

# Digital Health: Evaluating the Evidence, Identifying Gaps, Producing Better Science

Workshop at the 23<sup>rd</sup> Annual Meeting of the International Society for Pharmacoeconomics and Outcomes Research

May 21, 2018



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## Structure of the Workshop

- Overview of the Landscape of Digital Health
- Learning from the Past: Evaluating the State of Evidence
  - *Facilitated Discussion*
- Designing Real-World Digital Health Studies to Better Meet End User Needs
  - *Facilitated Discussion*



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## Discussion Leaders



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Delivery Innovations  
Research Initiatives  
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Executive Director  
IQVIA Institute for Human Data  
Science



Karen Schoelles, MD, SM, FACP  
Director, Evidence-based  
Practice Center  
ECRI Institute



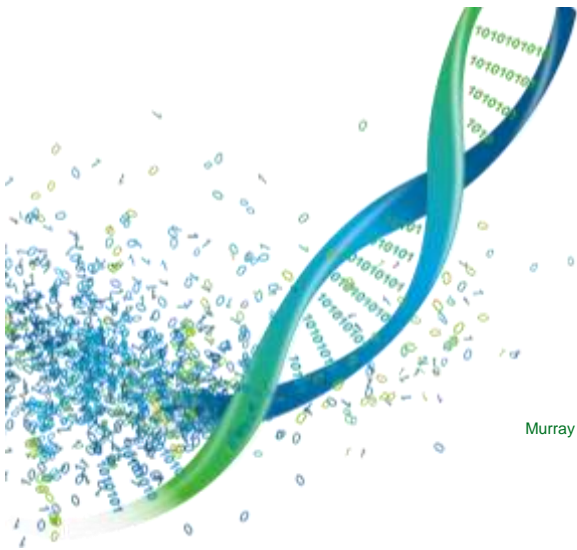
Jasmine Bihm, DrPH, MPH  
Staff Fellow  
Center for Evidence and  
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Agency for Healthcare  
Research and Quality



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# The Landscape of Digital Health



## The Growing Value of Digital Health

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Murray Aitken, Executive Director, IQVIA Institute

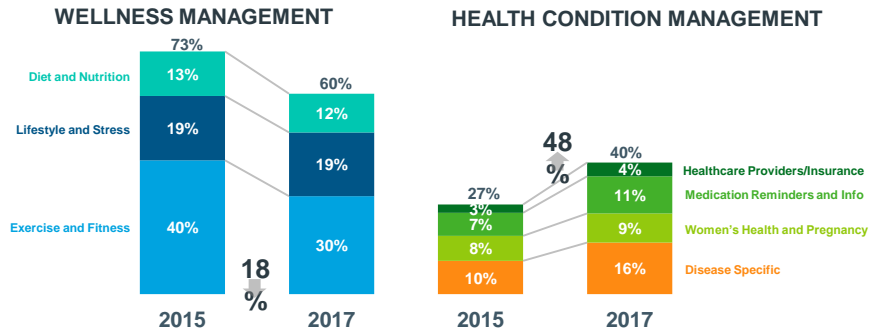
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### Digital Health Tools



## Digital Health Apps by Category 2017

2015 100% = 165,000 apps; 2017 100% = 315,000 apps



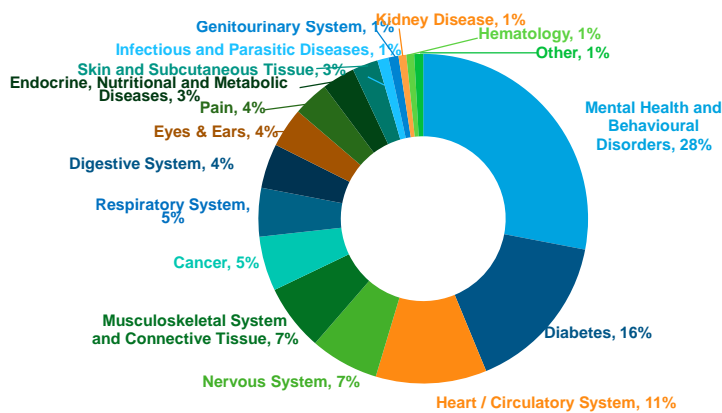
Sources: 42 Matters, Jul 2017; IQVIA AppScript Database, Jul 2017; IQVIA Institute, Jul 2017  
 Note: Chart displays percent of categorizations. Numbers may not sum due to rounding. 2017 data includes 11,216 unique apps with 11,249 categorizations. 2015 data includes 24,012 apps with 24,088 categorizations. View removes uncategorized apps from 2015 published numbers.

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## Disease-Specific Apps by Therapy Area



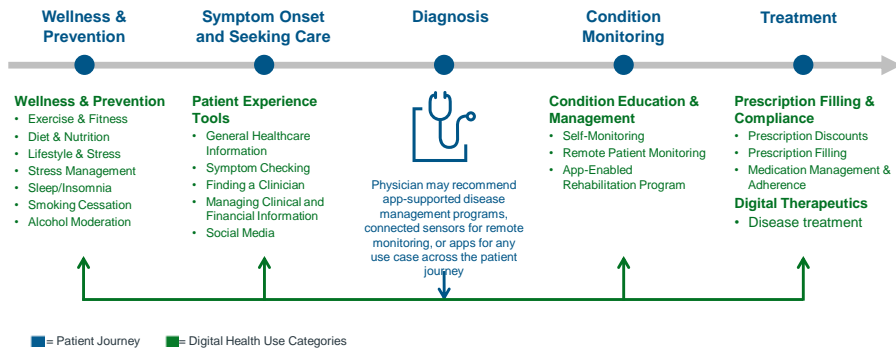
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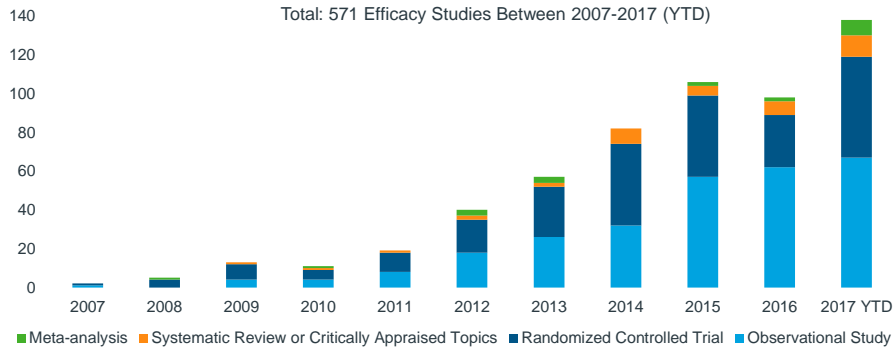
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## Digital Health in the Patient Journey



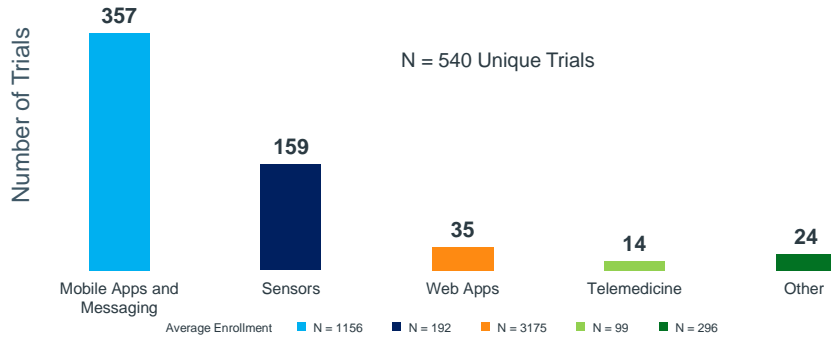
Source: IQVIA AppScript Use Categories, IQVIA Institute, Sep 2017  
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## Number of Published Digital Health Efficacy & Effectiveness Studies



Source: AppScript Clinical Evidence, August 14 2017  
Notes: Analysis excludes accuracy studies. Only includes studies with hard outcomes. 'Observational Study' includes all trials examining interventional value or impact of an app excluded from the other three categories regardless of design.  
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## Number of Clinical Trials Including Digital Health Technologies, By Type



Sources: Clinicaltrials.gov, Feb 2017; IQVIA Institute, Jul 2017  
 Notes: Total percent exceeds 100% due to inclusion of multiple digital health types in a single trial; Connected devices connect to an app, EMR or other interface; Mobile apps include use of phones to deliver text messages; Other includes offline computer apps, tablet video or virtual Interaction programs; Web apps are presumed to be mobile accessible.

The Growing Value of Digital Health - Evidence and Impact on Human Health and the Healthcare System. Report by the IQVIA Institute.

The IMS Institute is now the  
**IQVIA™**  
**INSTITUTE**  
 for Human Data Science

**The Growing Value  
 of Digital Health**  
 ISPOR  
 May 21, 2018

Murray Aitken, Executive Director, IQVIA Institute

# Learning from the Past: Evaluating the Evidence of Impact of Digital Health on Patient Outcomes

## **mHealth Applications for Chronic Disease Self-Management: Evidence Map for PCORI**

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May 21, 2018

## Definition of self-management interventions

Aim to **equip patients with skills** to actively **participate** and **take responsibility**

- ▶ in the **management of their chronic condition**
- ▶ in order **to function optimally** through **at least knowledge acquisition** and
- ▶ a combination of **at least two of the following**:
  - stimulation of independent sign/symptom monitoring,
  - medication management,
  - enhancing problem-solving and decision-making skills for medical treatment management,
  - changing their physical activity, dietary, and/or smoking behavior

Jonkman et al. (2016)



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## mHealth Interventions

- ▶ Electronic
- ▶ Communication between a patient or caregiver and the healthcare system
  - over a distance
  - rather than within a clinic/hospital setting.



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## Process

- ▶ Interviewed experts who research and implement mHealth applications (Technical Expert Panel)
- ▶ Developed protocol
- ▶ Performed literature searches, screening, data extraction
- ▶ Created evidence maps



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## Map Demonstration



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