Mobile Applications for Self-Management of Diabetes

Presentation for: International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 2018 Conference

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Methods

• **Rapid review**: New combination of established AHRQ technical brief and rapid review methods: (https://effectivehealthcare.ahrq.gov/topics/rapid-reviews-end-user/white-paper)

• **Key informant process**: Diverse perspectives provided context/guidance on where review would make biggest impact

• **Consumer perspective**: “What is important to patients/clinicians?”
  ▶ KQs/scope, report of findings, table design

• **Usability**: Contextual issue

Key Findings

• Hundreds of apps commercially available, only 11 with health outcome studies identified

• Of the 11 apps, 5 associated with clinically significant improvements in HbA1c
  ▶ *Type 1 diabetes*: Glucose Buddy, Diabeo Telesage;
  ▶ *Type 2 diabetes*: Blue Star, WellTang, Gather Health

• No studies showed patient improvements in quality of life, blood pressure, weight, or body mass index

• Studies had methodological issues:
  ▶ Short (2-12 months); inconsistent reporting of randomization, allocation, masking, and drop-out analysis; use of co-interventions that hindered interpretation of results. None considered high quality.
Interesting Issues

• **Rating usability**: Difference between types of ratings: SUS and online app reviews

• **Patient Key Informants**: Difficult to find patients to participate in process. One KI was a diabetes patient.

• **Outcomes of focus**: What outcomes are being assessed, over what time period for evaluation?

• **Rapidly changing technologies**: Several updates to tables/findings needed in months finalizing report because apps had changed

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Thank You

Mobile Applications for Self-Management of Diabetes
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Check out report at the Effective Health Care (EHC) Program website:
https://effectivehealthcare.ahrq.gov
Discussion Questions

- How do we balance the pace of change in technology with the need for longer studies?

- Given the state of the evidence on digital health tools, how best do we communicate value?

Designing Real World Digital Health Studies to Meet End User Needs
Producing Better Science for Digital Health through Patient-Centered Outcomes Research

Penny Mohr, MA
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May 21, 2018

What Are the Major Gaps Identified in the Digital Health Literature?

- **Scientific Rigor/ Meaningful Outcomes**
  “Future studies are needed to examine the comparative effectiveness of implementing these strategies in real world settings, with attention to not only health outcomes but also patient-centered outcomes.”

- **Economic Analysis**
  “More primary research is needed on how telehealth impacts costs and utilization...”

- **Increased Patient/Stakeholder Engagement**
  “Solutions for bringing telemedicine to reservations should include...engagement”

- **Conducting Research in Understudied Populations**
  “Gaps in knowledge about the access to and use of health services by historically underserved populations exist in terms of learning practices, methods to navigate services, and help-seeking behaviors.”

- **Culturally-tailored Interventions**
  “They [reviewed studies] did not employ strategies, such as cultural tailoring, that may improve outcomes among racial/ethnic minority participants.”
PCORI Has Made A Sizable Investment in Digital Health Research

Projects may be classified as more than one type
As of March 2017

- Telehealth (preventative, promotive and care delivery delivered at a distance)
  - 57 Projects

- mHealth (use of mobile or wireless devices in medical care)
  - 44 Projects

- Telemedicine (care delivery by clinician at a distance)
  - 15 Projects

- Unidirectional text messaging
  - 8 Projects

$206 million to fund

64 Studies

PCORI’s Digital Health Portfolio is Filling Evidence Gaps

Categories are not mutually exclusive

- Culturally-Tailored Interventions
- Enroll Understudied Populations
- Patient/Stakeholder Engagement
- Randomized Controlled Trials
- Large Multi-Site Trials
- Patient-Centered Outcomes
- Clinical Outcomes
- Head-to-Head Trials

N=64

16% 47% 100% 97% 100% 72% 56%
Planning for Replicability and Sustainability of Findings from Digital Health Studies

How do I address these barriers in my study design?

Clinician Acceptance

Reimbursement/Billing

Patient Acceptance

Systems Integration

PCORI Investigators and Their Stakeholders Identify Strategies for Overcoming Barriers

Patient Acceptance
- Cultural tailoring of messages/interface
- The importance of multi-cultural, bi-lingual trainers and support personnel
- Allowing a patient to choose what information to share with providers

Reimbursement and Billing
- Use a check list to help distinguish between consultation and follow up in the platform.
- Provide educational modules to help train billing departments.
- Collect utilization and cost data/model ROI

Systems Integration
- Obtain C-Suite buy-in from the outset, consider scalability to other diseases
- Scale down physician dashboard to must know clinical information
- Support with other clinical staff for more detailed reporting

Technical Support
- Having on-call tech support for end-users
  E.g. mHealth Specialist, CHW, and other key personnel
- To address concerns, solve technical issues, and encourage use of telehealth
Thanks To:

- April Armstrong. University of Southern California. Improving Specialty Care Delivery in Chronic Skin Disease.

- Dror Ben-Zeev. Dartmouth College. Comparing Mobile Health (mHealth) and Clinic-Based Self-Management Interventions for Serious Mental Illness: Patient Engagement, Satisfaction, and Outcomes

- Ray Dorsey. University of Rochester. Using Technology to Deliver Multidisciplinary Care to Individuals with Parkinson’s Disease in Their Homes


- Karen Margolis. Health Partners Institute. Pragmatic Trial Comparing Telehealth Care and Optimized Clinic-Based Care for Uncontrolled High Blood Pressure

- Andrew Talal. State University of New York. Patient-Centered HCV Care via Telemedicine for Individuals on Opiate Substitution Therapy: A Stepped Wedge Cluster Randomized Controlled Trial.

- Heather Young. University of California, Davis. Patient and Provider Engagement and Empowerment through Technology (P²E²T²) Program to Improve Health in Diabetes.

For More Information

- Visit PCORI’s Telehealth Website

- Tune into our May 24th Workshop Advancing the State of Telehealth through Patient-Centered Outcomes Research

- Contact:
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Fraction of Top Apps that Adequately Address Providers’ Key Requirements and Emerging Accelerators of Adoption

Discussion Questions

• What is threshold of evidence needed to support adoption of digital health?

• What incentives are needed to bring effective digital health interventions to patients and clinicians?

• What is needed to provide help for patients, providers, and payers to choose which of the different apps to adopt?