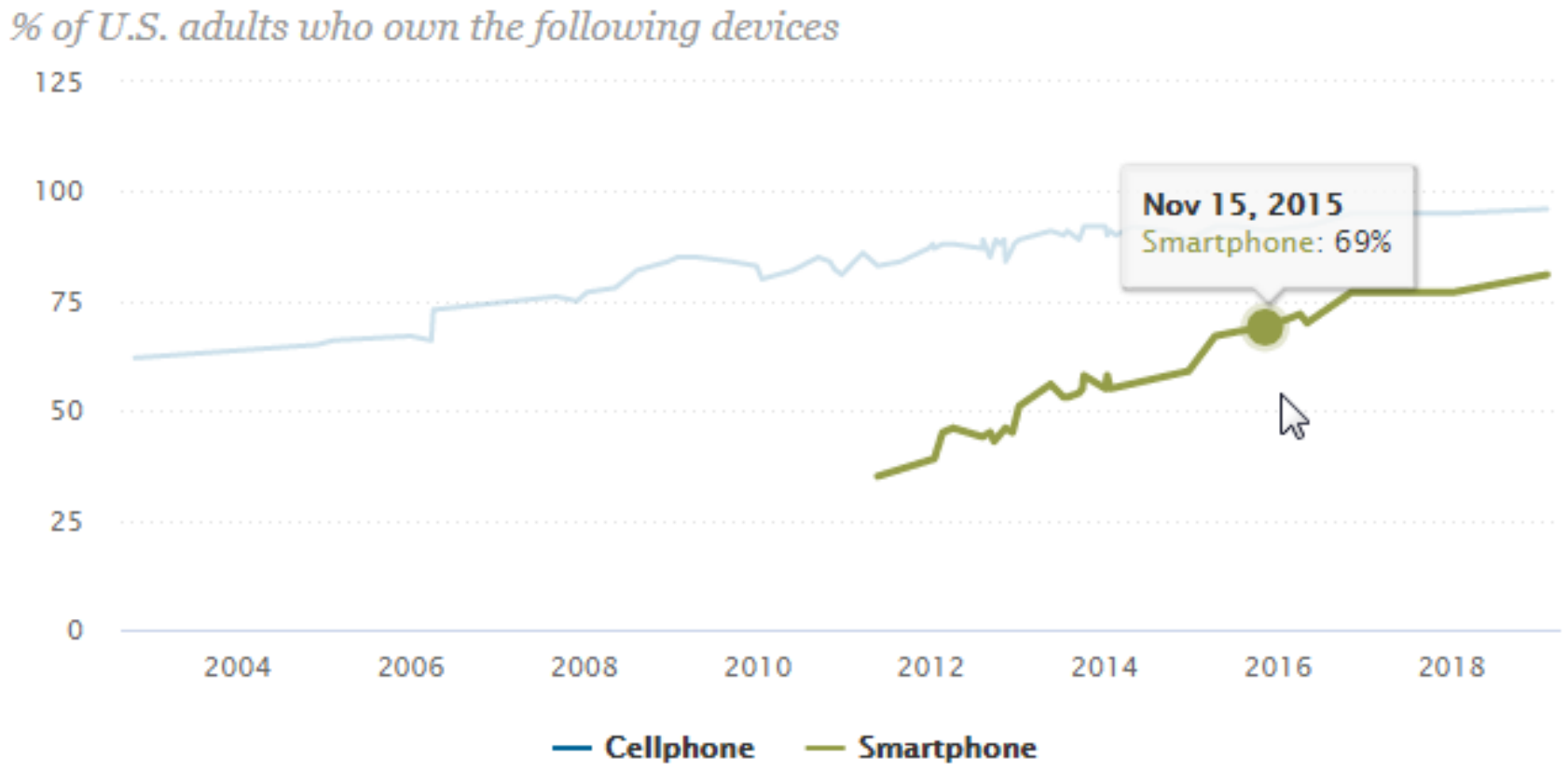
- Several hundred thousand health apps
  - Billions of dollars being funneled in
- But most not targeted at chronically ill, may not be usable by sickest patients

Did a review of health apps for chronically ill:

Singh et al, Health Affairs 2016

- Consumers' ratings were poor indications of apps' clinical utility or usability
- Most apps did not respond appropriately when a user entered potentially dangerous health information

Pew Data on Smartphones 2019



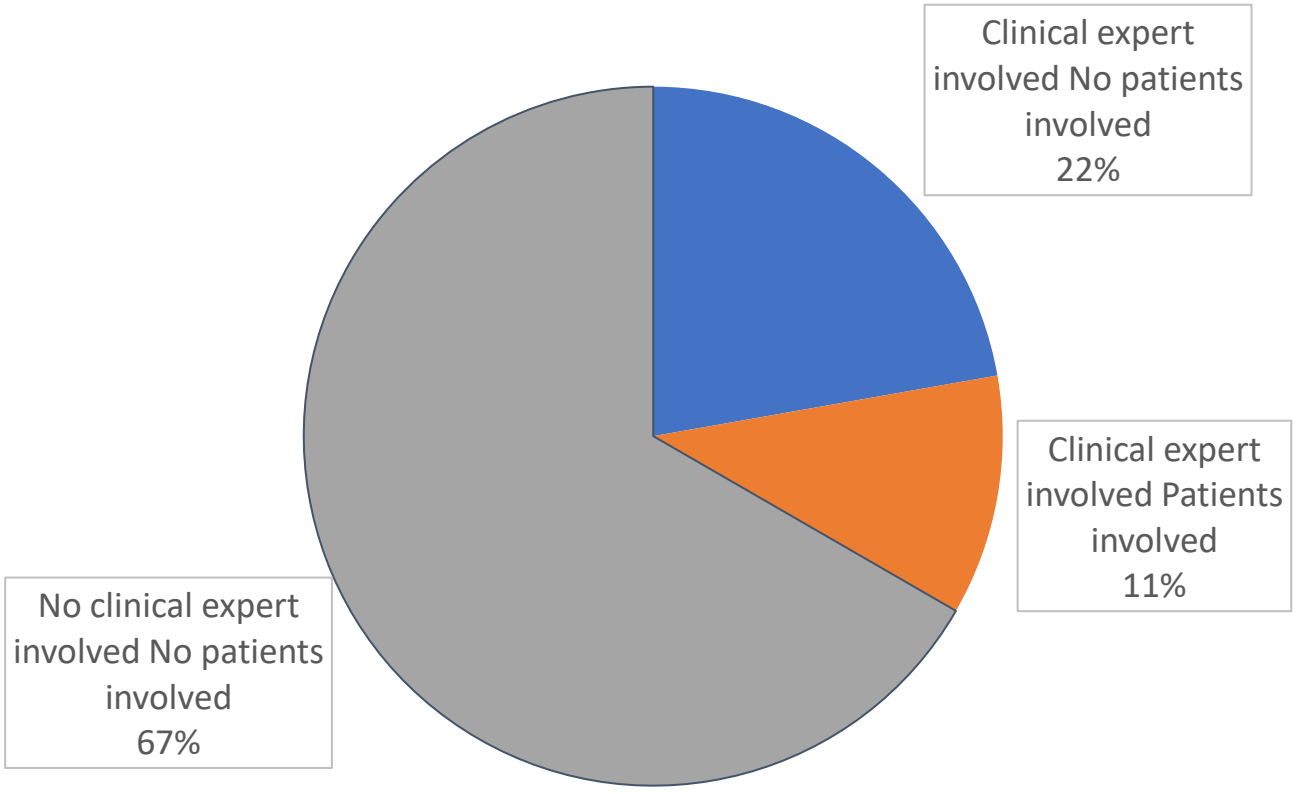
Source: Surveys conducted 2002-2019.

PEW RESEARCH CENTER

	Any cellphone	Smartphone	Cellphone, but not smartphone
Total	96%	81%	15%
Men	98%	84%	14%
Women	95%	79%	16%
Ages 18-29	99%	96%	4%
30-49	99%	92%	6%
50-64	95%	79%	17%
65+	91%	53%	39%
White	96%	82%	14%
Black	98%	80%	17%
Hispanic	96%	79%	17%
Less than high school graduate	92%	66%	25%
High school graduate	96%	72%	24%
Some college	96%	85%	11%
College graduate	98%	91%	7%
Less than $30,000	95%	71%	23%

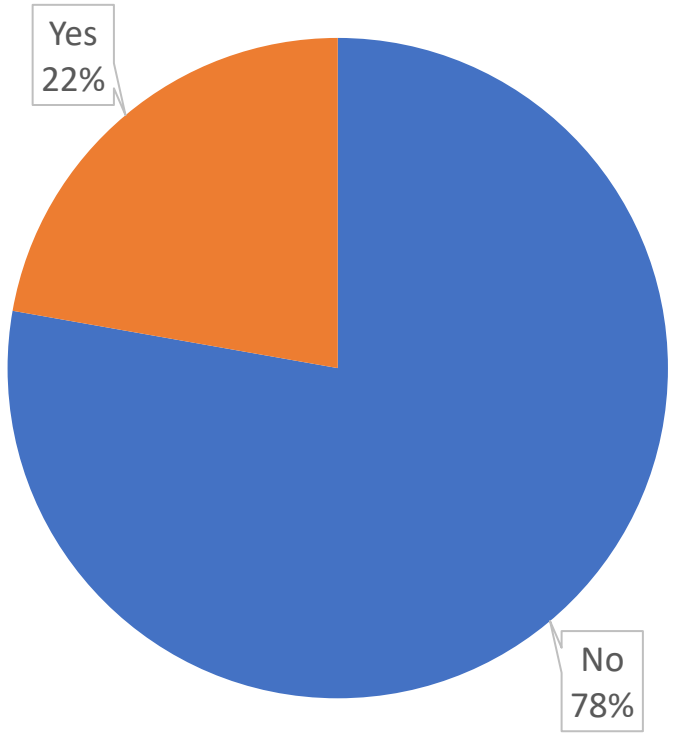
Findings

Were clinical experts and patients involved in app development or quality control?



Findings

Does the app reward the user for engaging with the app or achieving health goals?



Journal of General Internal Medicine
pp 1–10

Usability of Commercially Available Mobile Applications for Diverse Patients

Urmimala Sarkar, Gato I. Gourley, Courtney R. Lyles, Lina Tieu, Cassidy Clarity, Lisa Newmark, Karandeep Singh, David W. Bates

Original Research
First Online: 14 July 2016
DOI: 10.1007/s11606-016-3771-6

Cite this article as:
Sarkar, U., Gourley, G.I., Lyles, C.R. et al. J GEN INTERN MED (2016). doi:10.1007/s11606-016-3771-6

Results

- Three groups
  - 9 caregivers
  - 10 patients with depression
  - 10 with diabetes
- Given condition-specific tasks
  - Enter your blood glucose
- Completion rate 43% without assistance
- Key themes
  - Lack of confidence with technology
  - Frustration with design features and navigation
  - Interest in having technology to support their self-management

Use of User-Centered Design by Vendors

- Required as part of meaningful use
- 11 vendors studied
- Fell into 3 categories
  - Well-developed UCD
  - Basic UCD
    - Understand importance but do not have UCD fully integrated into environment
  - Misconceptions of UCD
    - No UCD in place

Ratwani et al, JAMIA 2015

New Online | Views 5,711 | Citations 0 | Altmetric 45

Viewpoint

October 11, 2018

Health Apps and Health Policy
What Is Needed?

David W. Bates, MD, MSc[1,2,3]; Adam Landman, MD[2,4]; David M. Levine, MD, MPH, MA[1,2]

» Author Affiliations | Article Information

JAMA. Published online October 11, 2018. doi:10.1001/jama.2018.14378

Over 325,000 health apps

Shortcomings:

- Safety
- Cataloguing evidence
- Interoperability
- Incentivizing value

Figure. Example of a Possible Health App Grading Label

Health App Grading

Weight Loss Coach

Information app designed to provide guidance on diet and exercise to lose weight

Time commitment: 3 minutes, 4 times a day

Known health benefits: 3-lb weight loss in 4 weeks

Warning: do not use with weight loss medication

	Score (out of 5)	Grade
Honesty[a]	3.2	C
Health information	2.1	D
Technical information[b]	2.2	D
Security and privacy	5.0	A
Ease of use	4.4	B
Popular rating	4.8	A

Best for: people who want to lose weight

Special features: weight tracking with digital scale, send weight data to medical record, game-based encouragement, English- and Spanish-language options

[a]Accuracy of claims including cost, consent, and the accuracy of the app store definition.
[b]Software performance, stability, interoperability, bandwidth, and application size.

Policy Issues	Current Deficits	Examples	Policy Solutions
Safety	• Response to dangerous situations • Appropriate triage • False claims • Privacy	• Suicidality disregarded • Misdiagnosis • Incorrect blood pressure readings	• Require FDA or third-party-approved verification of safety, privacy, and false claims
Cataloging Evidence	• Comparing and assessing apps	• Only star rating guides decision-making	• Open-source directory of app evidence • Standardized "Nutrition Facts" label for health apps (see Figure)
Interoperability	• No push/pull of data	• Patients and clinicians cannot push data to EHR using apps	• Enhance open API offerings, including ability to transfer data from apps to EHRs
Incentivizing Value	• Apps do not reach audience most in need	• Few high-quality apps for schizophrenia and HIV • Most apps require high health literacy	• Federal support for research and development of apps in areas of specific need

Article | Cited By (3) | Tweetations (45) | Metrics

Original Paper

Comparing Characteristics of Patients Who Connect Their iPhones to an Electronic Health Records System Versus Patients Who Connect Without Personal Devices: Cohort Study

William J Gordon[1,2,3], MD, MBI ; David W Bates[1,2], MSc, MD ; Daniel Fuchs[3], BSc ; John Pappas[3], AS ; Sara Silacci[4], BSc ; Adam Landman[2,3,5], MS, MD, MIS, MHS

- Variables associated with an increased likelihood of using “Health Records on iPhone” included male gender (adjusted OR 3.4) and younger age, particularly below 50 years of age.
- With each decade of age over 50, people were less likely to be “Health Records on iPhone” product users.
- Asian patients were more likely to use the product than Caucasian patients (adjusted OR 1.32; 95% CI 1.16-1.51; *P*<.001), though there was no significant difference between African Americans and Caucasians (adjusted OR 1.15; 95% CI 0.94-1.41; *P*=.17).
- Patients who resided in higher ZIP code income quartiles were more likely to be users than those in the lowest quartile.

JMIR, 2020

Beyond validation: getting health apps into clinical practice
William J. Gordon, Adam Landman, Haipeng Zhang & David W. Bates
npj Digital Medicine **volume 3**, Article number: 14 (2020)

- Key issues:
  - Education and awareness
  - Creating digital formularies
  - Workflow and EHR integration
  - Addressing payment models
  - Patient/provider support

Summary

- Smartphones/mobile devices are now ubiquitous even in many disadvantaged populations
- Marketplace includes huge number of apps
  - Bewildering for both patients and providers
- Little evidence that any of them work—very hard to find the right ones
- Yet there is great potential
- Need better approaches to sort this out including third-party schemes for reliably rating them
- Changes are needed on the policy front

Methods/Results on Health Apps Rating Study

Array of app rating tools

ABACUS

Enlight

MARS

THESIS

- Delphi Process
  - Patient representative
  - Experts from industry, academia, IS

Domain
Transparency
Health content
Technical content
Security/privacy
Usability
Subjective

Transparency

Domain	Criteria
Transparency	Cost of app
	Consent
	Accuracy of app store description

Health content

Domain	Criteria
Health content	Appropriate measurement
	Appropriate interpretation of data
	Quality of information
	Potential for harm
	Literacy level
	Presentation of information

Technical content

Domain	Criteria
Technical content	Software performance/stability Interoperability Bandwidth Application size

Security and privacy

Domain	Criteria
Security/Privacy	Protection against theft and viruses
	Authentication
	Data sharing
	Maintenance
	Signaling of breaches
	Anonymization

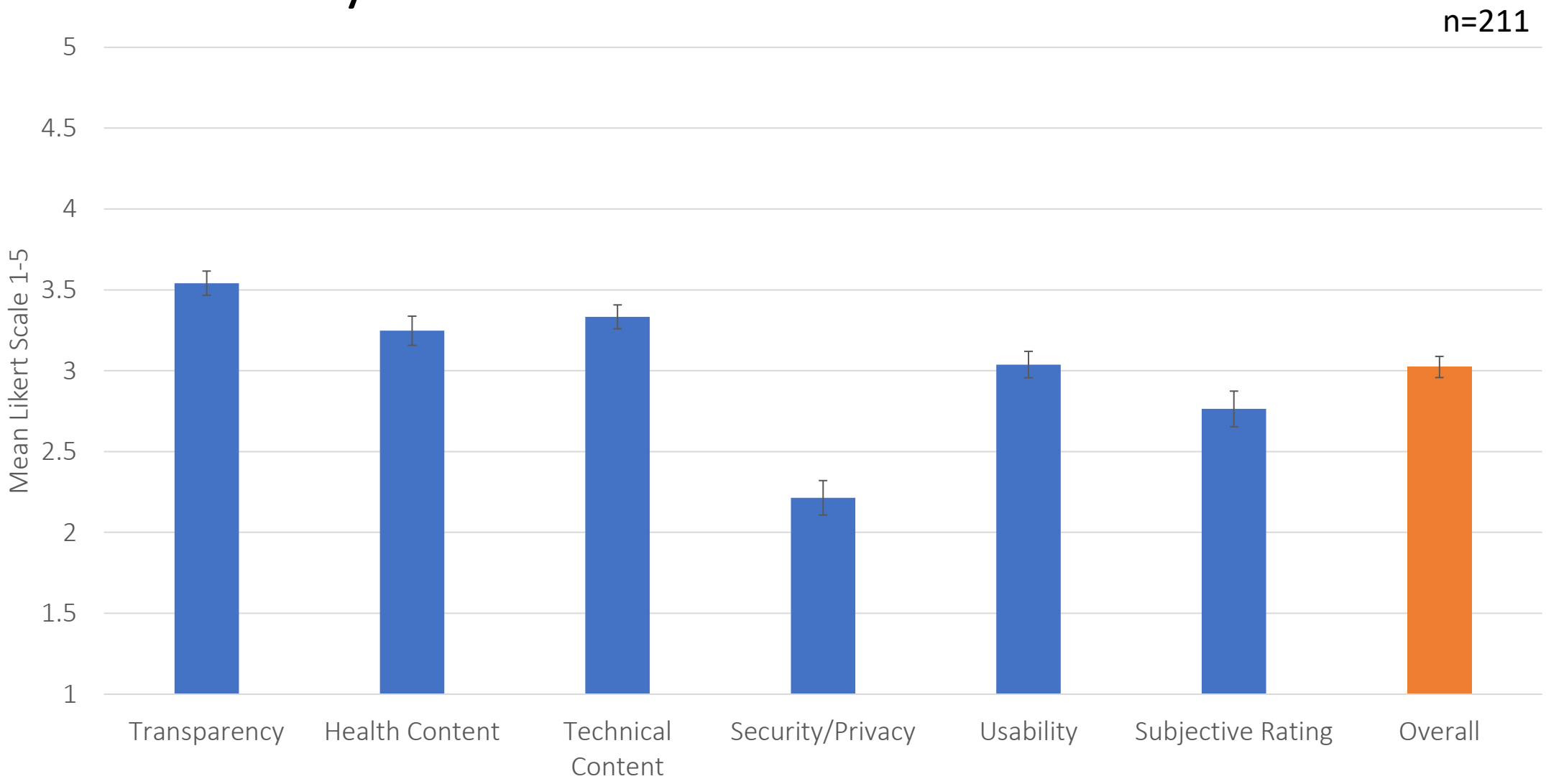
Usability

Domain	Criteria
Usability	Installation and setup Functionality Aesthetics Customization/tailoring Ease of use for users with low literacy and numeracy Availability in multiple languages

Subjective

Domain	Criteria
Subjective	Recommend app
	Overall star rating

Preliminary validation



Unpublished data. Do not share.

Preliminary Validation

- 2 lowest-rated conditions
  - HIV (mean 2.4)
  - Schizophrenia (mean 2.5)
- 2 highest-rated conditions
  - COPD/asthma (mean 3.4)
  - Obesity (mean 3.4)
- Ratings required 13.9 minutes
- Poor alignment with star ratings (r=0.24)
- Cronbach's alpha: 0.85
- Cohen's kappa: 0.31 – 0.60

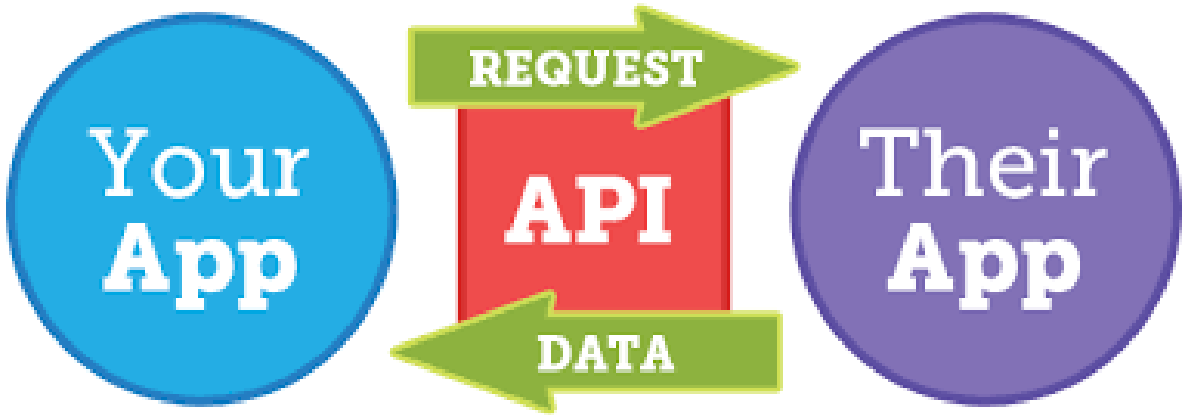
Conclusions

- Multi-stakeholder group formed THESIS
- Apps performed poorly, especially in privacy/security and interoperability
- App turnover
- With more investigation, THESIS can guide app developers, policymakers, clinicians, and patients

Connecting Health Apps to EHRs

Application Programming Interface (API)

- APIs allow software to electronically access data and services from another software program
- APIs expose EHR internal functions (operations, inputs, outputs) in a limited fashion
  - No need to share proprietary code
  - Control access
  - Provides building blocks to develop application



Fast Healthcare Interoperability Resources (FHIR)

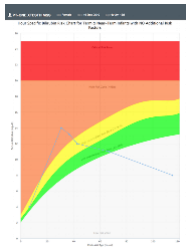
- ***Open*** Health Level 7 Standard
  - Leverages previous HL7 expertise

- Fast and easy to implement
  - Specifications are free
  - Based on web standards (HTTP, OAuth, XML, JSON)
  - Supports RESTful architectures

FHIR®©

FHIR Enables Innovation Across EHRs

Apps



FHIR®©

FHIR API

FHIR Data Profiles

SMART®

- Authentication/Authorization (OAuth2)
- Ability to launch and embed apps

Electronic Health Record

Epic Cerner athenahealth **Other EHR Systems**

Mandl KD and Kohane IS, Escaping the EHR Trap – The Future of Health IT, NEJM 2012;366:2240-2.
http://smarthealthit.org/wp-content/uploads/SmartonFhirPresentation-HIMSS-v8.pdf

Meaningful Use API Requirement

- Stage 3 Meaningful Use *requires* APIs within EHRs:
  - Under Objective 5[1], Measure 1:
    - *"...The patient… is provided access to an ONC-certified API that can be used by third-party applications or devices to provide patients (or patient-authorized representatives) access to their health information…"*

- As a result, most major EHR vendors have built functionality to support this requirement, including Epic

[1] https://www.federalregister.gov/documents/2015/10/16/2015-25595/medicare-and-medicaid-programs-electronic-health-record-incentive-program-stage-3-and-modifications

Paradigm Shift of Patient APIs

Concerns

- Patients will be able to retrieve electronic records without going through hospital
  - Concern patients may not understand implications of releasing their data
  - Bad apps/actors may have easier access to healthcare data

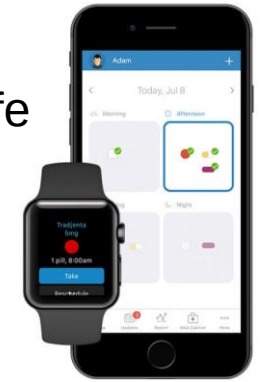
Opportunities

- Research/Innovation
  - Investigators can create patient apps that aggregate data from other healthcare institutions
- Patient Care
  - Opportunity to direct patients to high quality apps

Apple Opens Health Records APIs to Developers

- Health Records API allows developers and researchers to create an ecosystem of apps that utilize health records to help users better manage medications, nutrition plans, their conditions, and more
- Empower patients to share their health records from multiple health institutions with apps they trust
  - Patients will need to authorize the sharing of information from Apple to third-party apps
  - Data will flow from Apple Health directly to the third-party app (not through Apple Servers)

Medisafe



Marketplace Observations

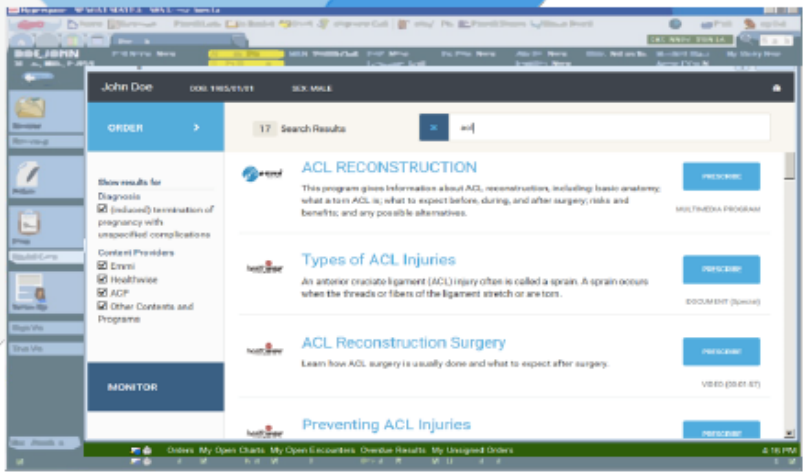
Digital Health Formularies

- Express Scripts and CVS both recently announced plans for digital health formularies
  - Curated lists of digital health apps
- Digital health being treated similarly to traditional medications

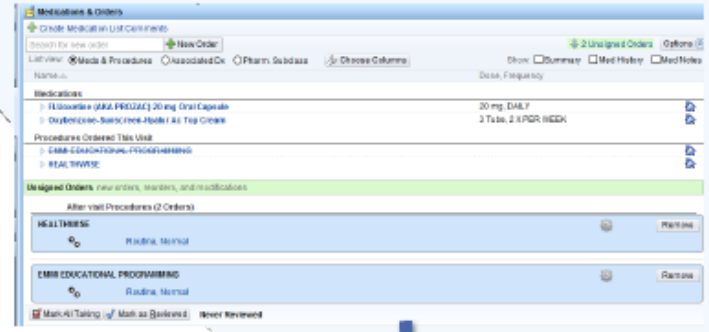
https://a16z.com/2019/06/26/bio-newsletter-june-2019/
https://cvshealth.com/newsroom/press-releases/cvs-health-introduces-new-service-help-pbm-clients-manage-health-and
https://www.fiercehealthcare.com/tech/express-scripts-to-launch-digital-health-formulary-for-payers-patients

Future Prescribing of Apps

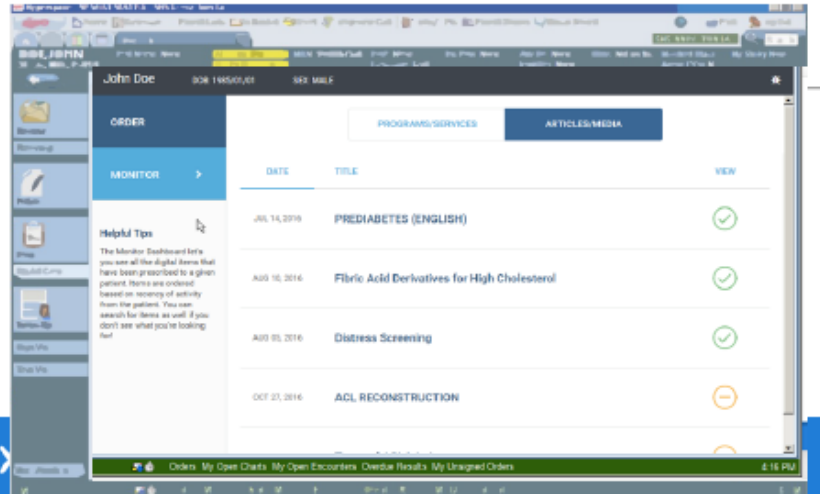
Prescribe view – embedded within Hyperspace



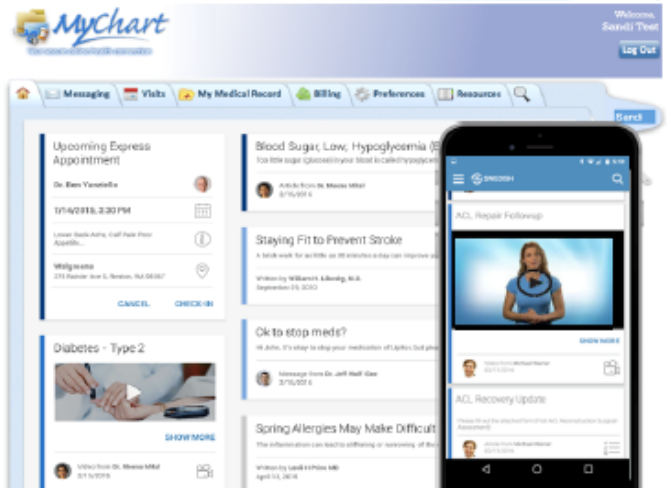
Digital Service **appended to Meds & Orders** (same as medications)



Monitor view – Patient's Digital Engagement



Patient Presented with Digital Service **Embedded in MyChart**



Supporting Apps in Healthcare Systems

- Ochsner Health System introduced a ‘genius bar’: The O Bar
- Uses interactive health technology to help people navigate their health through doctor-approved apps, activity trackers and other devices.
  - Food and nutrition tracking
  - Fitness and activity
  - Chronic condition management, like diabetes and smoking
  - Support and education

https://www.mobihealthnews.com/40565/ochsners-o-bar-connects-patients-with-more-than-200-health-apps

Conclusions

- Health Apps are here to stay
  - Increasing sophistication
  - Significant shortcomings for low health literacy and high-cost high-need patients who could benefit most
  - Struggle with security, privacy, and interoperability
- THESIS is a promising framework to evaluate health apps
- Need to figure out how best to integrate into our practice
  - Integration with EHRs is pivotal
- Marketplaces emerging that curate apps, enable “prescribing” workflows, and support

Q&A

Remote Patient Monitoring: Rimidi and TrueCare

Lucienne Ide, MD, PhD

Founder & Ceo

Rimidi

Matt Kosel, PA

Vice President, Informatics and Enterprise Analytics

TrueCare

Mike Casamassa

Vice President, Medical Solutions

Henry Schein Inc

Remote Patient Monitoring of Blood Pressure at TrueCare

Matthew Kosel PA-C, MSHCI
Vice President of Informatics and Analytics
TrueCare

Overview

- Review RPM Team Members
- RPM Process
- Discuss Sustainability
- Lessons Learned
- Time for Questions

TrueCare

By the numbers

- An FQHC that has 300,000+ visits and cares for 60,000 patients per year
- 14 locations, 3 mobile clinics and 110 provider FTEs in in Northern San Diego
- 70% of patients are enrolled in Medicaid
- OCHIN Epic member for 2.5 years
- Using Rimidi for RPM-BP for 6 months

RPM in California

- Remote Patient Monitoring are not reimbursable services for Medicaid
- Can only receive PPS rate reimbursement for 1 medical and 1 dental service in the same day
- Cell enabled BP devices are not covered by Medicaid

TrueCare's Vendor Criteria

1. In RPM for 5+ years
2. Uses cell-enabled devices
3. Vendor to provide patient support for devices
4. Desires to own the BP devices
5. Wanted bi-directional interface with EHR
6. Solution that minimizes the headaches of working out of two systems
7. Start with Blood pressure but expand to glucose monitoring

RPM Roles / Responsibilities

1. Provider
   - *Identifies patient with HTN that is difficult to control and sends to health educator*

2. Health Educator
   - *One educator at each location*
   - *Enrolls in platform, provider monitor and educates patient on RPM*

3. Health Coach / Health Educator –
   - *Monitors blood pressure readings on Rimidi*
   - *Notifies pharmacist of abnormal readings*
   - *Communicates with patient via Rimidi Texting*
   - *Works to get BP devices returned*

RPM Roles / Responsibilities

4. Pharmacist
    - *Reviews chart and makes medication changes*
    - *Works with health educator to communicate changes*

5. Primary Care Provider
    - *Notified of outcomes*

Outcomes

- About 110 patients in pilot
- 94% of patient are recording readings
  - *In Epic, data is entered as RPM readings as a "flowsheet"*
- 44% have achieved BP control
  - *This population is our hard to control BP patients*
  - *Data is entered as RPM data for our UDS report*
- About 30% of patients who "graduated" from RPM have yet to return BP cuffs.
- Working to expand to all primary care sites

truecare

RPM Sustainability

- Need 1 extra visit per month at PPS rate for every 13 patients in Rimidi per month
  - *Based on TrueCare PPS rate and may be different for other FQHCs*
  - *Does not include initial purchase or BP cuffs and implementation costs*
  - *Is needed as RPM services not covered in California*

RPM Sustainability

- How to Calculate Sustainability

Cost of Rimidi platform for 1 user per year
+ Cost of BP cuff Data per year (year 2+)
+Cost of BP replacement (20-30% replacement)

= cost of 1 user per year ÷ 12 months
= cost of 1 user per month

***Visit per month break even** =*
1 ÷ (cost of 1 user per month ÷ Avg Reimbursement per visit)

RPM Sustainability

The “Flip Visit”

- Is a limited, “scripted” visit where all documentation done by support staff
- Is an “overbook” on the provider’s schedule
- Staff uses EHR template to gather all information and prepare patient for provider
- Allows provider to quickly see patient with minimal other work

RPM Device Lessons

- Cell Enabled BP monitors MUCH better than Bluetooth enabled devices
- Disenrolling patients in platform is important
- Getting blood pressure devices back can be difficult and can add unexpected expense
- If insurance does not cover cell-enabled devices, need to build device costs into budget
- (Future) If using cell enabled RPM devices, check if glucuse strips are covered by insurance

truecare™

RPM Workflow Lessons

- Want to create workflows that minimize work on primary care providers
- Ensuring you communicate the “ideal” desired patient is important if you have a limited resource
- Need to ensure staff have dedicated time to review and work incoming BP readings
- Still need to figure out if we will work out of two systems of if our EHR has needed tools to do most work on of our EHR

Q&A

Continue the Conversation: Wednesday June 7, 12PM-2PM

Tomorrow's Agenda: Health Center Showcase

1. Urban Health Plan on Reducing No-Shows
2. Ryan Health on Expanding Telehealth
3. Oak Orchard on Telehealth for Rural Clinics
4. OpenNotes Spotlight: The Door

We hope to see you then!

Workshop Evaluation Survey

Please share your feedback on this session. This should take less than 3 minutes to complete.

Survey Link:
https://forms.office.com/Pages/ResponsePage.aspx?id=YSZl7iDhjEqs_lCzVbYzoqmlH89zfFNPhDWTC9uAhXZUNjRWQU80NUxQMUVRWFpGTjFBMlZPV1NSNi4u