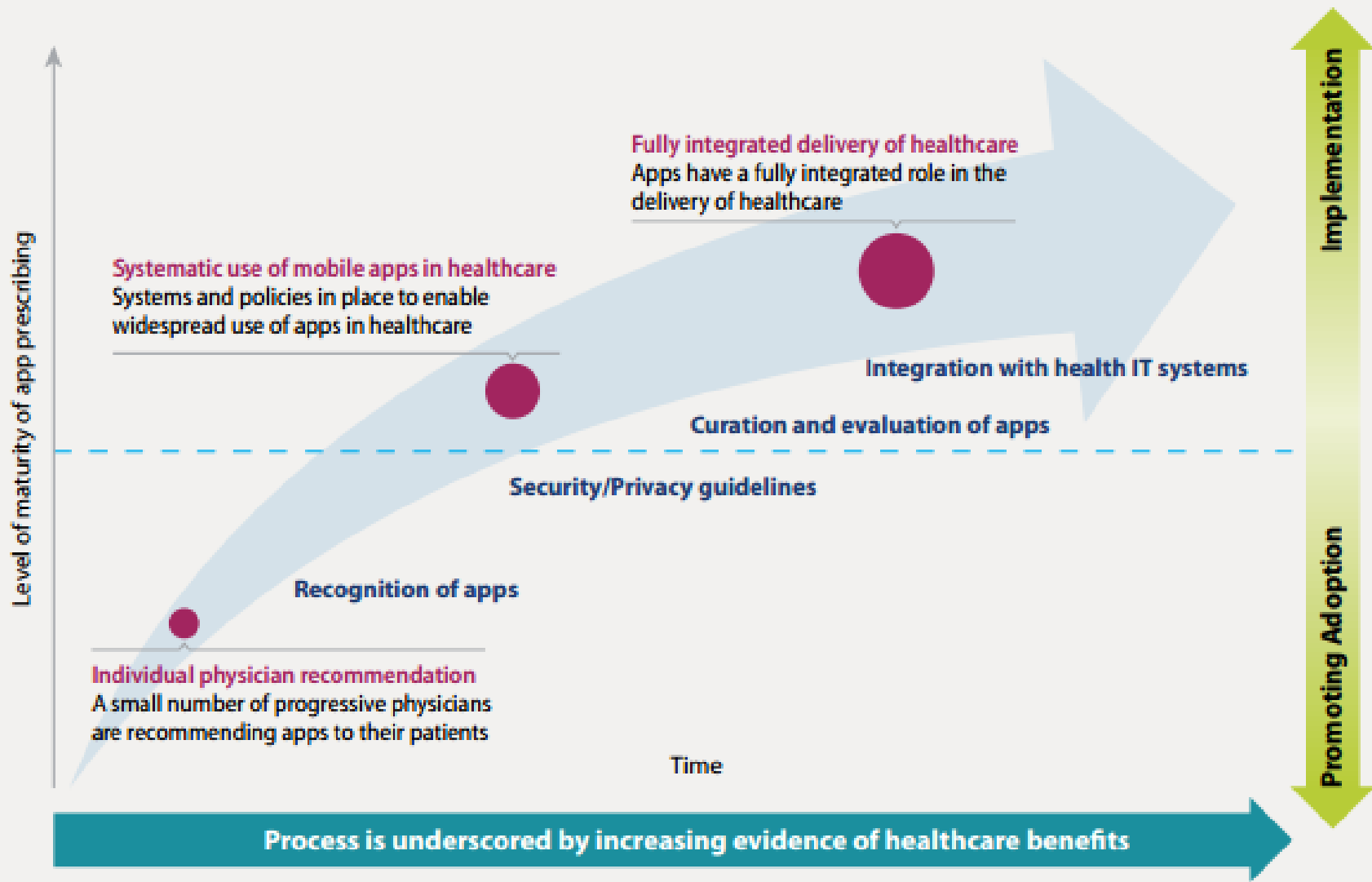


Data Challenges in Evaluating the Patient Engagement, Quality and Safety of Mobile Health Applications

David W. Bates, MD, MSc

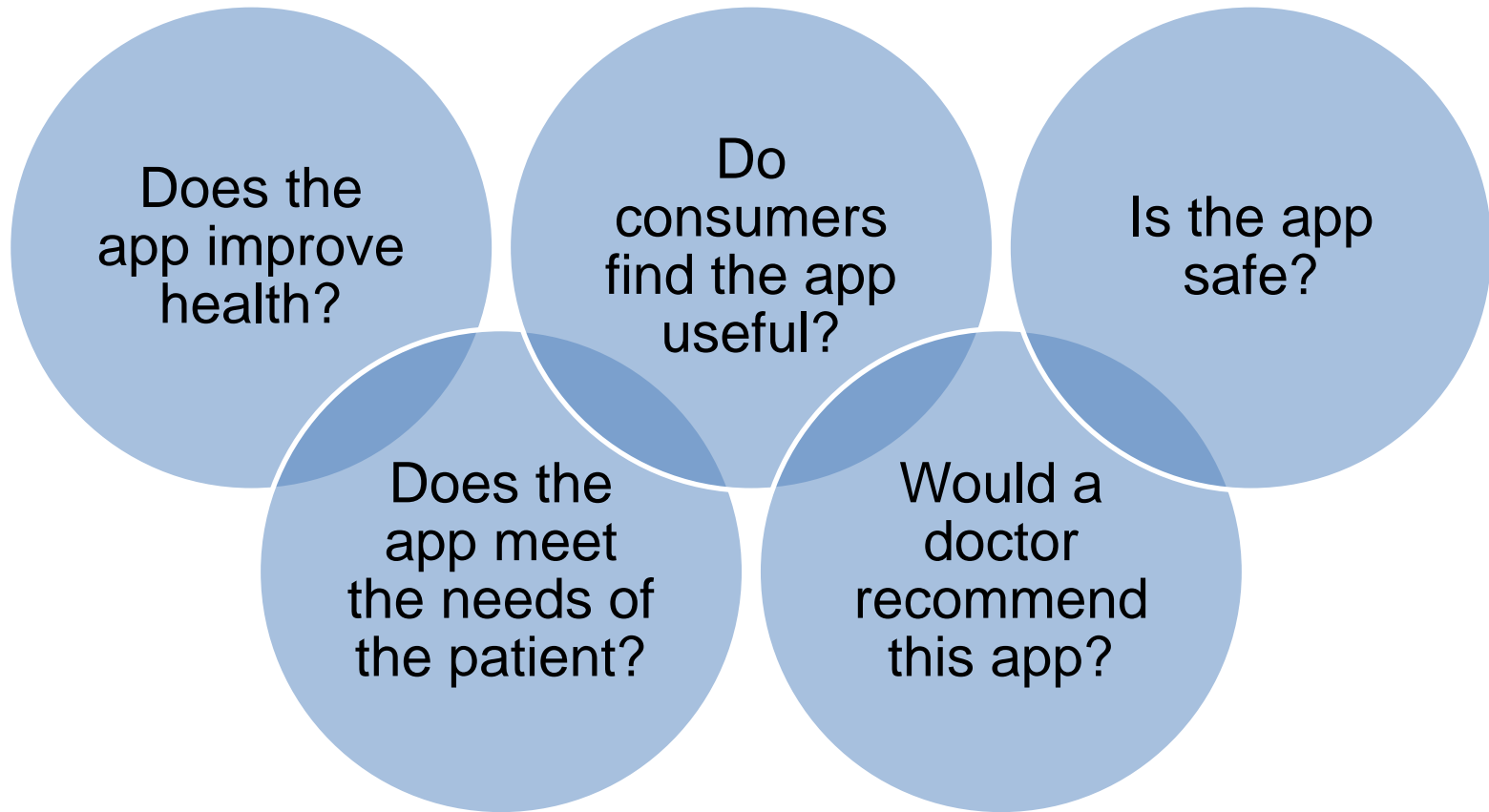
Chief, Division of General Internal Medicine,
Brigham and Women's Hospital, Boston

Roadmap for adoption of health apps

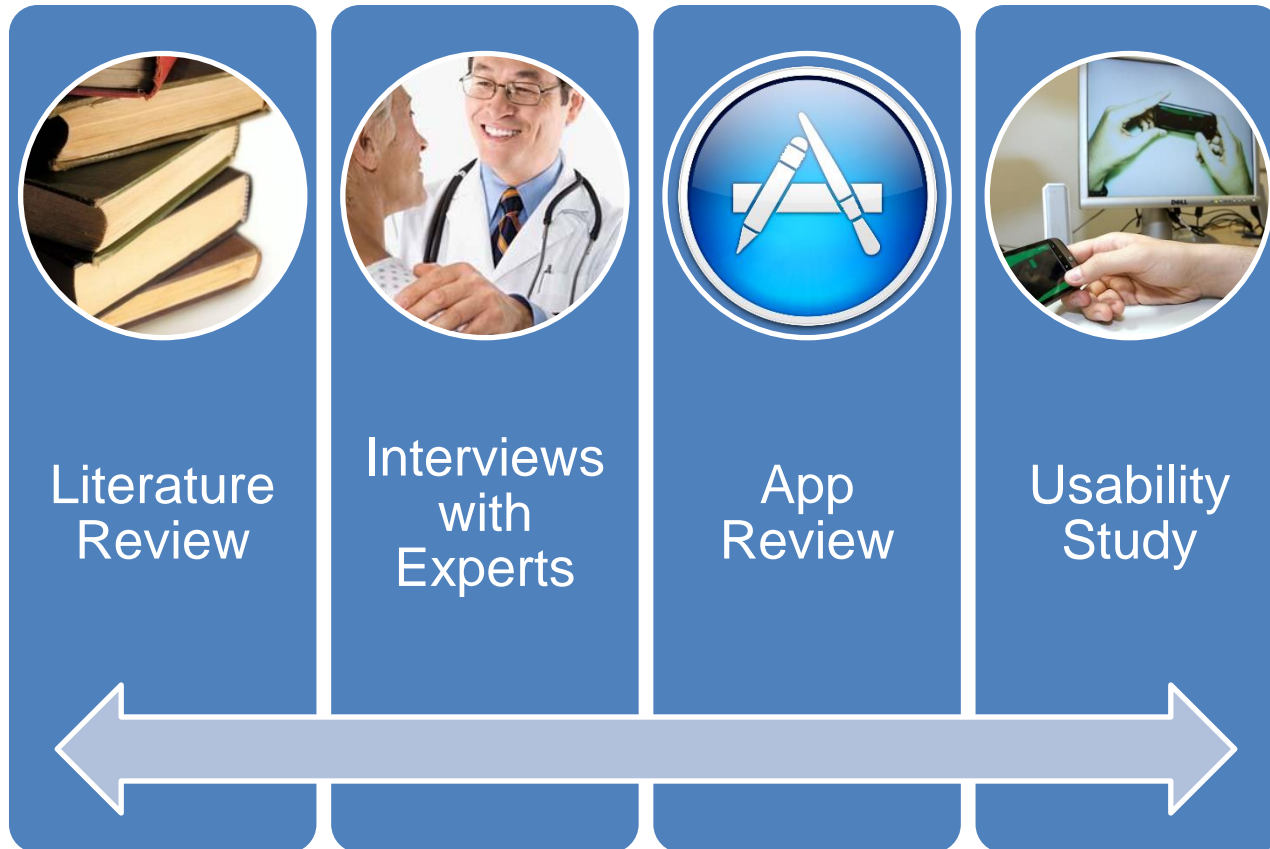


Characterizing the value of apps

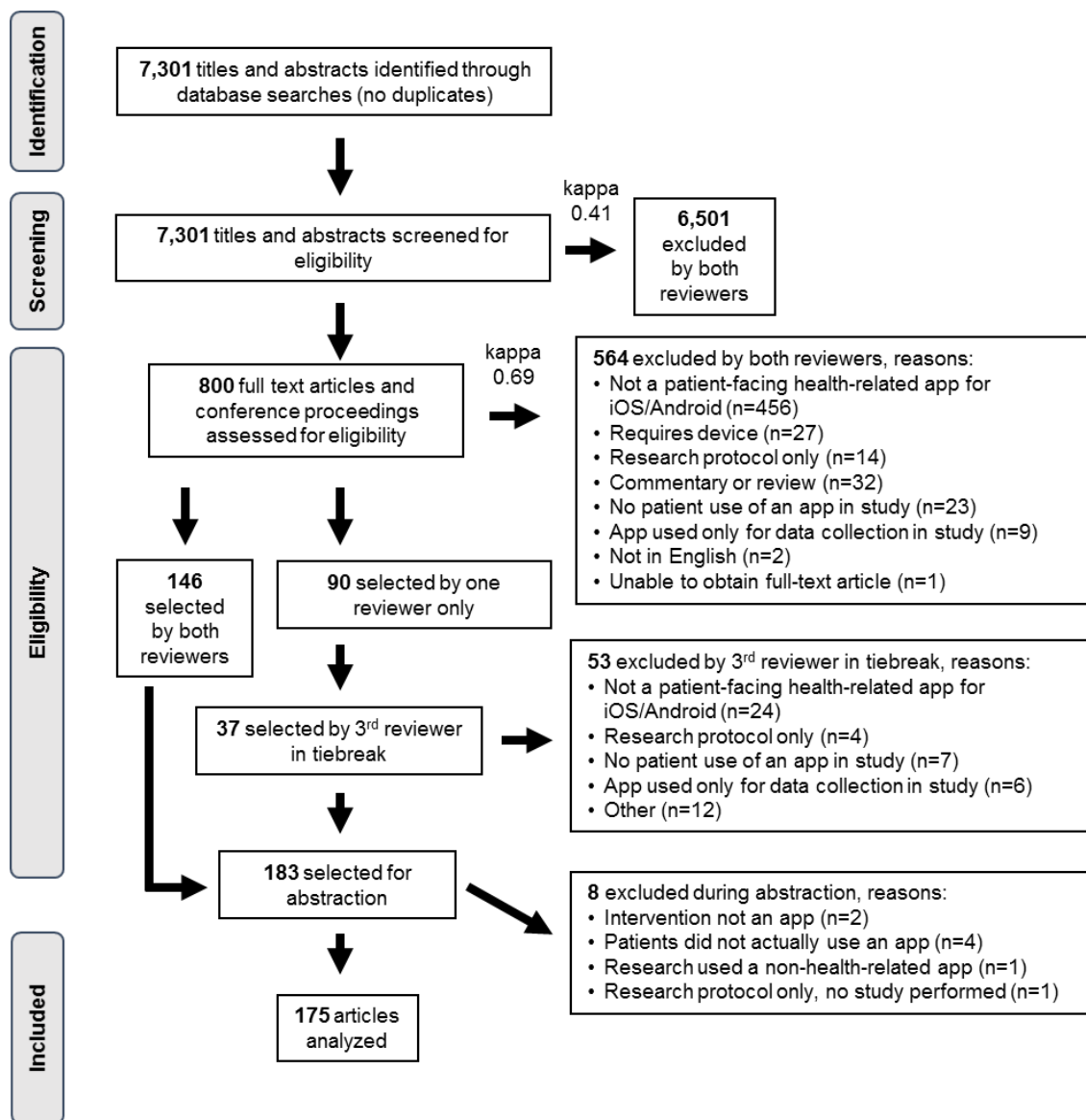
Role in High-Cost, High-Need Patients



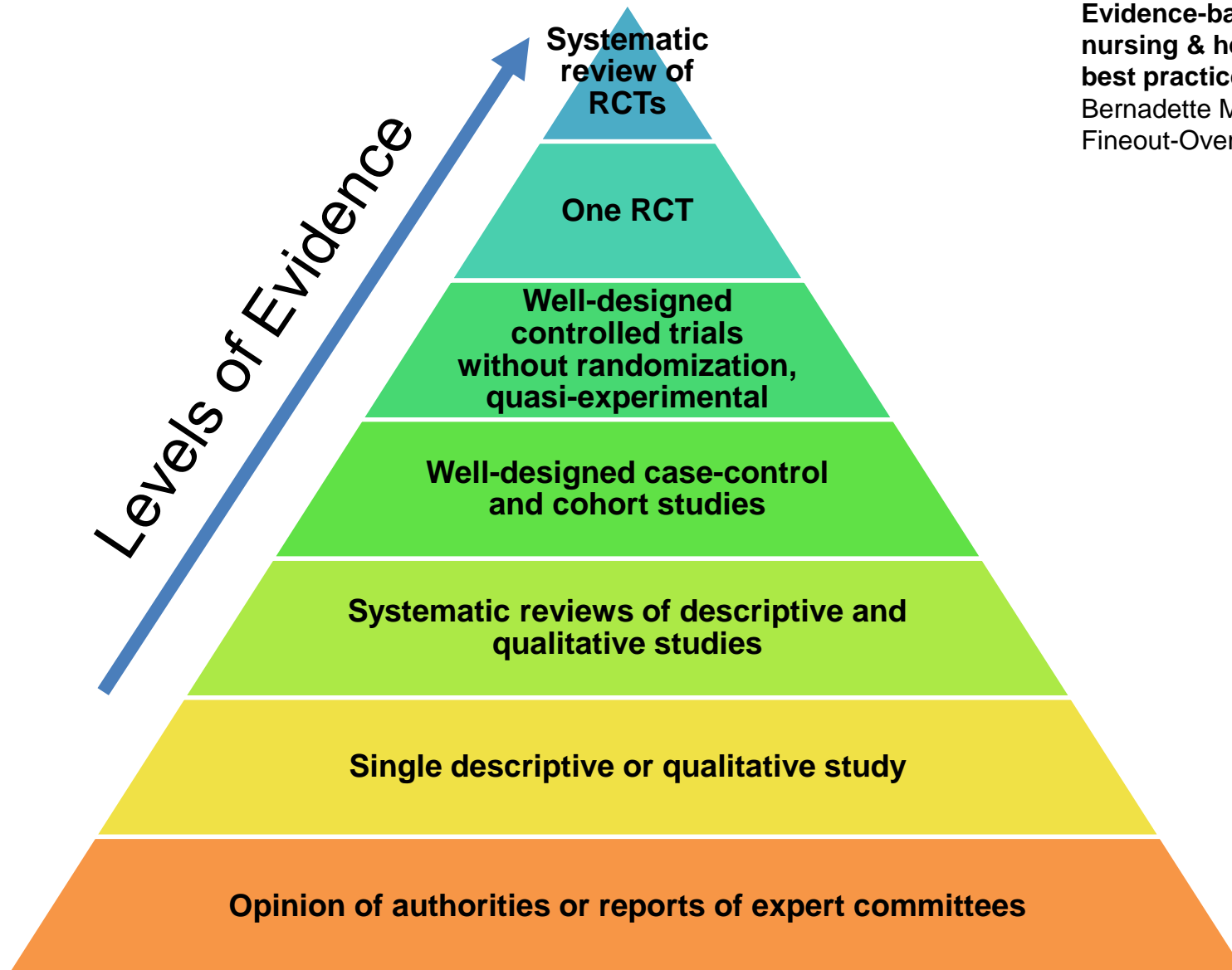
Characterizing the value of apps



Do apps improve health?



Do apps improve health?



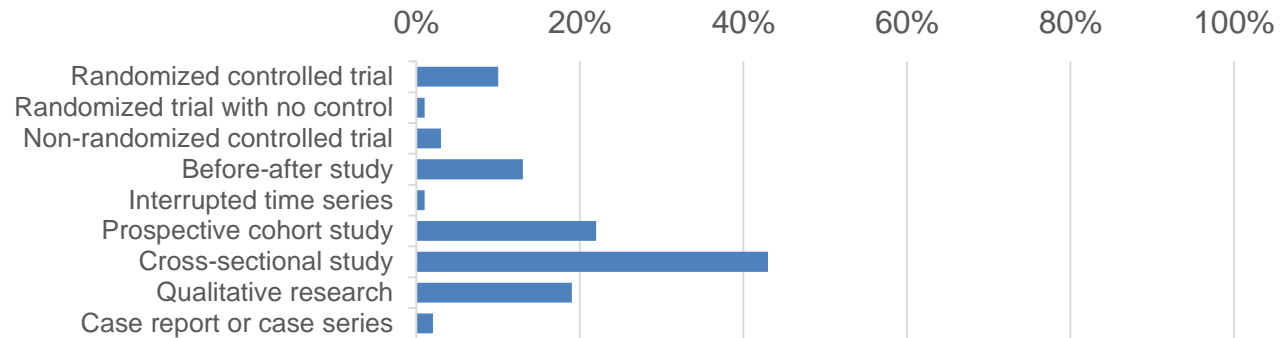
Evidence-based practice in nursing & healthcare: a guide to best practice

Bernadette M. Melnyk and Ellen Fineout-Overholt, 2005

Do apps improve health?



Study design



Median number of participants

31

Median length of follow-up

1.4 mo

App as only intervention

12%

Registered on clinicaltrials.gov

7%

Included adults ≥ 65 years old

30%

Authors also developers

61%

Evaluated clinical outcome

21%

Positive clinical outcome

72%

Do apps meet patient needs?



Number of studies on apps

175

App found on app store

30%

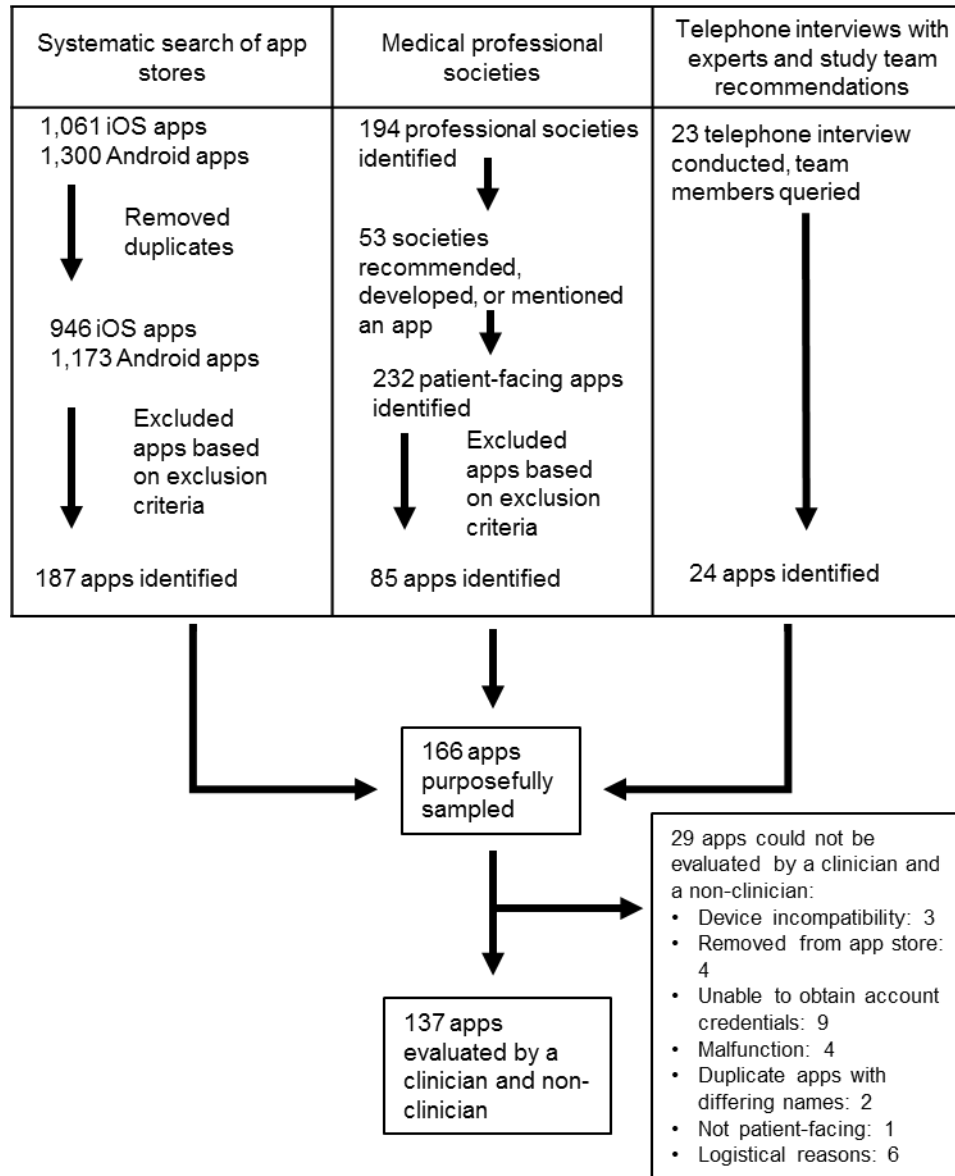
App name not stated in study

40%

App not found on app store

30%

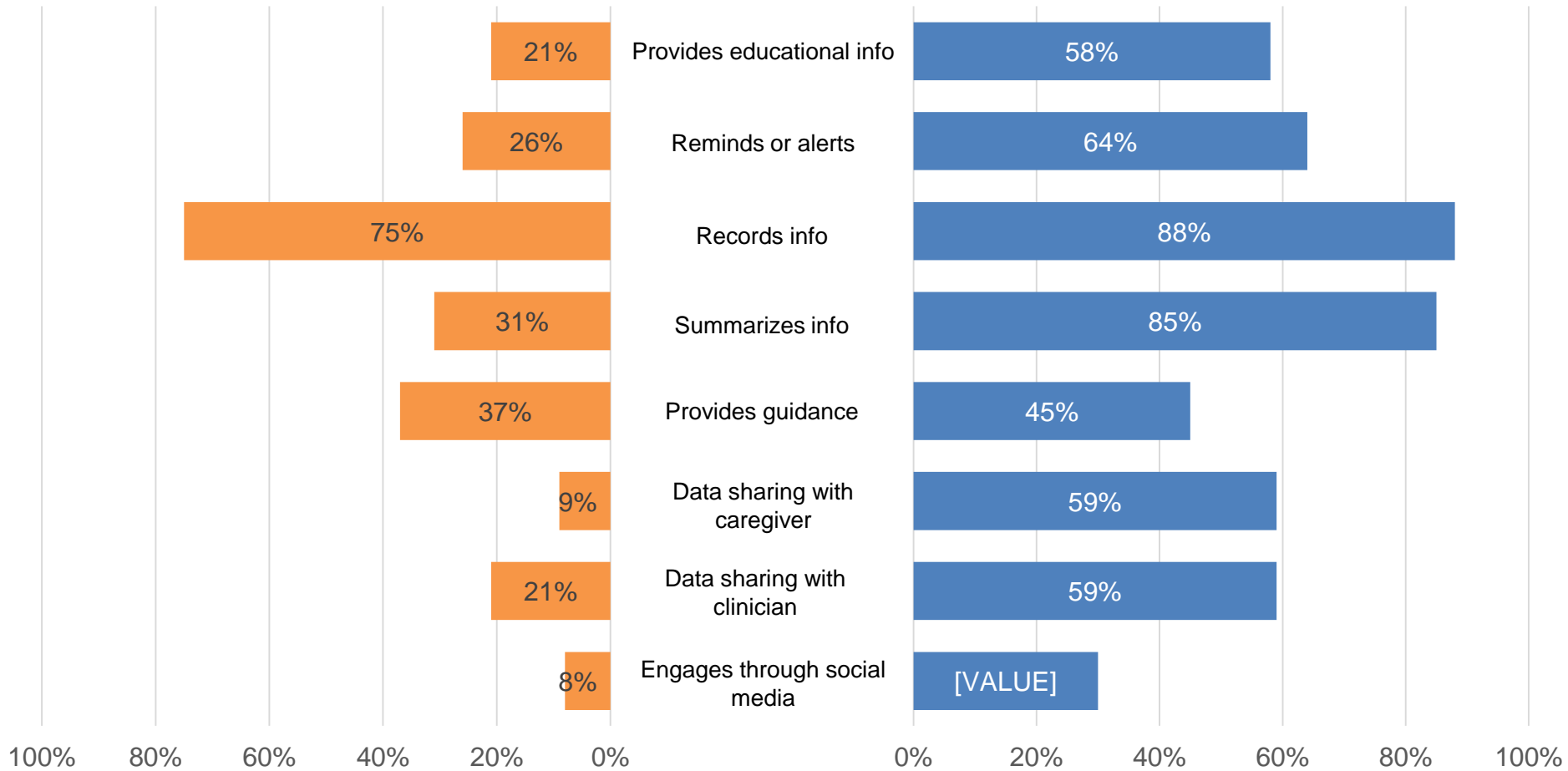
Do apps meet patient needs?



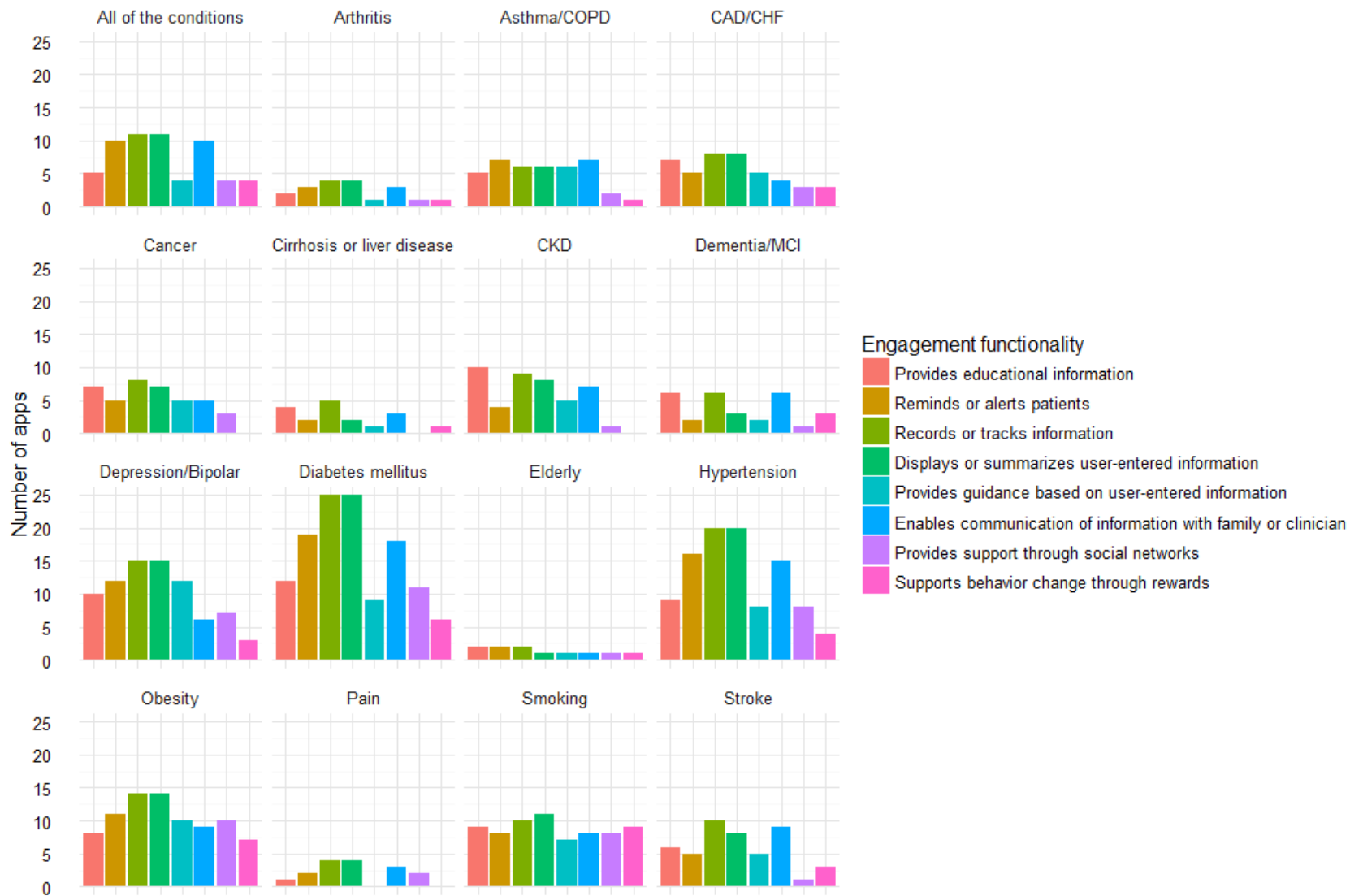
Do apps meet patient needs?

In the scientific literature

On the app store

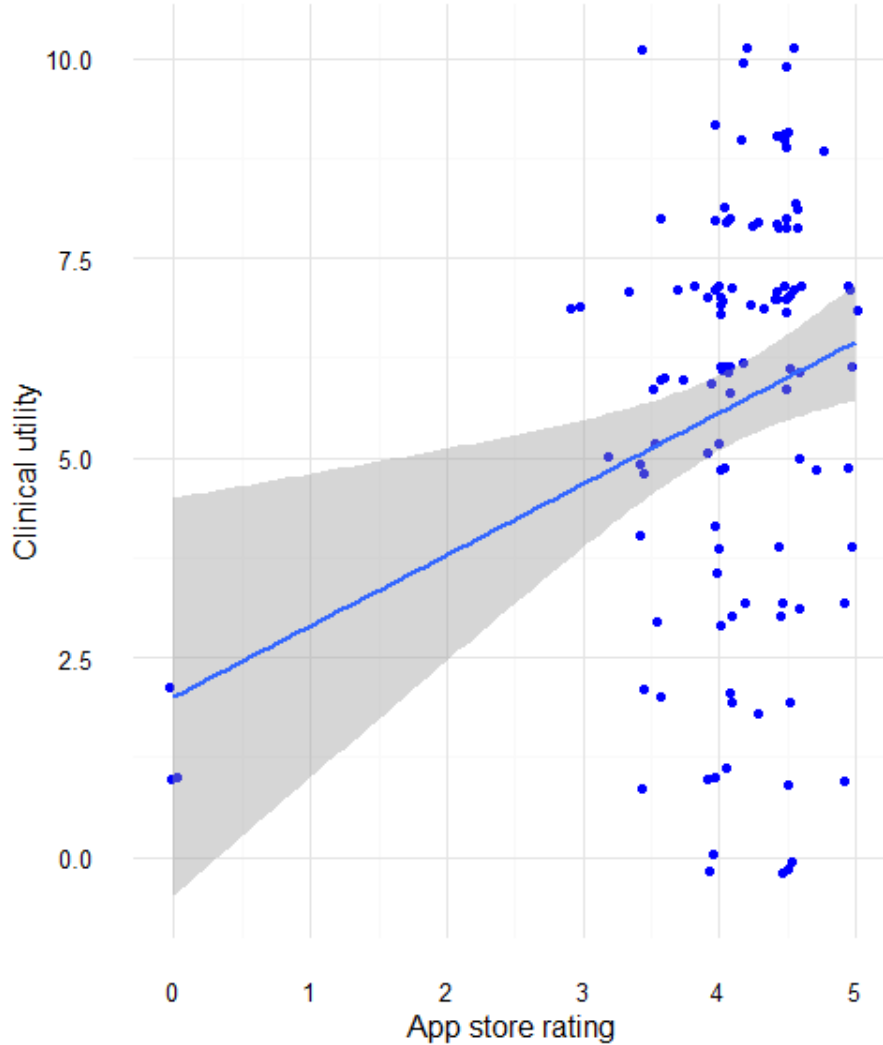


Do apps meet patient needs?

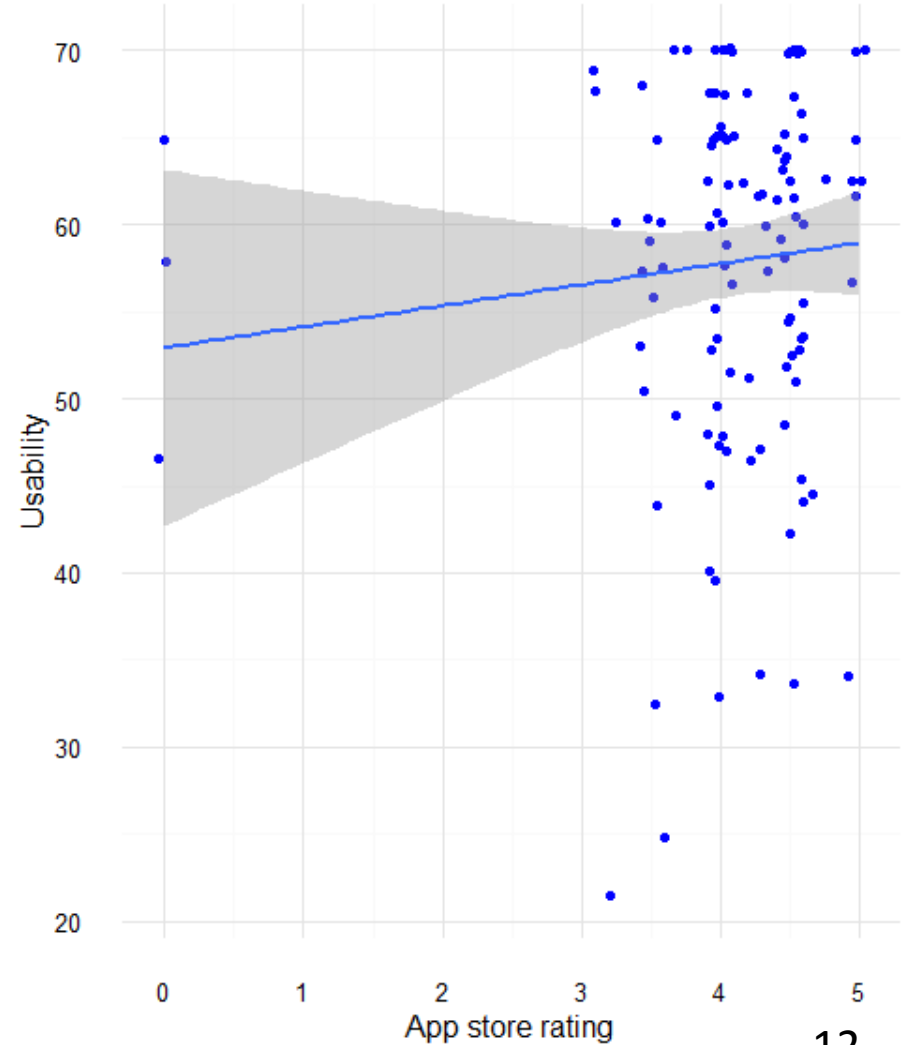


App store rating vs. clinical utility vs. usability

App store rating vs. clinical utility

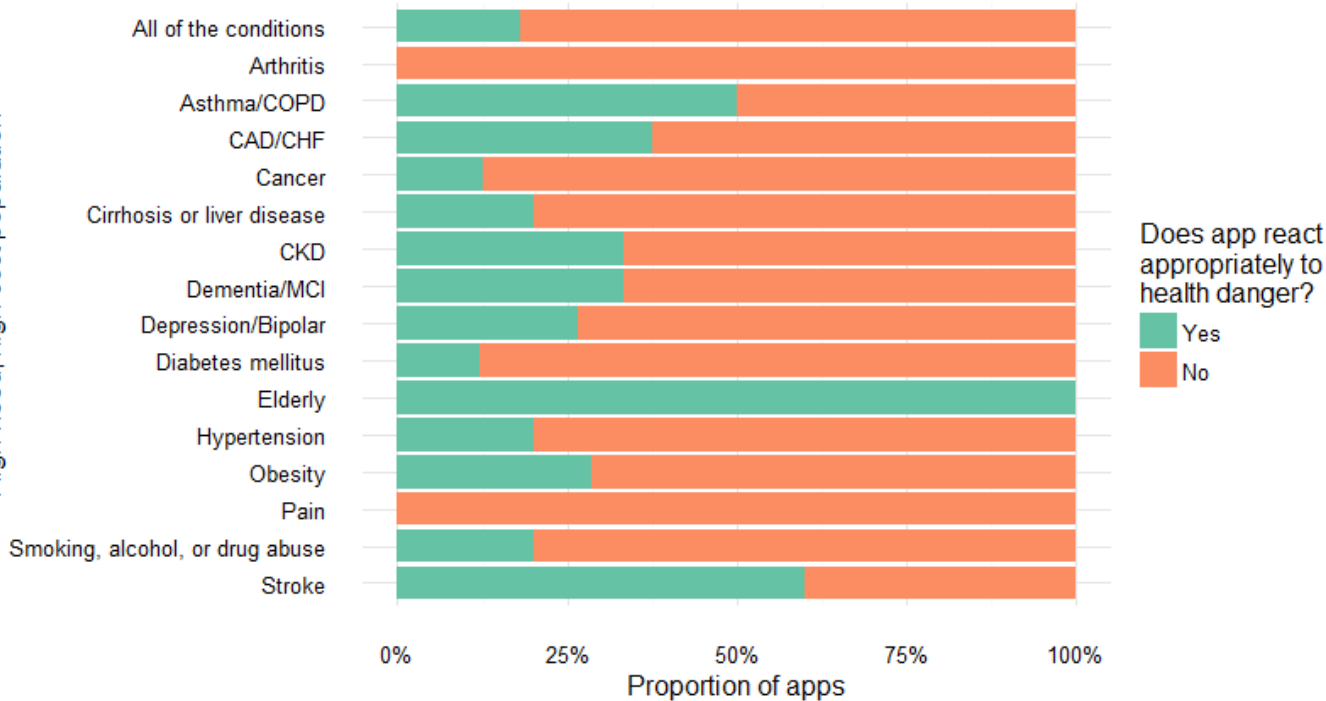


App store rating vs. usability



Are apps safe?

High-need, high-cost population



Apps without privacy policy

36%

Data sharing via separate login

10%

Data sharing using e-mail

48%

Data sharing using text

12%

Data sharing using HealthKit

11%

Data sharing using Google Fit

3%



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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

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Sarkar, U., Gourley, G.I., Lyles, C.R. et al. J GEN INTERN MED (2016).

doi:10.1007/s11606-016-3771-6

1 Citations

49 Shares

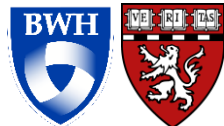
348 Views

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

Conclusions re Apps

- Apps have the potential to improve healthcare
- Yet also potential to cause harm as they become increasingly integrated with the healthcare system
 - What if low blood glucose values not recorded?
 - What if no one alerted about suicidal ideation?
- Not being directed at patients who can benefit the most from them
 - Level of evidence to date re benefit limited
- Apps are hard to use for patients with chronic illnesses
 - But patients do want them!
- Key frontiers
 - Linking mobile apps with EHRs and PHRs
 - Getting wearable data in and sifting through it



OECD Takeaways

- Quality
 - Even more important and very big gaps
 - Literature is lacking
- Safety
 - Clearly problems and some standards or best practices are needed
 - Privacy not yet adequately addressed
- Patient engagement
 - Lots of room for improvement—little gamification, use of social media approaches

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