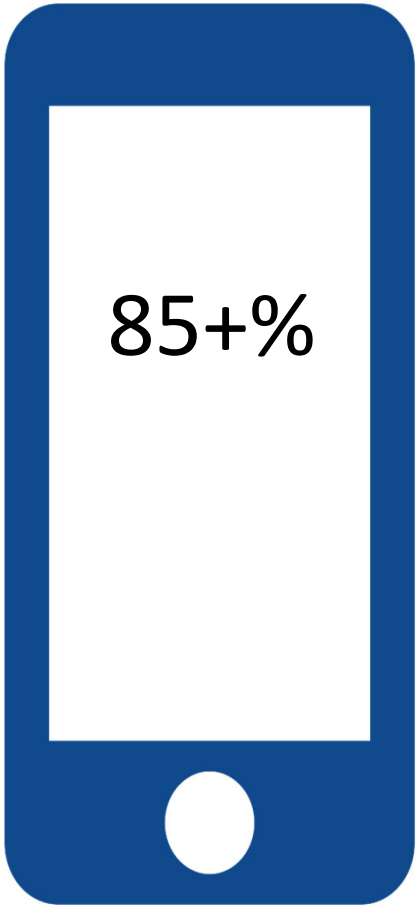
Supported by Islamic Women's Council of New Zealand and the NZ Muslim Association

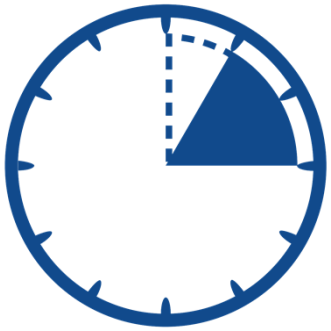
Apps and self-monitoring: the research and the future

Rebecca Grainger BMedSc, MBChB, PhD, FACHI, FRACP
University of Otago, Wellington
Wellington Regional Rheumatology Unit, Hutt Valley DHB



85+%

35%



35x

46%

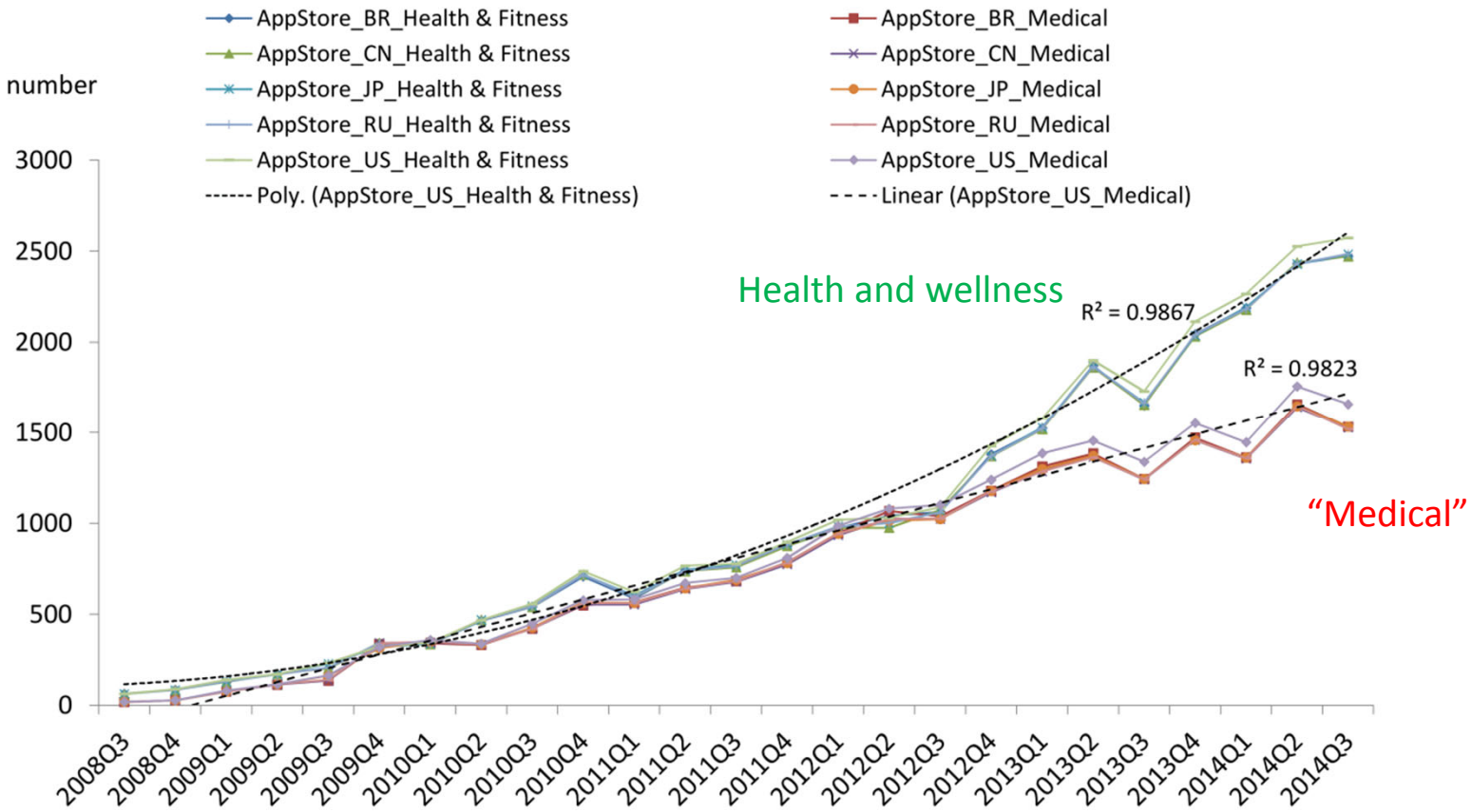
10 daily

36 monthly

100 on a phone

Deloitte. Mobile Consumer survey 2017 http://landing.deloitte.com.au/tmt-mobile-consumer-survey-2017-INB-LP-TY.html

Health apps are a growth category



Xu et al JMIR Mhealth Uhealth. 2015 Jan-Mar; 3(1): e28.

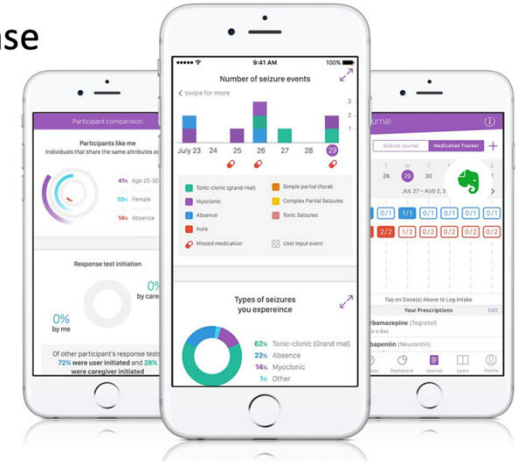
epiwatch

Track Your Seizures and Medications While Advancing Epilepsy Research

Johns Hopkins EpiWatch: App and Research Study

EpiWatch: Two goals

- Collect seizure biosensor & labelling data for non-EEG seizure detection
  - Post-seizure query: aura/seizure type/triggers; caregiver alerting & interventions
- Help persons with epilepsy manage their disease
  - Seizure & pill taking journals
  - Brief daily queries
  - Co-morbidity screening:
    - anxiety/depression & drug side effects
    - Relationships to QOLIE
  - Individualized referral links & telemedicine



https://www.hopkinsmedicine.org/epiwatch/index.html#app

29 June 2007
App research?

App literature

Apps

Implementation

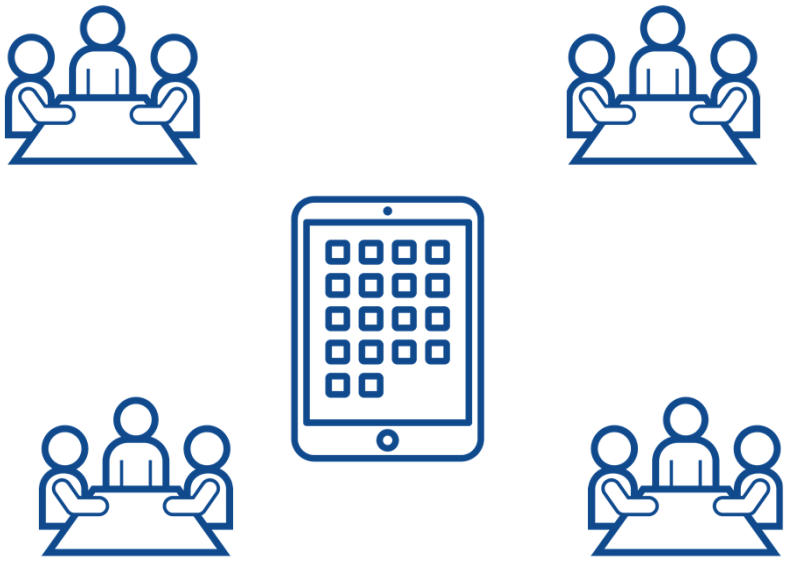
People

Outcomes

Apps

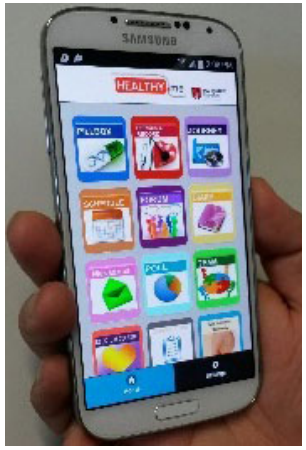
- Development
- Types of apps in a disease area
- App review

Gout app development



Identified

- helpful features
- Scope and role
- Barriers to uptake



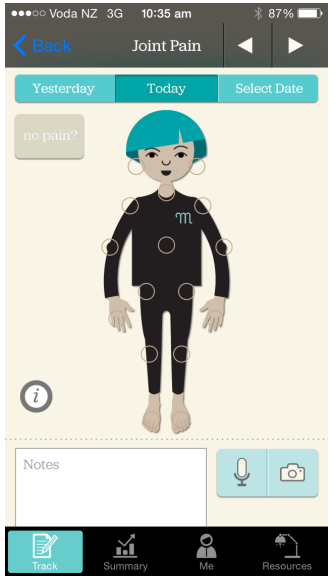
e-health
NHMRC Centre of Research Excellence in e-health

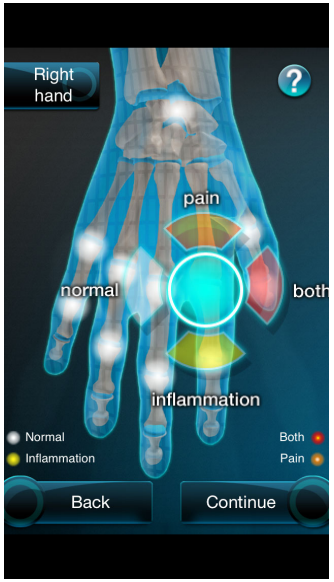
Beta-web based app “Healthy.me”

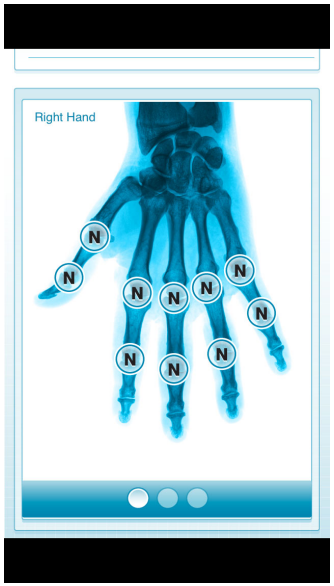
Fernon Stud Health Technol Inform 2016;227:28–33.

Rheumatoid arthritis App review

- “Systematic” search for apps for people to monitor own RA
- Search = 987 apps –> 19 met inclusion criteria (8 8 3)
- Only 1 app = used validated measure + tracked







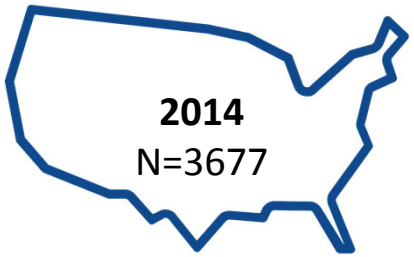
People and Apps

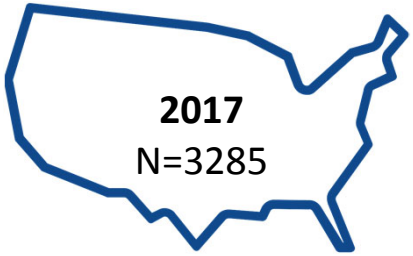
- Who uses apps
- How people use apps
- Attitudes to apps
- App knowledge

Implementation

- User experience
- Use over time
- Pitfalls and wins

People and Apps





43%

22%

Younger, urban, educated, high income, excellent health

50%

12.5%

Younger, "lifestyle" apps

84%

49% HTN

36.5% no HTN

Caroll et al J Med Internet Res 2017;19(4):e125
Ernsting J Med Internet Res 2017;19(4):e101) doi:10.2196/jmir.6838
Langford JMIR Mhealth Uhealth 2019;7(1):e12228

CLOUDY
W TH A CHANCE OF
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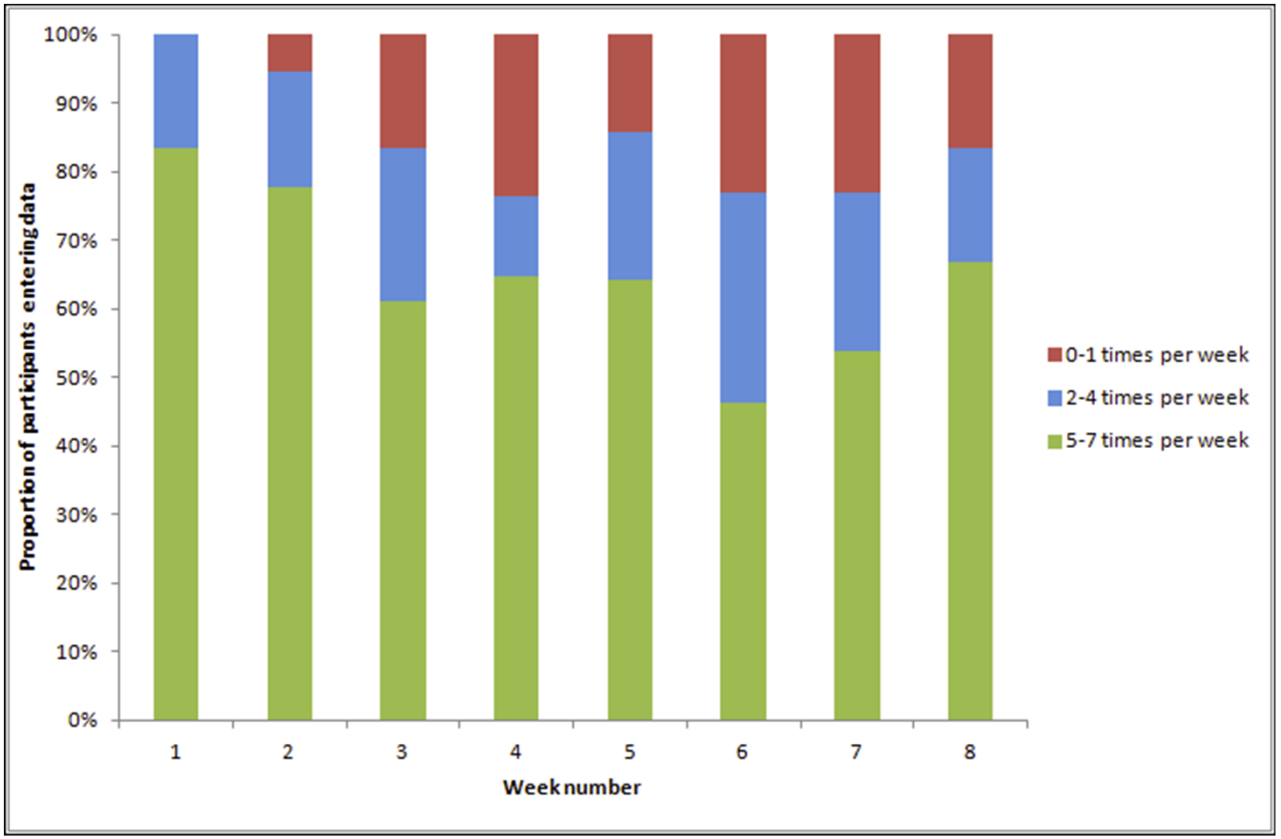
Cloudy with a Chance of Pain is the world's first smartphone-based study to investigate the association between weather and chronic pain.



1 in 7 track data daily data for 6/12

Reade JMIR Mhealth Uhealth 2017(5):3 e37

App outcomes

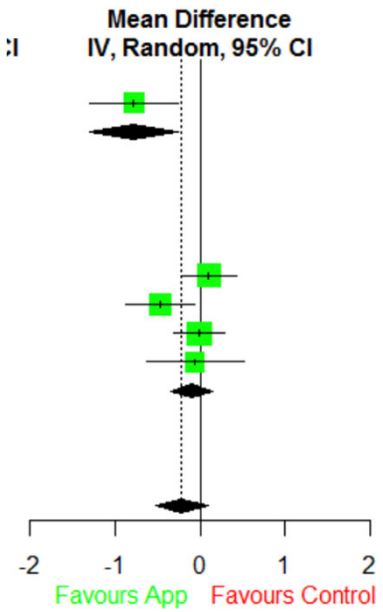
- Observational app implementation, single location
- Some RCTs
- Some metasynthesis

Diabetes Apps and HbA1c - metasynthesis

P	adults with DM
I	DM app - behavioural change
C	usual care
O	HbA1C

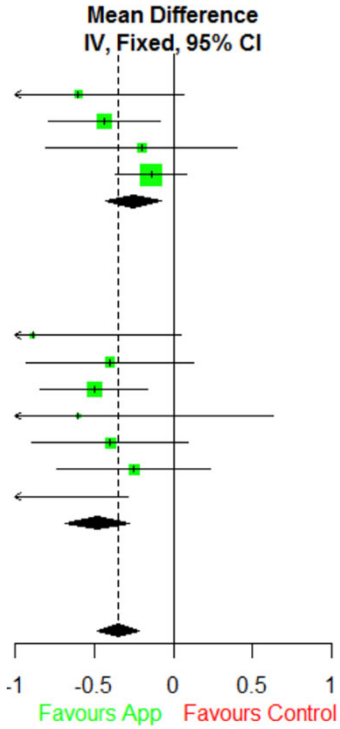
Risk of bias – lack of blinding

Clinical significance?



Type 1

-0.21 (95 CI -0.52-0.09) NS



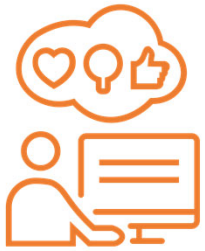
Type 2

-0.35 (95CI -0.48—0.21), p<.01

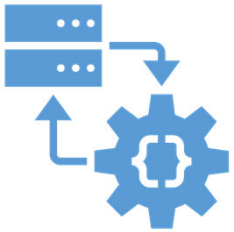
Wu et al. JMIR Mhealth Uhealth 2019;7(1):e12297

The future of self management apps

Move from single solution (an app on a phone) to a health ecosystem (and wearables)



Emphasis on user perspectives and preferences – avoid over engineering



New models of health service development that learn from software development approaches

More flexible approaches to evaluation of software in clinical settings

Emphasis on effective business models as much as effective apps

Peiris BMJ Gloabl Health 2018;3:e000676

Six questions to ask about health apps

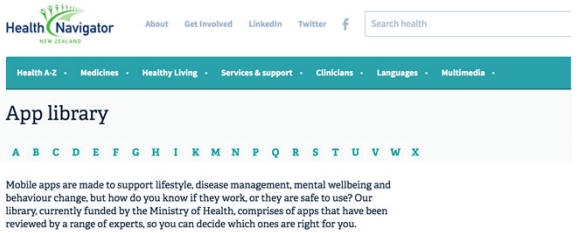
1. Who developed the app and why?
2. Does the app contain factual information based on reliable resources?
3. Is the app up-to-date?
4. What are the reviews like?
5. What does it cost?
6. Does the app require data access to function?

https://www.healthnavigator.org.nz/app-library/h/how-to-choose-a-health-app/

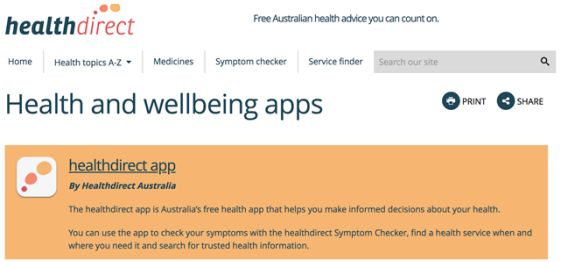
Health Navigator NEW ZEALAND

How to find apps

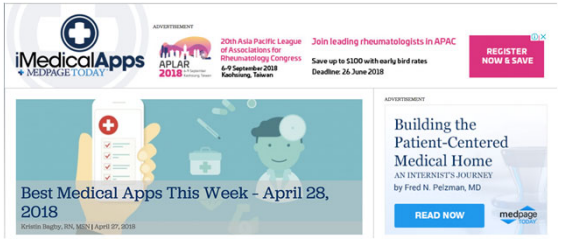
www.healthnavigator.org.nz/app-library/



www.healthdirect.gov.au/health-and-wellbeing-apps



www.imedicalapps.com/



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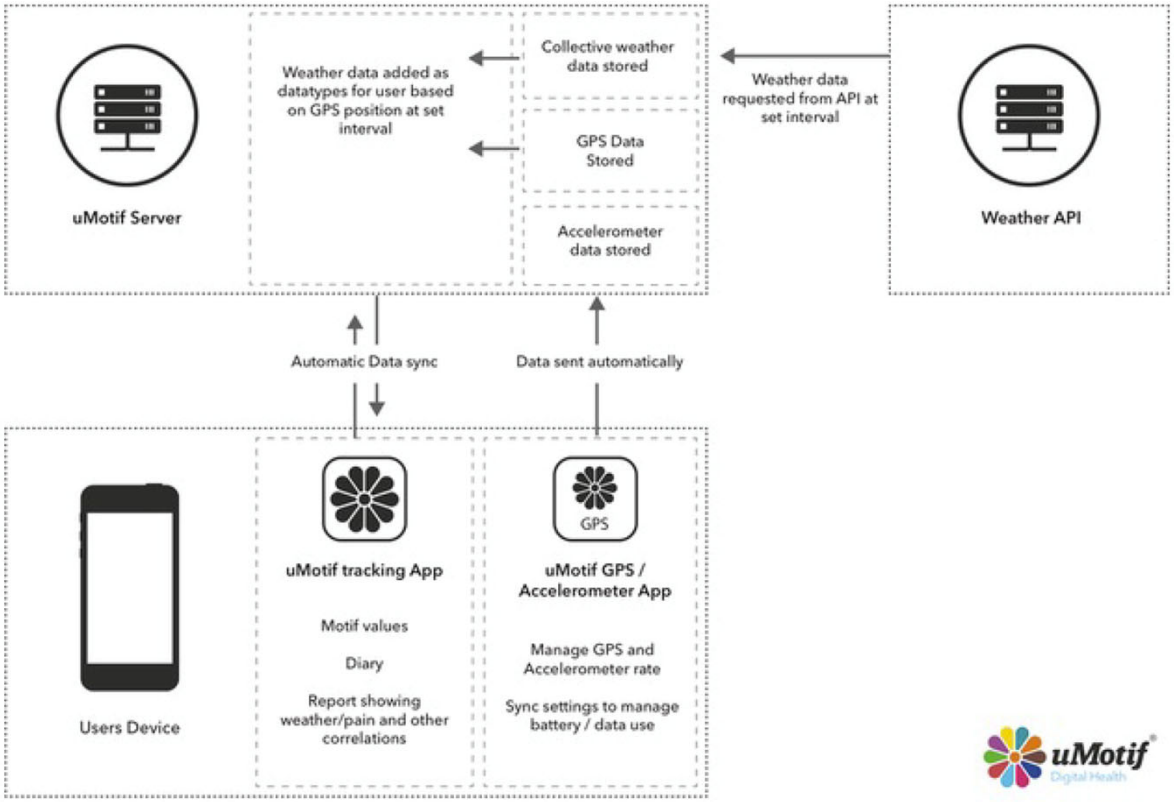


Reade JMIR Mhealth Uhealth 2017(5):3 e37

10 daily

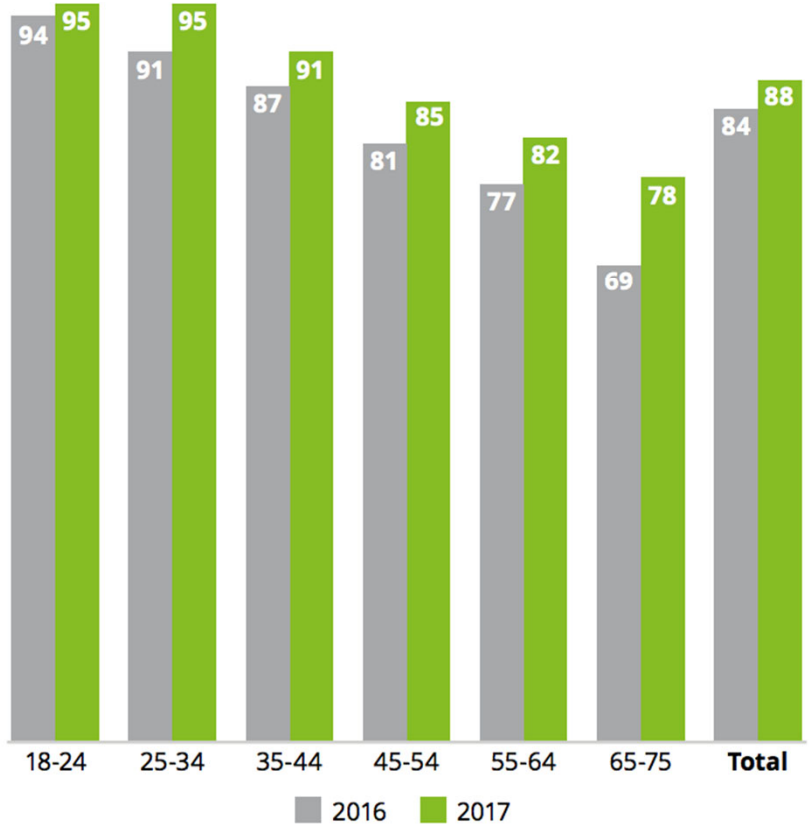
36 monthly

100 on a phone

Silver surfers power smartphone swell

Graph 1: Smartphone ownership by age

Which, if any, of the following devices do you own or have ready access to? Smartphone responses below.



Deloitte. Mobile Consumer survey 2017 http://landing.deloitte.com.au/tmt-mobile-consumer-survey-2017-INB-LP-TY.html