



mHealth Overview in Precision Medicine

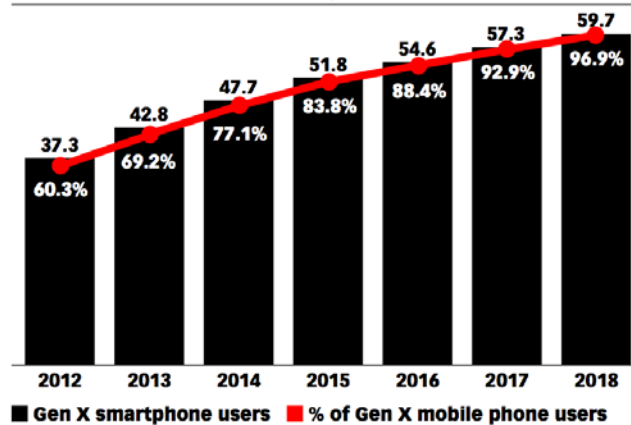
Peter Tippet, MD, PhD
Chief Medical Officer
VP, Verizon Innovation Incubator



Smartphone Penetration by Generation

US Gen X Smartphone Users and Penetration, 2012-2018

millions and % of Gen X mobile phone users



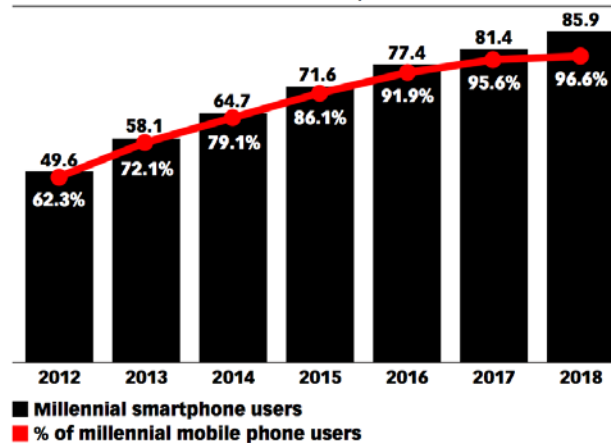
Note: individuals born between 1965 and 1980 who own at least one smartphone and use the smartphone(s) at least once per month
Source: eMarketer, March 2014

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www.eMarketer.com

US Millennial Smartphone Users and Penetration, 2012-2018

millions and % of millennial mobile phone users



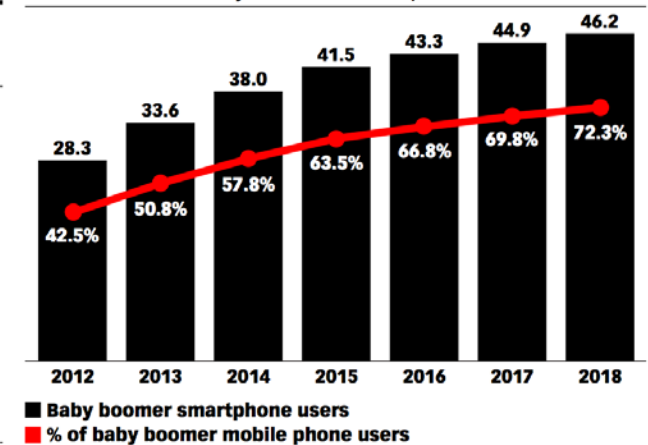
Note: individuals born between 1981 and 2000 who own at least one smartphone and use the smartphone(s) at least once per month
Source: eMarketer, March 2014

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www.eMarketer.com

US Baby Boomer Smartphone Users and Penetration, 2012-2018

millions and % of baby boomer mobile phone users



Note: individuals born between 1946 and 1964 who own at least one smartphone and use the smartphone(s) at least once per month
Source: eMarketer, March 2014

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www.eMarketer.com

94.3% → 94.4%

95.1% → 97.1%

87.4% → 87.7%

Percent of US generation with any mobile phone 2015 → 2018



Industry Snapshot: Mobile Apps

Big Market in Early Stages of Development



“Similar to the internet revolution, mHealth is revolutionizing the way of patients receiving their care.”

Mary Annecharico

CIO at Henry Ford Health Systems

Common Applications



EHR Access
in and out of
care site



Biometric data
collection and
transmission



Fitness/activity
tracking



Remote
communication
with providers

Major Players

- Apple HealthKit
- Microsoft HealthVault
- Google Fit
- Samsung S Health



Mobile Health Market Rapidly Expanding

\$49.1B

Estimated global mHealth
market size by 2020

95M

Americans using mHealth
technologies in 2013.

**19% of Smartphone Users
have at least one Health app

>22,000

Number of Healthcare
Smartphone Apps

**1,128 iOS apps related
to diabetes alone



Mobile Patient Monitoring: Staying Connected Regardless of Location



“Patient monitoring is becoming a necessary measure for hospitals and doctors to measure their business. The focus is shifting whether they like it or not.”

*Jack Young
Head of Qualcomm Life Fund*

Clinical Benefits



Reduced readmissions



Reduced ED visits



Improved chronic disease-related mortality



Improved care coordination

Major Vendors

- Noninvasive Medical Technologies
- Corventis
- Pharos Innovations
- Honeywell HomMed
- McKesson



Remote Monitoring has Wide Reach

19M

Estimated patients connected to remote monitoring devices by 2018

\$5.85B

Total remote patient monitoring market in 2013

76.7%

Market share of connected medical device manufacturers

[illegible]



More mobile data sources...

Telemedicine Buses, Kiosk & Retail Locations



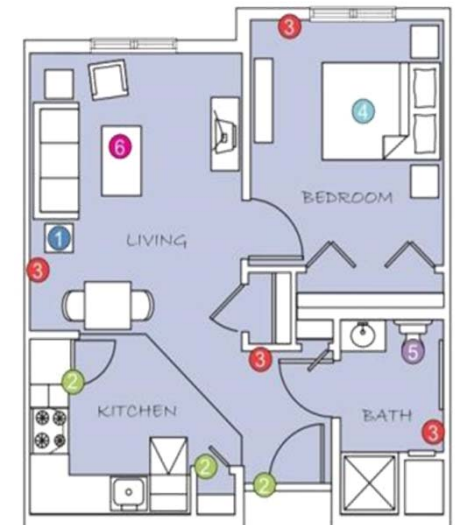
Sensors



Remote Health Monitoring



Video Virtual Care





The Precision Phenotype

Mobile

Point-in-Time Status:

Emotional	Physical
Clinical	Social
Personal	Socioeconomic

