Digital Health: The Future of Healthcare

A BUSINESS & MARKETING PERSPECTIVE:

PUBLISHED RESOURCES

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Digital Health Integration: The Future of Medicine

- The Integration of Wearables, Telehealth, EMR, MD adoption, and Patient Engagement will Empower the Future of Medicine
  - The adoption of wearables by consumers generates a major opportunity for the analysis of data and integration into electronic medical records [EMR] and into physician workflows and patient communication – leading to optimized health outcomes – preserving good health and treating chronic diseases:
  - Cardiac example:
    - Heart rate metrics and activity monitoring, such as running, walking, elliptical and cycling, are tracked by Apple Watch, Fitbit, and other wearable devices. Apple Watch Series 3 has enhanced cardiac tracking capabilities, alerting user and care providers of excessive resting heart rate and atrial fibrillation occurrences
    - Apple, Google, IBM Watson provide algorithms for data analytics: can produce a Dashboard which displays the heart rate associated with the specific activity in 'real time'
    - The activity associated heart rate data are entered into the patient's medical record via the EMR and high, low and resting heart rates are displayed.
    - Cardiac data integrated with patient genetic. diet, sleep, medications, activity
    - Physicians are alerted to heart rate data which exceed or are below a specified range
    - Patients are advised on activities which optimize cardiac health
    - In an emergency, can obtain medical care, alert key contacts
- Treatment protocols will shift dramatically as precision medicine succeeds, and payer oversight will support the new paradigm.
- Medical care patient driven, preventative, real-time, efficacious, more cost-effective

Source: PharmaDecisions LLC recommendation

Guide to Published Resources

Attached are excerpts of recent studies and reports documenting the inroads of digital health, the resulting market growth opportunities, and the benefits to patient disease prevention and treatment.

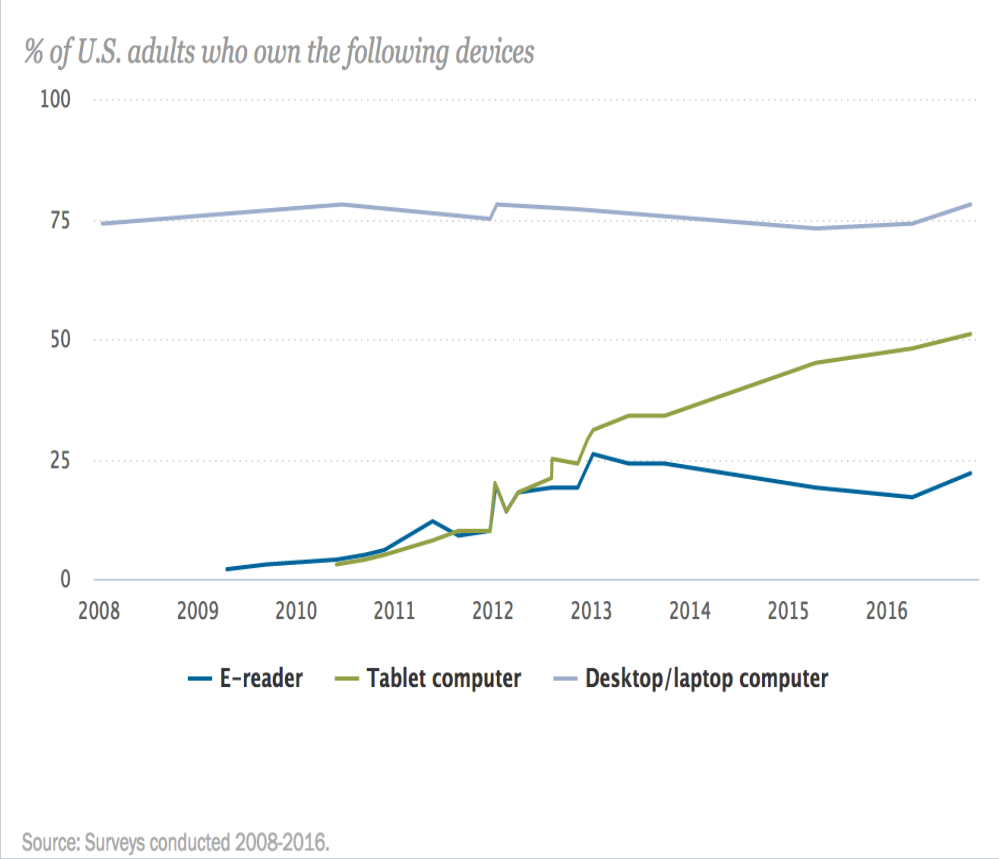
US Healthcare Industry $2.8 Trillion
"more wired, consumer-oriented and innovative than ever'

- According to PwC, experts agree that the "US healthcare industry is undergoing a profound transformation"
- Currently developing products and services such as wearable devices and mobile apps for sale direct to consumers who expect "one-click service"
- With adoption of technology, patients are beginning to embrace 'do-it-yourself' healthcare - taking ownership in monitoring their activities and diagnoses and treatment.

Source: PwC Healthcare Research Institute, December 2014

Broad Access to Online and Mobile Technology

- 95% of adults in the U.S. have cell phones
  - 77% of the population have 'smartphones'
  - Higher proportion of smartphones owned by younger adults and also Americans with income of $75k+
- 78% adults have computers/51% have tablets



Source: Data and graphic from Pew Research Center Jan 12, 2017

Mobile Health Rapid Expansion: $49.1B in 2020

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

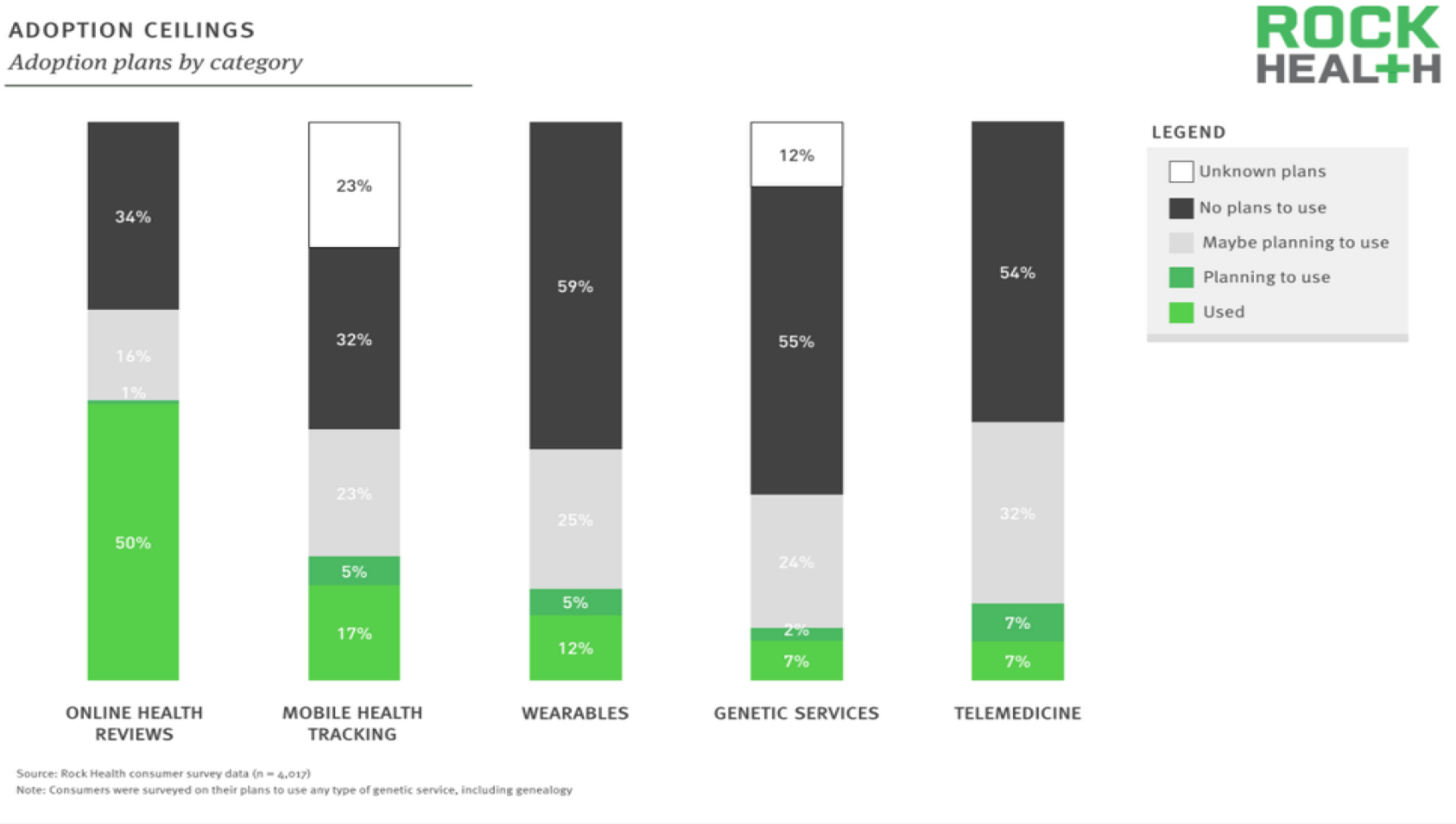
95M
Americans using mHealth technologies in 2013.
**19% of Smartphone Users have at least one Health app

>22,000
Number of Healthcare Smartphone Apps
**1,128 iOS apps related to diabetes alone

Source: McCann, E. "mHealth Market Scales to New Heights," *Healthcare IT News*, March 4, 2014, http://www.healthcareitnews.com/news/mhealth-market-growth-trajectory

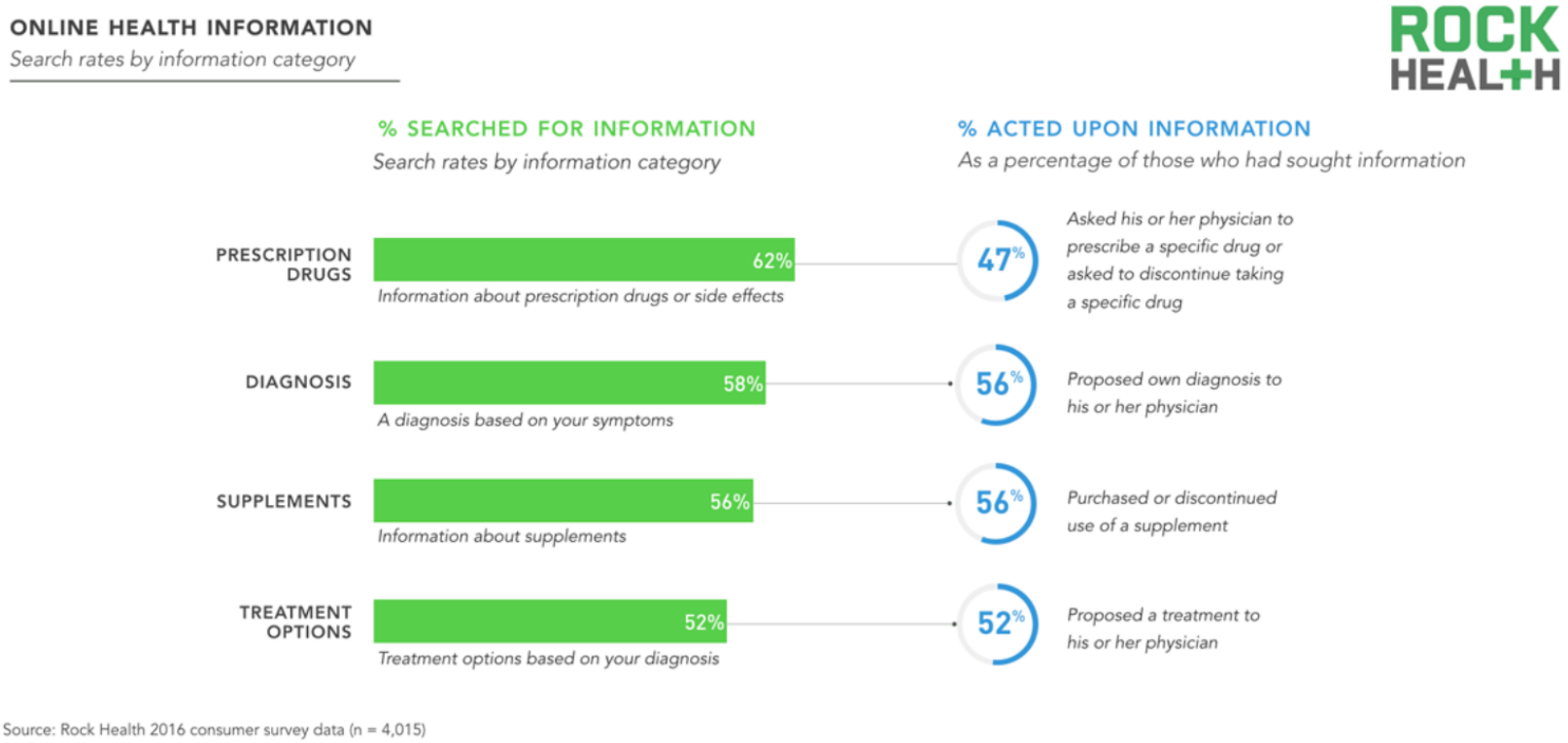
Source: Verizon, @ NIH Workshop February 2015

Digital health categories growing: especially health info resources & mobile tracking



Source: @Rock_Health Consumer Health consumer survey data 2016 [n=4,017]

Consumers Research for Information: Rx drugs and Diagnoses Lead



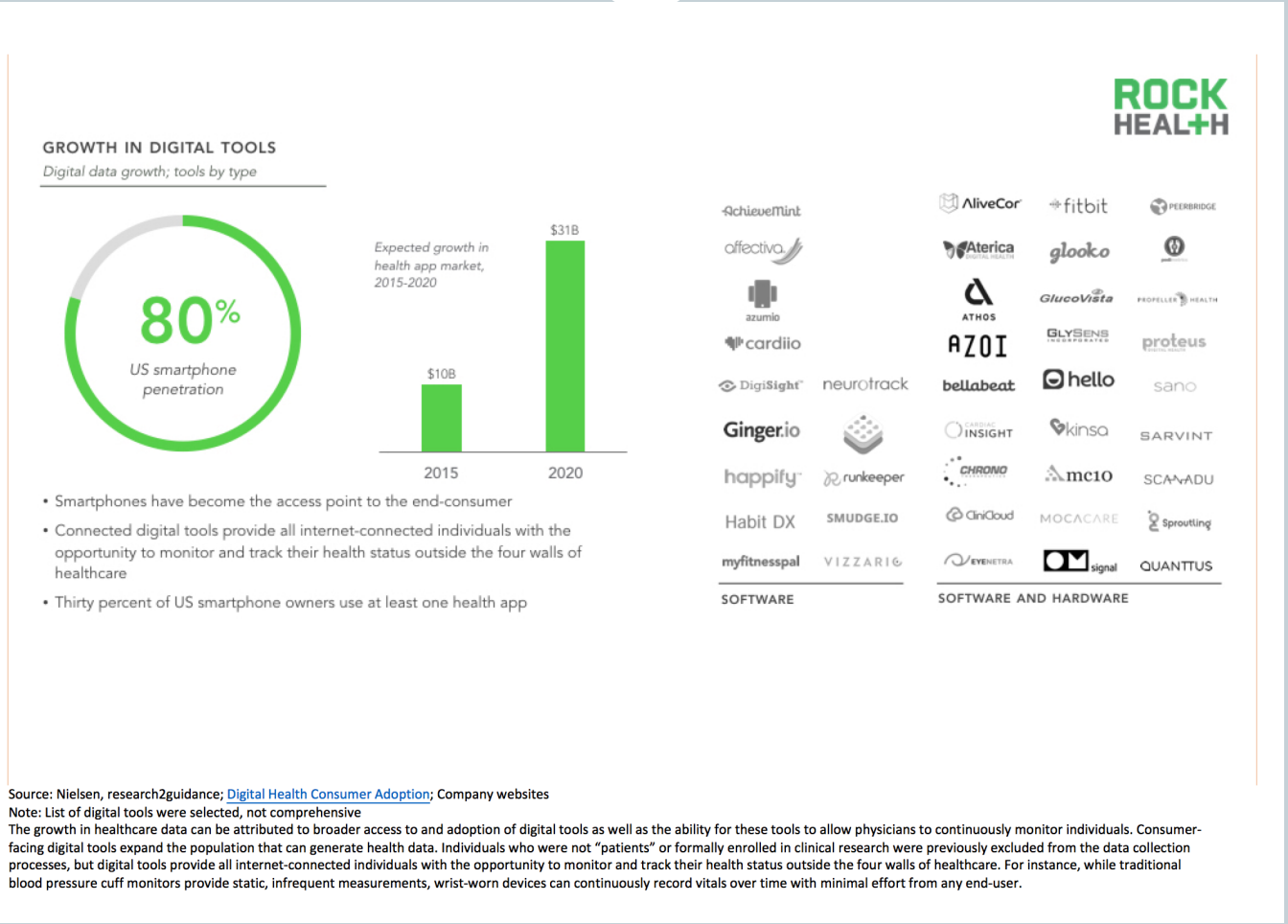
Source: Rock Health consumer survey data (n = 4,015)

Source: @Rock_Health January 2017

Current Adoption of Digital Health: Leading Services

Source: @Rock_Health Consumer Health consumer survey data [n=4,017 2016]

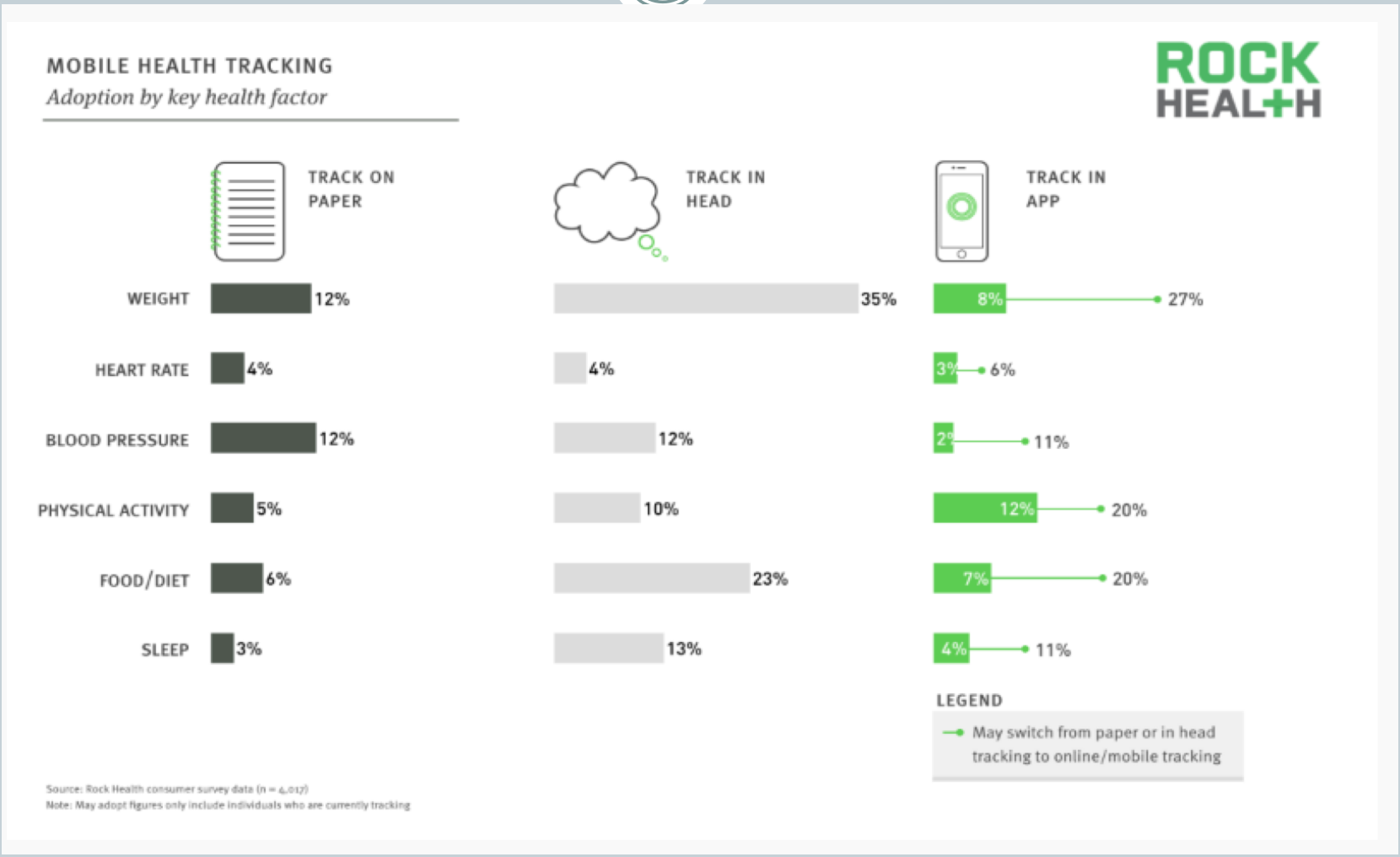
Health Applications will grow to $31B in 2020



Source: Nielsen, research2guidance; Digital Health Consumer Adoption; Company websites
Note: List of digital tools were selected, not comprehensive
The growth in healthcare data can be attributed to broader access to and adoption of digital tools as well as the ability for these tools to allow physicians to continuously monitor individuals. Consumer-facing digital tools expand the population that can generate health data. Individuals who were not "patients" or formally enrolled in clinical research were previously excluded from the data collection processes, but digital tools provide all internet-connected individuals with the opportunity to monitor and track their health status outside the four walls of healthcare. For instance, while traditional blood pressure cuff monitors provide static, infrequent measurements, wrist-worn devices can continuously record vitals over time with minimal effort from any end-user.

Source: RockHealth: Healthcare is undergoing a technological transformation: February 2016

Consumers will use Mobile Apps Mainly for Weight and Physical Activity Tracking



Source: @Rock_Health Consumer Health consumer survey data [n=4,017]

Millennials Lead in Digital Health Adoption

Source: Rock Health consumer survey data (n = 4,015)

Source: @Rock_Health January 2017

Digital Biomarkers: Key Potential Medical Resource

ROCK HEALTH

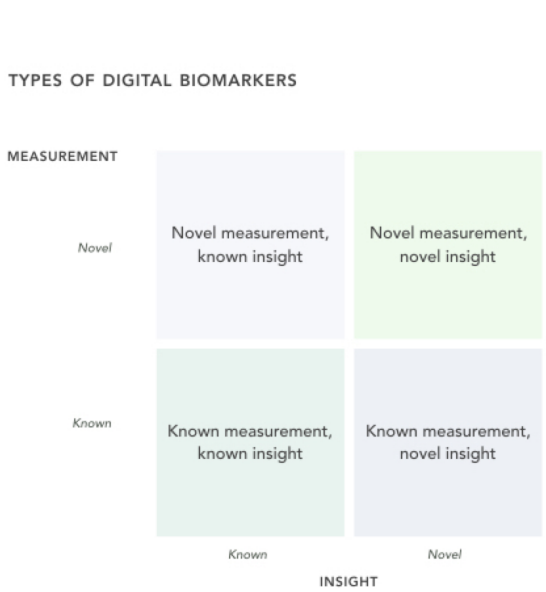
WHAT IS A DIGITAL BIOMARKER?

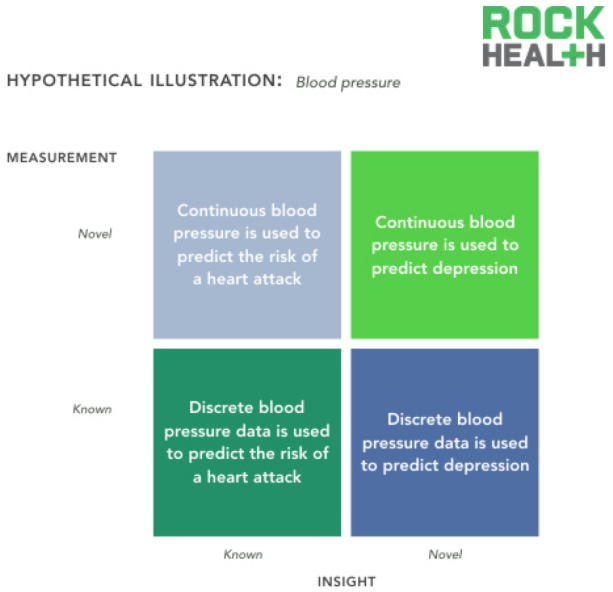
Digital biomarkers are consumer-generated physiological and behavioral measures collected through connected digital tools that can be used to explain, influence and/or predict health-related outcomes. This excludes patient-reported measures (e.g., survey data), genetic information, and data collected through traditional medical devices and equipment.

Note: Scope and definition of digital biomarkers is for the purposes of this report
According to the NIH, biomarkers are objectively measured and evaluated indicators of normal biological processes, pathogenic processes, or pharmacologic responses to a therapeutic intervention. But as the world has gone digital, medicine now has access to a new type of biomarker. Digital biomarkers are consumer-generated physiological and behavioral measures collected through connected digital tools that can be used to explain, influence and/or predict health-related outcomes. Health-related outcomes can vary from explaining disease to predicting drug response to influencing fitness behaviors. In our definition of digital biomarkers, we exclude patient-reported measures (e.g., survey data), genetic information, and data collected through traditional medical devices and equipment. These data types, though still a key component of research and clinical care that may be stored digitally, are not digitally measured or truly dependent on software.
Digital biomarkers are classified by novelty in measurement and insight.

Source: RockHealth: Healthcare is undergoing a technological transformation: February 2016

Types of Digital Markers and Utility

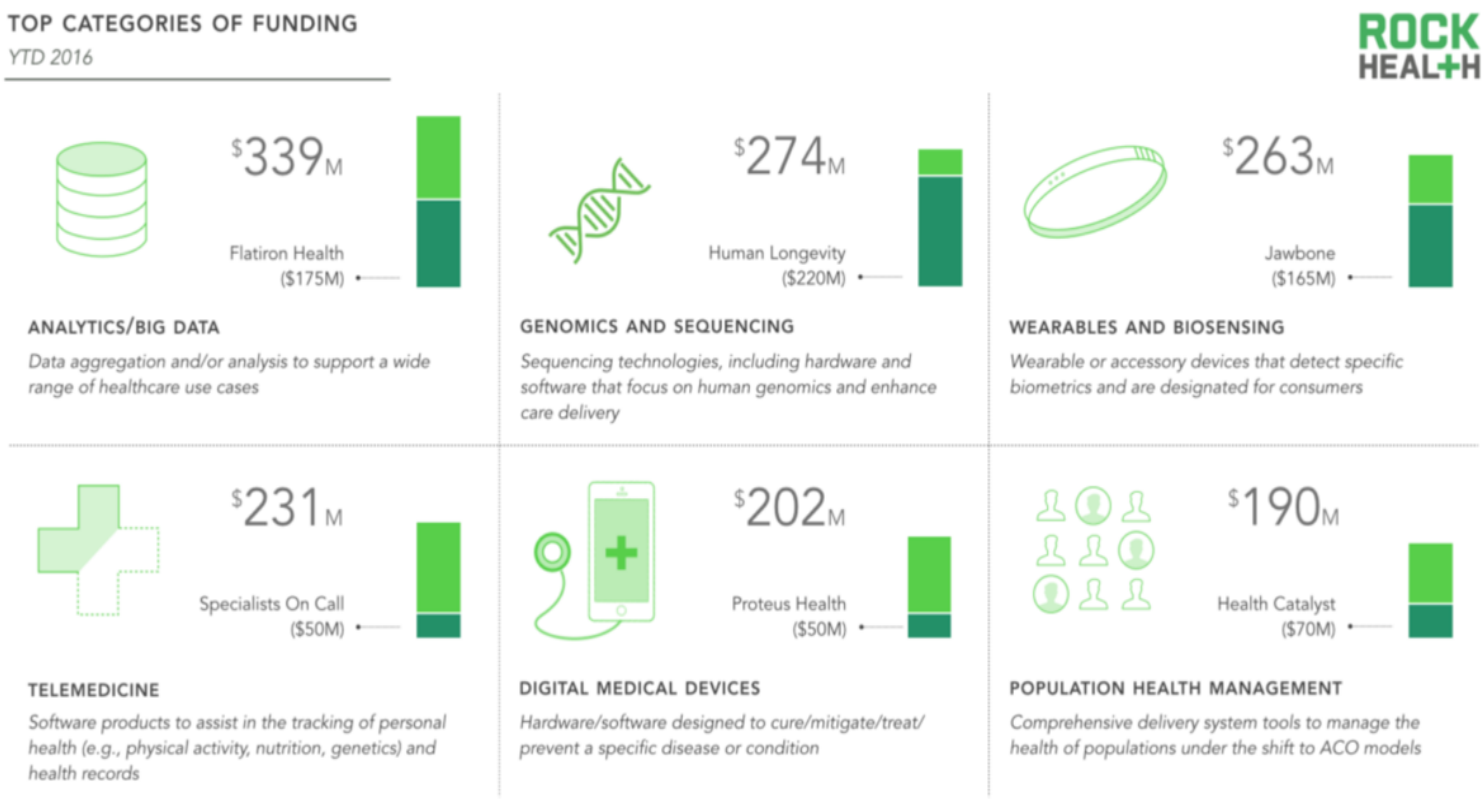




Note: Assumes all measurements are captured / acquired via connected digital tools
Digital biomarkers are a priori collected by digital means, therefore we believe the most effective classification of these measures focuses on what is being measured and the clinical insight derived from that metric. Measurements can be known, such as discrete measurement of blood pressure, or novel, such as continuous measurement of blood pressure. A known insight is one that has previously been validated and is well understood. For example, blood pressure (a known measurement) can be used as an indicator of a known insight such as cardiovascular risk. Alternatively, the known measurement can be used to discover a novel insight linking blood pressure to major depression. These digital biomarker categories will likely inform the level of evidence required for validation and regulatory approval.
Consumer-facing digital tools, both mobile health apps and sensors, that can generate health data are on the rise.

Source: RockHealth: Healthcare is undergoing a technological transformation: February 2016

Funding for Digital Health Startups: Data Analytics, Genomics and Wearables



Source: 2016 YTD Digital Health Funding: 10 Things You Should Know: @Rock-Health September 2016

Wearable Device Market to Grow - $70B by 2025 Shifting decision making to consumers

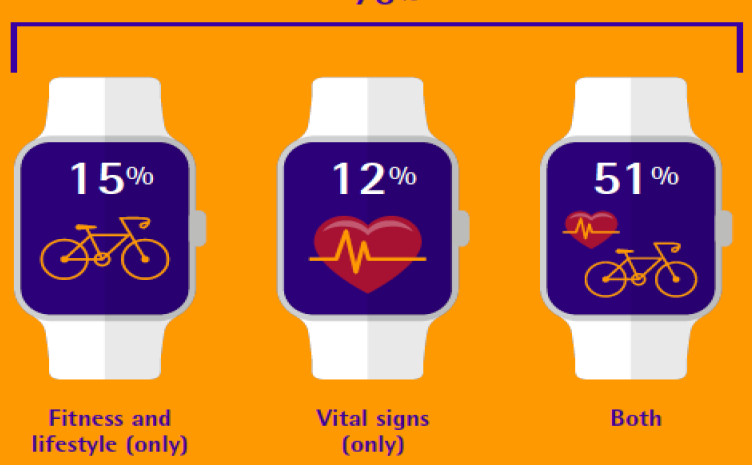
- The wearable devices market is slated to grow from $20 billion in 2015 to $70 billion by 2025.
- The notion of the 'quantified self' enables users to better record and analyze their daily activity and adapt a healthier lifestyle.
- An estimated 385 million will have wearables – with the current 21 million units in 2014 growing to 150 million units in 2019, a 48% CAGR.[Business Insider]
- 21% of consumers currently have a wearable product with 10% using the device every day [PwC in Medical Device Daily].
- Currently two segments, consumers and healthcare which are crossing over as treatment focus becomes prevention focused
  - global medical wearable electronics market was worth more than $2.8 billion in revenue in 2014and is expected to cross $8.3 billion in 2019, growing at a healthy CAGR of 17.7% from 2014 to 2019 [Modor Intelligence, 2015].
  - Major players are Apple, Accenture, Adidas, Fujitsu, Nike, Philips, Reebok, SAP and Roche
  - Patients will be empowered with their wearable data to have baseline information to provide to their PCPs, thus optimizing their physician visits with actionable data

Source: Medical Device Daily July 16, 2015 and Business Insider, July 13, 2015.

Consumers Embrace Technology for Health Tracking

FIGURE 11.

Most US consumers wear, or would be willing to wear, technology for health-tracking



Willingness to wear health technology can also offer data to be used in virtual visits—visits that are increasing in popularity due to convenience and cost advantages

Healthcare consumers and US doctors agree that virtual visits offer lower costs (58% of consumers vs. 62% of doctors) and convenience (52% consumers vs. 80% doctors) for patients, but patients perceive quality of care as a main advantage of in-person visits. Twenty-nine percent of healthcare consumers now say they prefer remote to in-person visits, a small increase from 23% in 2014.

Source: Accenture 2016

FIGURE 12.

When recommended by a doctor, 3 in 4 consumers followed advice to wear technology to track health

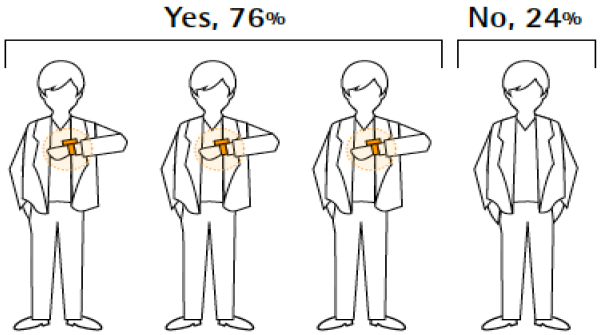
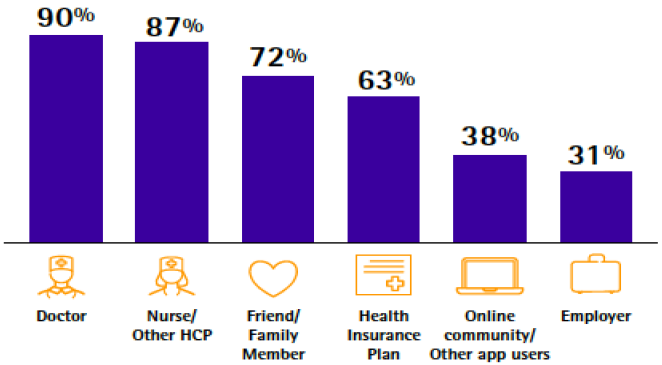


FIGURE 13.

Most consumers are willing to share wearable or app data with a doctor or nurse

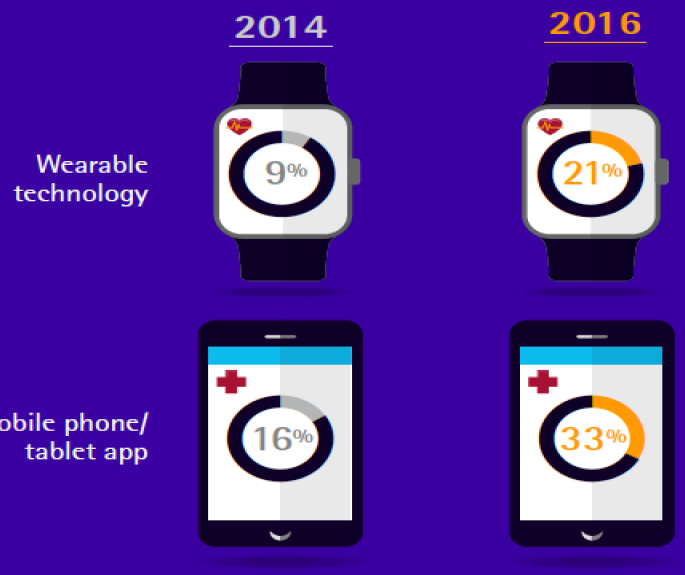


Accenture 2016 Consumer Survey on Patient Engagement, Figure 11, 12 April 2016

Doubling of Health Apps and Wearables 2016

FIGURE 8.

Use of health apps and wearables has doubled in the past two years among health technology users



Individuals aged 18-34 are the most prevalent users of both apps (48%) and wearables (26%). The most popular among all app users are Fitness (59%) and Diet/Nutrition (52%) apps (see Figure 9).

Both US consumers (77%) and doctors (85%) agree that using wearables helps a patient engage in their health (see Figure 10).

Source: Accenture 2016

FIGURE 9.

The most popular health apps are Fitness and Diet/Nutrition

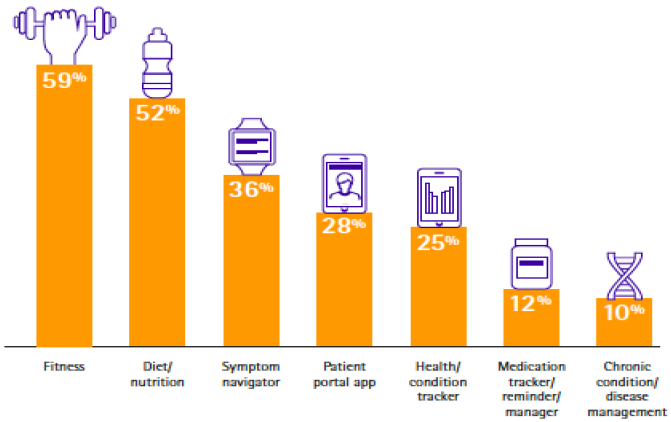
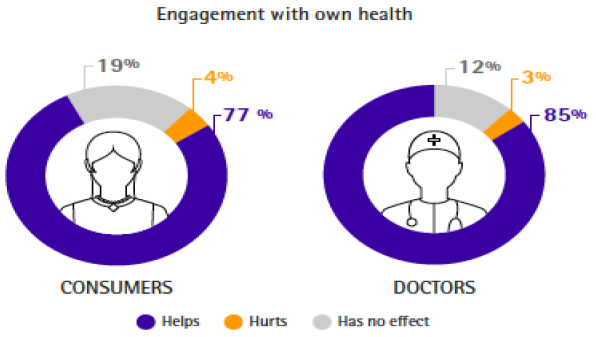


FIGURE 10.

Consumers and doctors agree that using wearables helps patient engagement



Accenture 2016 Consumer Survey on Patient Engagement, Figure 8, 9 April 2016

Patients of all Ages Accessing their EHRs

Consumers of all ages are accessing their EHR, and they know more about the data that is available to them than two years ago

More US consumers with EHRs are accessing their records, 45% in 2016 vs. 27% in 2014 (see Figure 1). Health technology users age 65–74 are most likely to have turned to their EHRs to manage their health (38% did so in 2016 vs. 22% of those 18–34) (see Figure 2).

FIGURE 1.
More US consumers with electronic health records are accessing their records

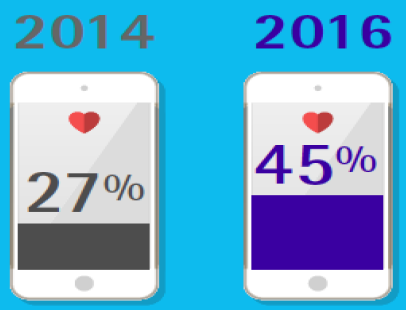
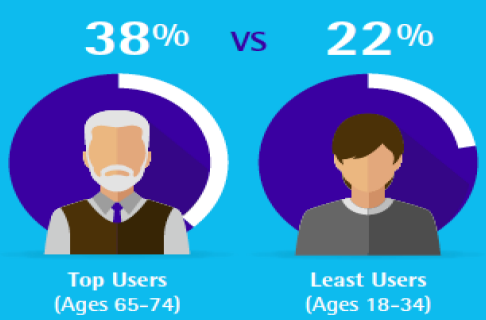


FIGURE 2.
Health technology users age 65–74 are most likely to have turned to their EHRs to manage health



Compared to two years ago, healthcare consumers know more about what data they can access in their EHR. In 2016, 65% with EHRs said they know what data they have access to in their EHR vs. 39% in 2014. However, 35% still don't know what information they can access (see Figure 3).

Interestingly, those patients who have accessed their EHR are doing so to stay informed (41%), but not for help with making medical decisions (6%). Among consumers who know what information they have access to, 41% say accessing lab work and blood test results is most helpful for managing health, while 24% say having physician notes is most helpful (see Figure 4).

Source: Accenture 2016

FIGURE 3.
Consumers know more about what data they can access in their EHR

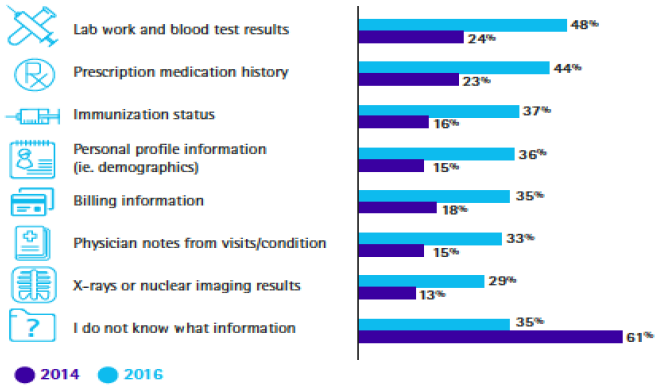
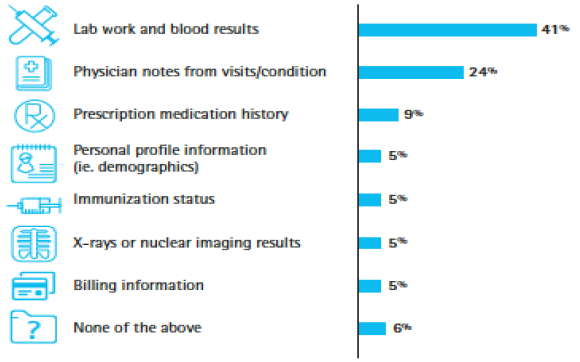


FIGURE 4.
Data that patients with EHRs find most helpful to health management

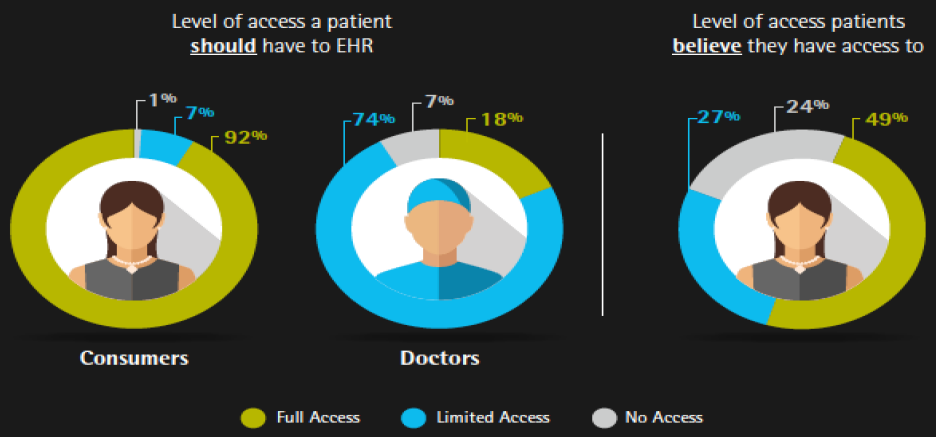


Accenture 2016 Consumer Survey on Patient Engagement, Figures 1,2 April 2016

Consumers want full access to EHRs – Not MDs

FIGURE 5.

Most consumers think they should have full access to their EHR



Most (77%) patients who favor patient access want to see exactly what the doctor sees—not a summary. They also want the ability to update their records, such as with their demographic information (86%), family medical history (89%) and new symptoms (87%). Healthcare consumers and doctors are in agreement that patients should be able to update most information in his/her EHR (see Figure 6).

Consumers have strong views on who should access their EHR data. They view their EHR as a tool for their primary doctor (75%) or themselves (67%), not to be accessed by others, unless they provide permission (52%). Very few (3%) consumers believe their employer, government (3%) or a retail clinic (9%) should be able to access their health record (see Figure 7).

Source: Accenture 2016

FIGURE 6.

Consumers and doctors agree that patients should be able to update their EHR information

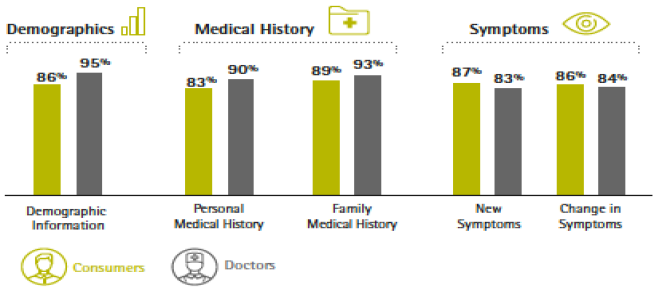
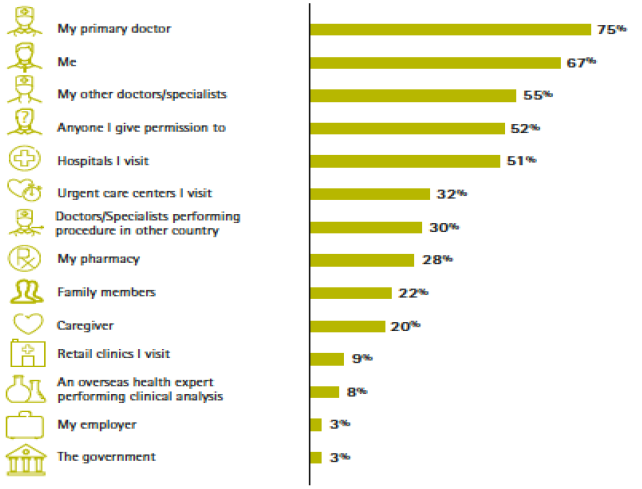


FIGURE 7.

Consumers view EHR primarily as a tool for their doctors and themselves



Accenture 2016 Consumer Survey on Patient Engagement, Figures 5,6 April 2016

Digital Health: Trends

- Verily [Alphabet/Google's health division] recently announced a 10,000 participant "Baseline" study combining health and activity data obtained from a newly developed "Study Watch" with electronic medical records and genomics. Creating a "map of human health" looking for early warning signs of disease to translate into prevention and treatment.

- Apple is transforming healthcare with its Research Kit initiative with Pharma companies and university R&D, Health Kit enabled apps, and medical grade accessories to its iPhone, iPad and Apple Watch.

- "Telehealth and wearable devices are hot ticket items for health IT developers and investors as remote monitoring and mHealth become increasingly important tools in the fight for better chronic disease management, reduced preventable readmissions, and lower healthcare costs."

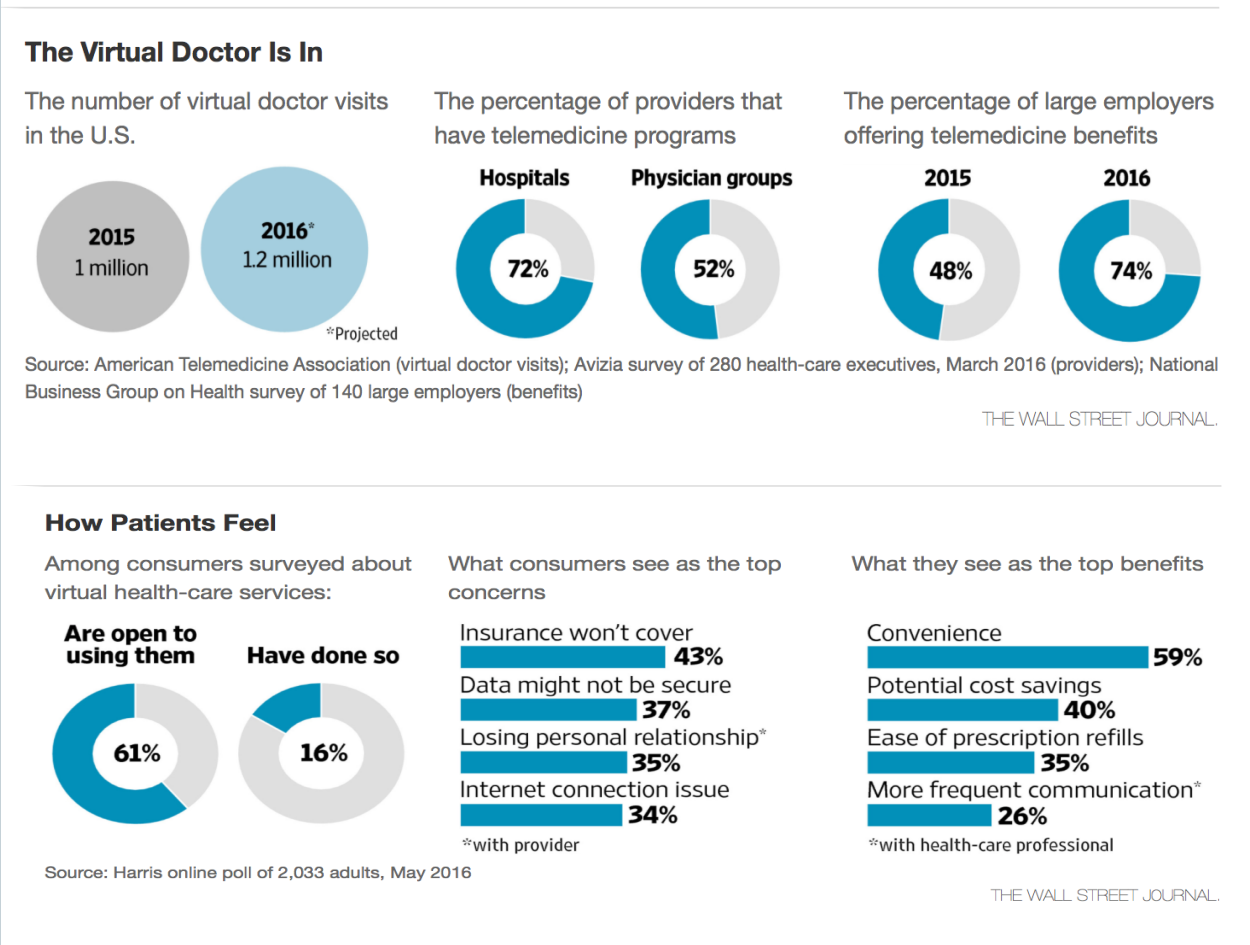
- "EHR vendors eager to take advantage of growing interest in care coordination technologies that may keep patients healthier at home for longer are leading the way.."

- "...telehealth market slated to grow from $17.8 billion in 2014 at an 18.4 percent compound annual growth rate until the end of the decade"

Source: Research & Markets, in mHealth Intelligence May 20, 2015 ; Apple Website May 16, 2017, Verily in CNBC April 19, 2017

Telemedicine is Transforming Healthcare

- 15M in the US received healthcare remotely in 2015 and a 30% growth is expected in 2016
- Still underutilized: only 15% of Family MDs used in practice but 90% would use if reimbursed



Source: WSJ, June 27, 2016 How Telemedicine is Transforming Health Care

TECH GIANTS HEALTH INITIATIVES : GOOGLE, IBM, APPLE, SALESFORCE, AMAZON

Digital health initiatives by the largest consumer tech companies a game-changer.

- Google/Alphabet spawn many health companies
  - Disease device Dx & Tx [ie diabetes] , age research, genetic Dx & Tx, mental health, "Google map of the genome"
- IBM's Watson massive data algorithms for prevention and treatment
  - Will supply underlying technology and analytics for health tech and MD office Dx and Tx
- Apple's Healthkit Research and CareKit initiatives and health tracking capabilities
  - iPhone and Apple Watch collaborations – Fetal monitoring shown @ Apple iPhone6s launch; CareKit launch in April/May targeting consumers
- Salesforce "Health Cloud" to enable complete view of each patient.
  - Diabetes tool with Philips shown @ Dreamforce 2015
- Amazon health collaboration with Royal Philips
  - Enables connections to Philips' HealthSuite digital platform which supports more than 7 million connected devices, sensors and mobile apps.

Sources: see respective company websites

Accenture's Top 5 eHealth Trends: Digital a Major Influence on Health Industry

1. The "Internet of Me" will personalize healthcare
   - 49% of patients wear/be willing to wear tracking tech
   - 73% of health executives see positive ROI from personalized tech
2. Outcomes improves-devices deliver health results
   - 76% patients say technology has potential to improve health
   - 85% of MDs say patient use of wearables help engagement/health
3. Data platforms will interconnect real-time
   - 41% health executives believe next-gen devices will come from health industry, rather than tech
   - Kaiser invested $4Billion on HealthConnect platform
4. Big data enabled by health analytics/cognitive tech
   - 52% of patients want access to EMR physician notes data
   - "Dr. Roboto" with IBMs $1Billion initiative for Watson
5. Medicine reimagined: digital doctors are the future

Source: Accenture June 2015 2015 Healthcare IT Vision

Trends in Patient Adoption of mHealth:IMS

- More than 1/3 of MDs recommend mHealth apps to their patients
- Most mobile health apps related to wellness, diet and exercise
- One-fourth of mHealth apps are disease-related and especially of value in chronic disease treatment and management
- One in 10 mHealth apps can connect to device or sensor
- 300 mHealth clinical trials underway, over half for seniors
- 65% mHealth apps connect to social media fostering engagement

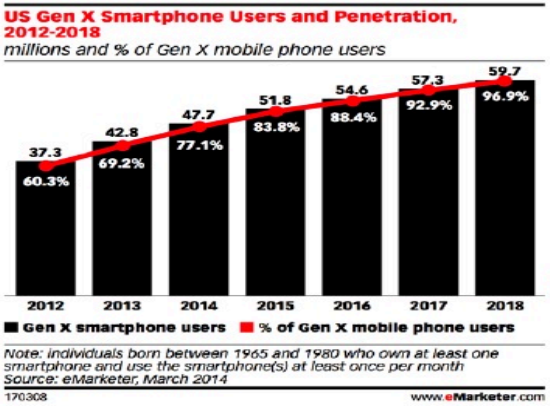
However, currently only 2% of mHealth patient apps are currently connected with their physicians' healthcare systems: to optimize outcomes, connectivity needs to increase in the future.

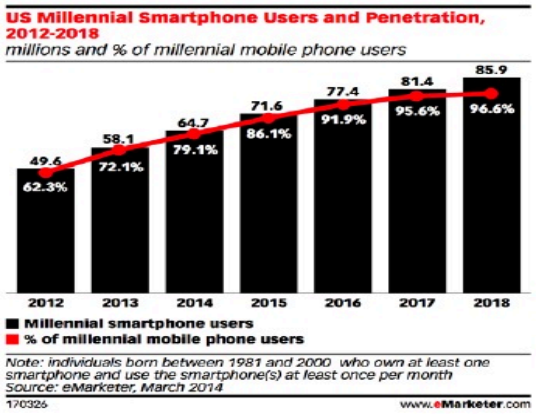
Source: IMS Institute for Healthcare Information: Patient Adoption of mHealth Sept 2015

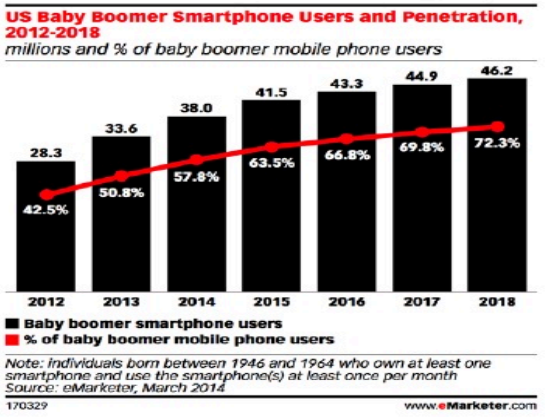
Smartphones Adopted by all Generations

verizon

Smartphone Penetration by Generation







87.4% → 87.7%

95.1% → 97.1%

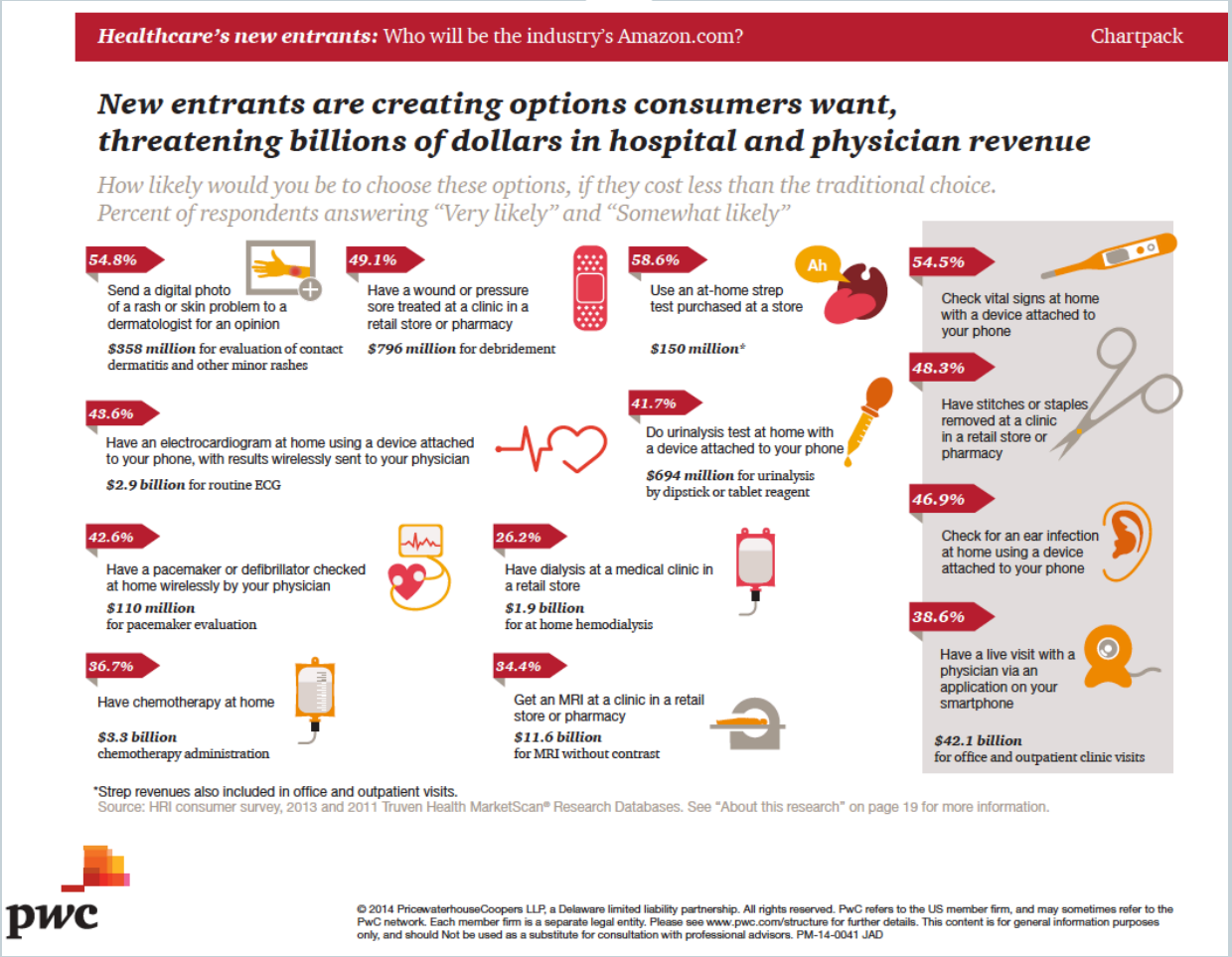
94.3% → 94.4%

Percent of US generation with any mobile phone 2015 → 2018

2

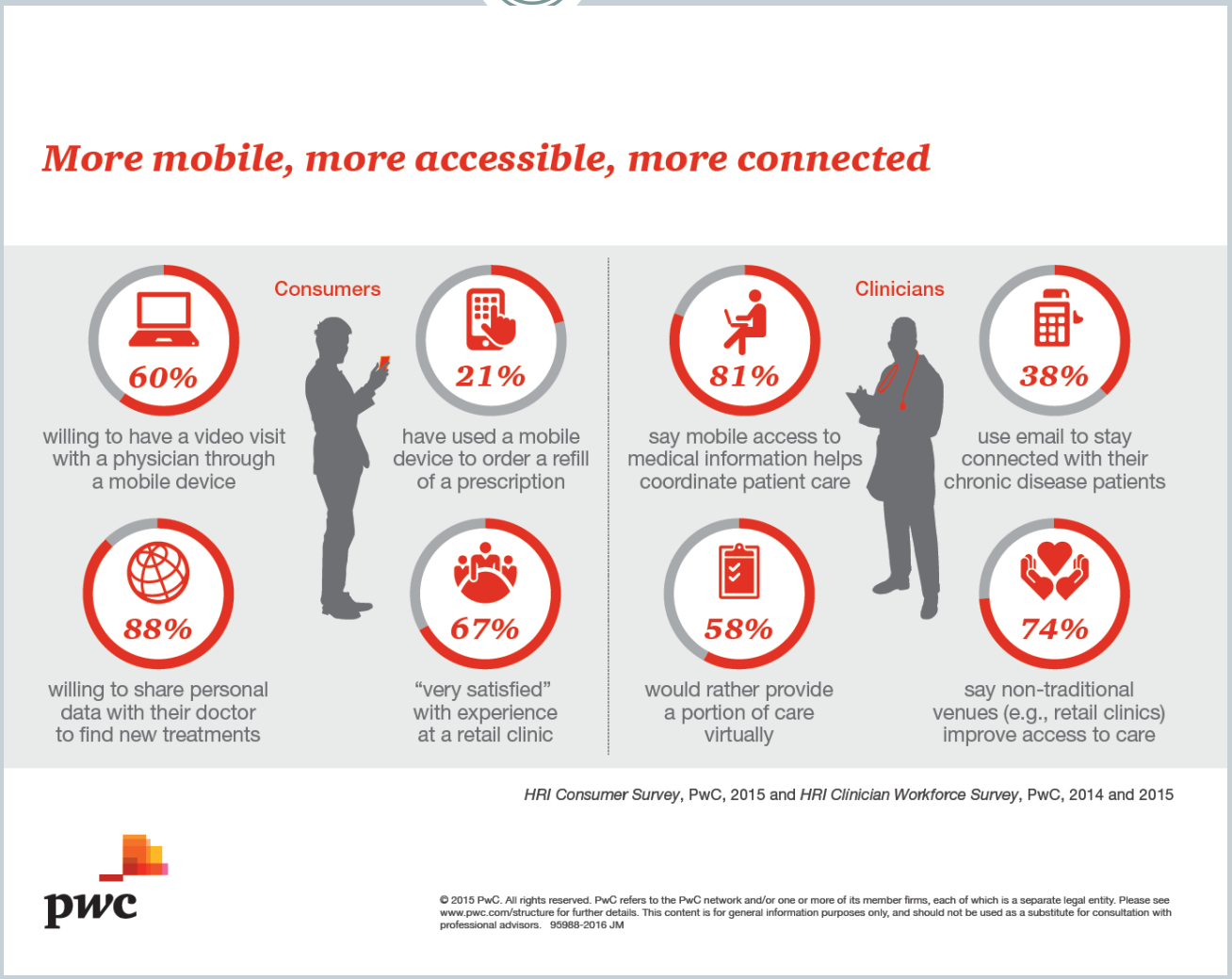
Source: Verizon, @ NIH Workshop February 2015

Digital is Disrupting Healthcare Segments



Source: Research & Markets, in mHealth Intelligence May 20, 2015

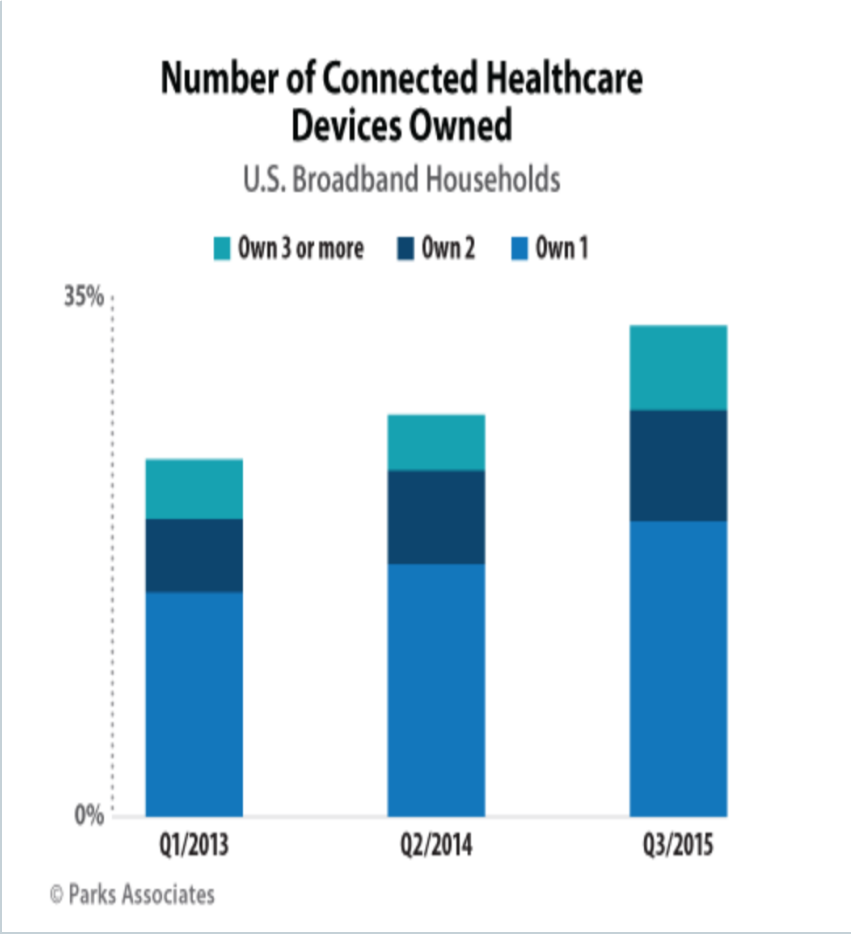
Consumers and Clinicians More Connected



Source: Top health industry issues of 2016 Thriving in the New Health Economy PwC 2016

Growth in Use of Connected Healthcare Devices

- Ownership of connected health devices- including fitness trackers, networked scales, connected treadmills, BP meters- grown to 33% of broadband households in 2015.
- The 24 to 34 aged demographic has the highest proportion of use, 42%
- Connected exercise equipment is the most popular of the connected health device, with 14% share of households



Source: Key developments in the connected health markets. A Parks Associates Whitepaper. March 2016

Health App in Monthly Use by 2/3 of Consumers

Tracking App and Portal Usage

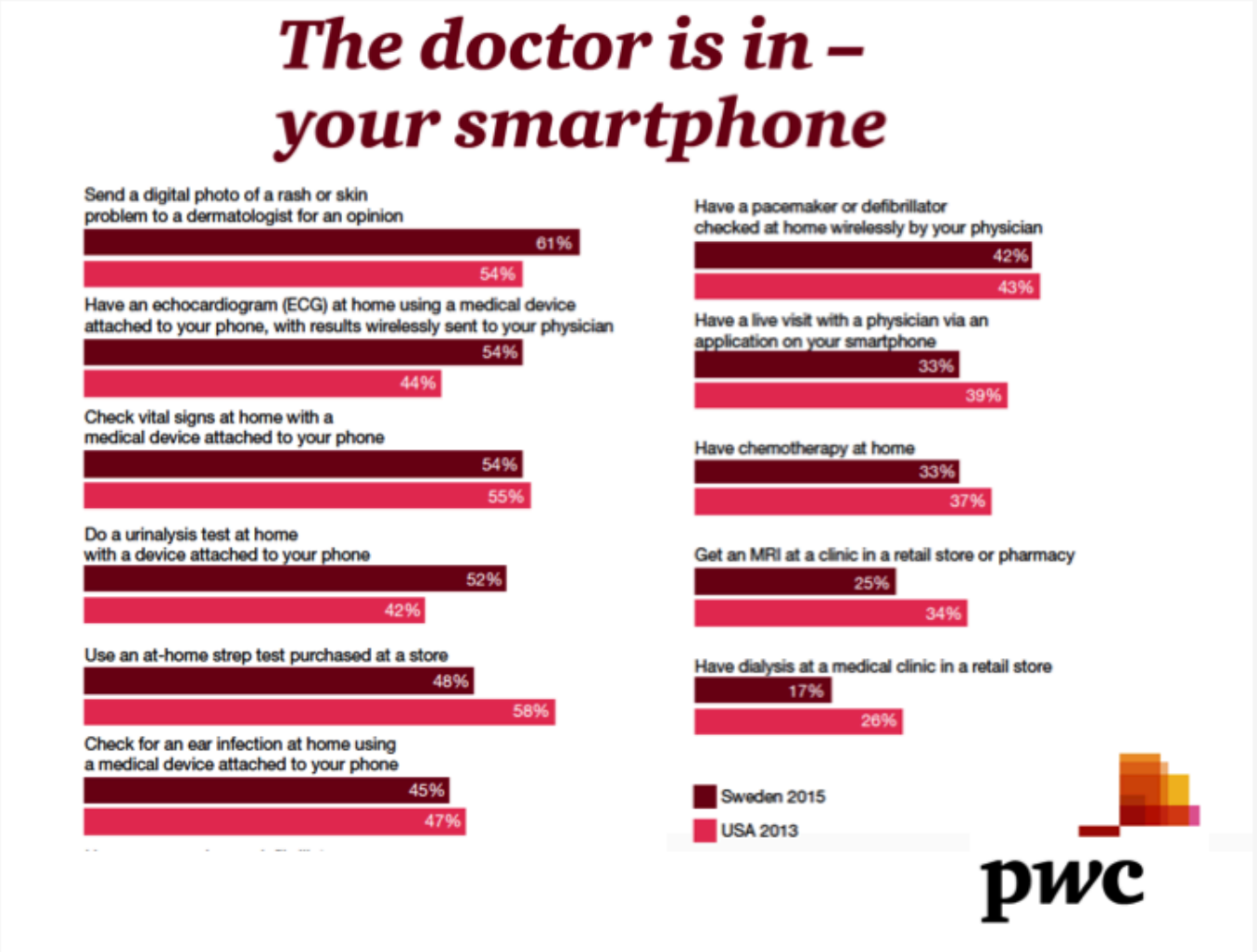
Two-thirds of consumers
engage in a **health app**
or **portal activity** *on a monthly basis.*

- **15% of smartphone users** have a fitness tracking app that they use at least weekly.
- **70% of fitness tracker owners** use their device's app at least weekly.
- **More than 50% of smartphone or tablet users** look up food, diet, and nutrition info via an app at least once a month.
- **Roughly one-half of consumers** engage in a health portal activity on a monthly basis.
- **40% of insured consumers** are not aware of any wellness benefits from their health insurers.
- While more than 60% of consumers have at least one chronic condition, **only 20%** are concerned about it.
- **One quarter of consumers** are interested in using a health portal to review doctors' notes.
- **Broadband households with children** are more likely to engage in health portal activities.

Source: Key developments in the connected health markets. A Parks Associates Whitepaper. March 2016

Smartphones change the Paradigm

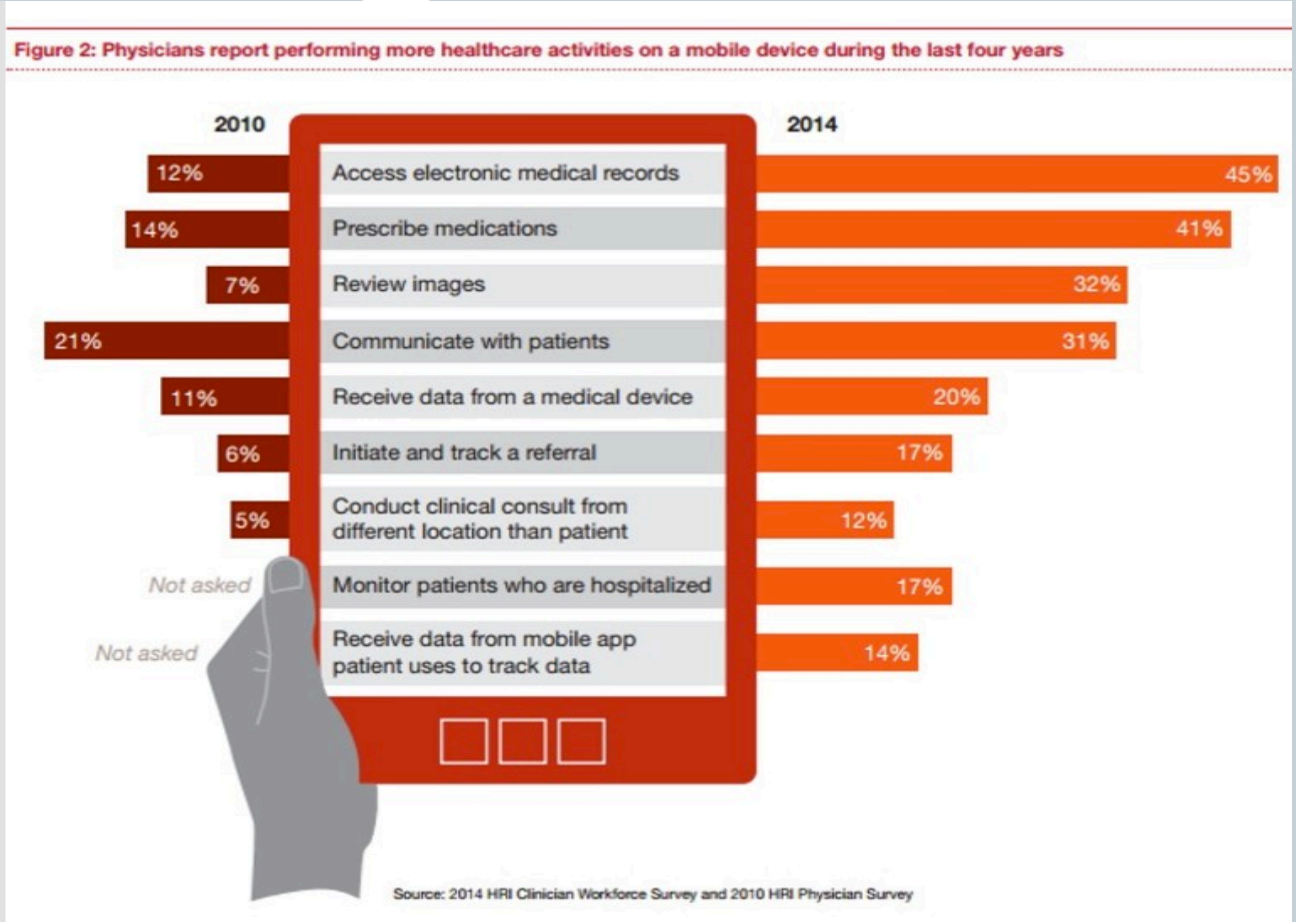
- A study by PwC in Sweden and in the US documents patient enthusiasm for use of smartphone technology for health



Source: PwC via Eric Topol July 29, 2015

mHealth is gaining in use by MDs

- PwC 's HRI documents increase in utilization of mobile devices by MDs for patient care, led by access to EHR and prescribing

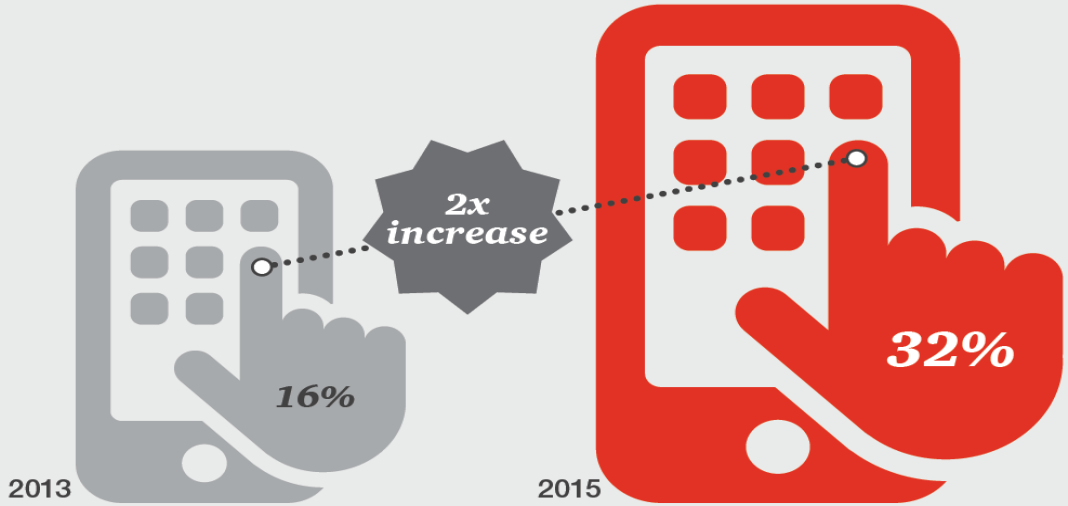


Source: PWC HRI via Mobile World Capital

Adoption of Health Apps Doubles

Mobile health app adoption doubles in two years

Percentage of consumers with at least one medical, health or fitness app on their mobile devices



Source: *HRI Consumer Survey*, PwC, 2013, 2015

pwc

Source: Top health industry issues of 2016 Thriving in the New Health Economy PwC 2016

Consumers willing to Share Medical Data

Happy to share, especially for personal benefit

Percentage of consumers willing to share their medical records with a health system in order to aid in their own diagnosis and treatment, or in the diagnosis and treatment of others

Willing to share data to aid in diagnosing and treating themselves

Willing to share data to aid in diagnosing and treating others

Source: *HRI Consumer Survey*, PwC, 2015

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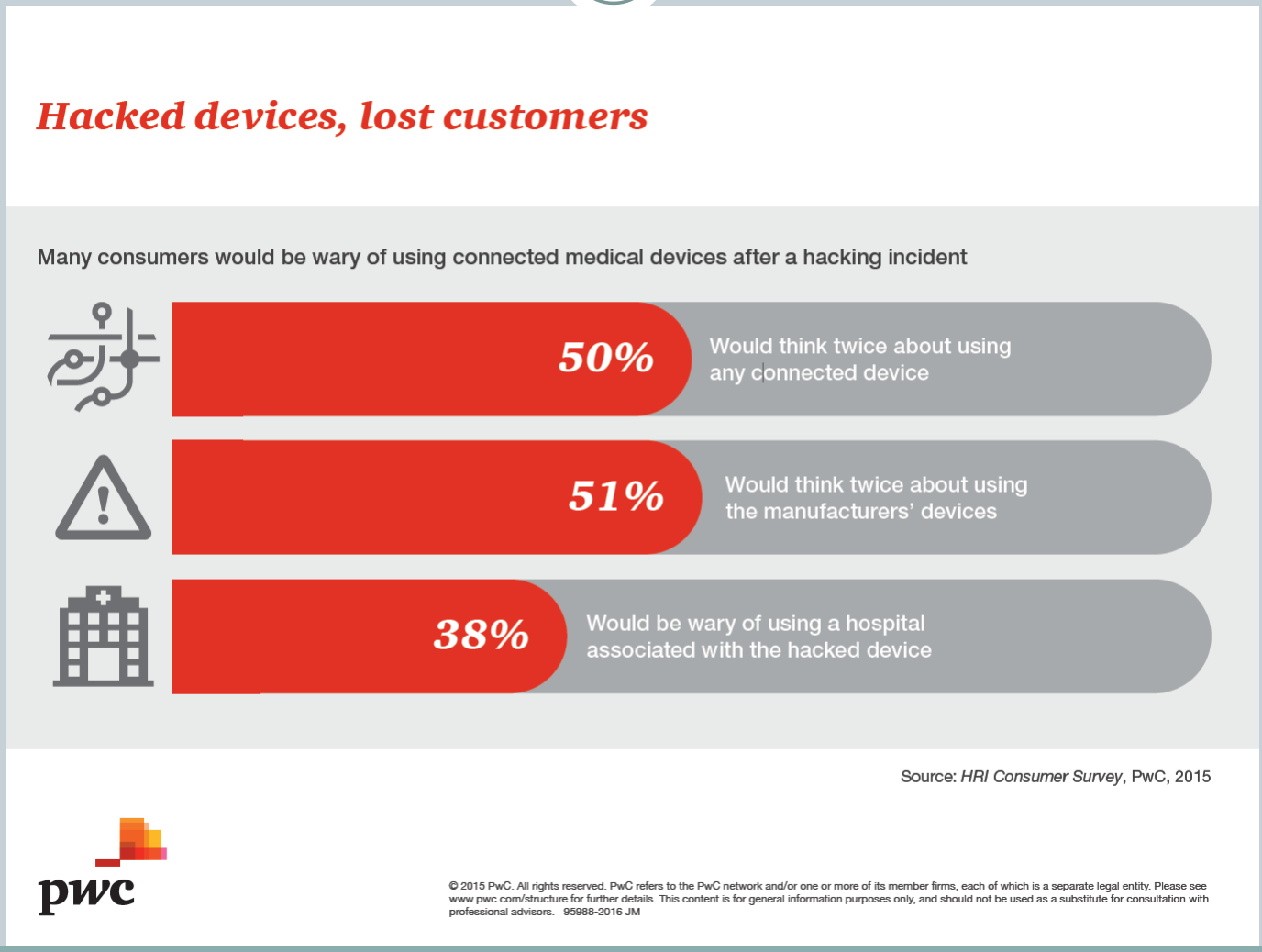
Source: Top health industry issues of 2016 Thriving in the New Health Economy PwC 2016

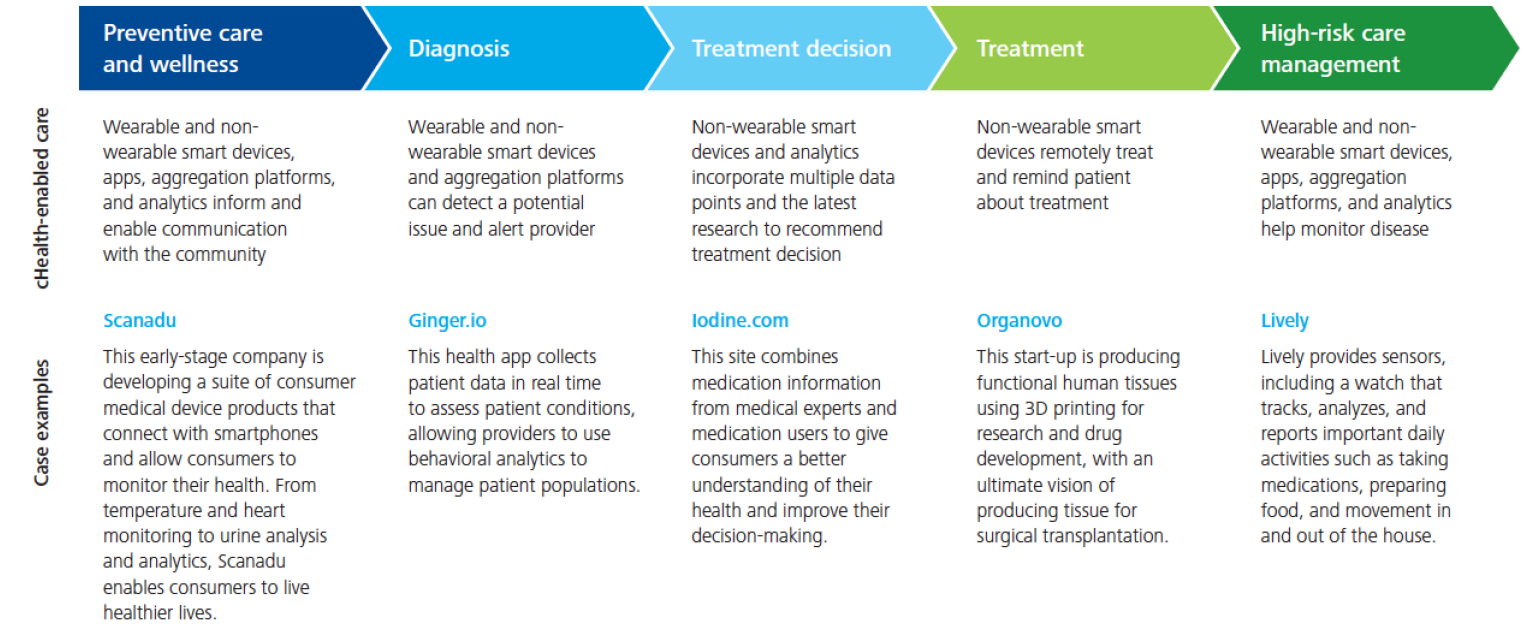
But *Security* Key Concern with Medical Devices



Source: Top health industry issues of 2016 Thriving in the New Health Economy PwC 2016

Broad Spectrum of Utility for cHealth

Figure 5: The patient journey experience will continue to evolve as cHealth solutions are adopted by more patients and providers

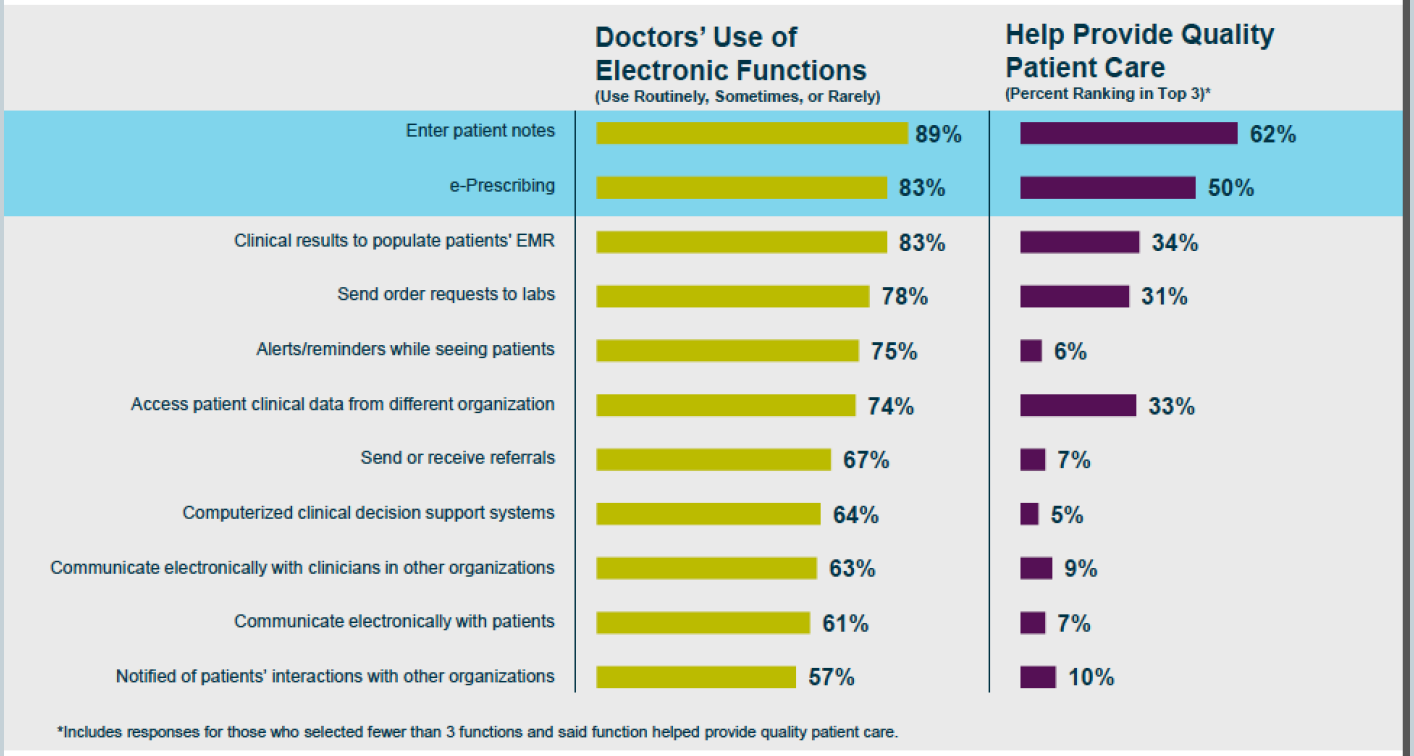


Source: Deloitte analysis

Source: Deloitte: Accelerating the adoption of connected health 2016

Clinicians More Proficient using EHR

US doctors use functions that help them provide quality care: electronic patient notes and e-prescribing.



*Includes responses for those who selected fewer than 3 functions and said function helped provide quality patient care.

Base: All Qualified Respondents Q705 How frequently do you use/perform the following functions/activities? [Note: unweighted data] (Percentages displayed are those who use each function *routinely, sometimes,* or *rarely).*
Base: Doctors Who Use Function Routinely, Sometimes, or Rarely Q710 Please indicate the top 3 electronic functions that help you provide quality care to your patients. [Note: weighted data]

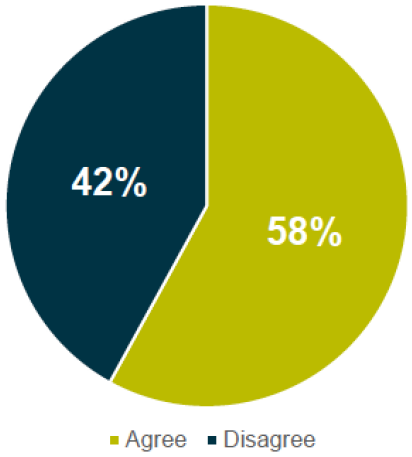
Source: Slide 8, Accenture Doctors Survey 2015

Improvements in EHR are recommended

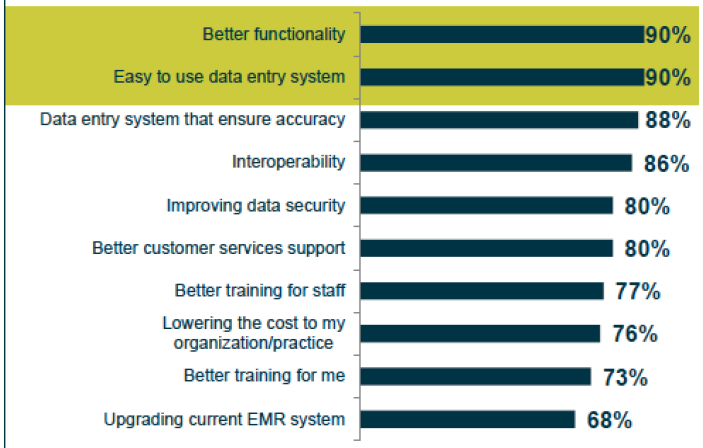
Many doctors find their organizations' electronic health records systems hard to use and see opportunities for improvement.

Nearly all US doctors (90%) say that **better functionality** and an **easy-to-use data entry system** are important for improving the quality of patient care through healthcare IT. Interoperability remains an unmet need.

"The electronic health records system in my organization is hard to use."



Importance for Improving Quality of Patient Care through Healthcare IT
(Percent Saying Important or Very Important)



Base: All Qualified Respondents (n=601)
Q810 How much do you agree or disagree with the following statements?
Q725 How important do you think each of the following is for improving the quality of patient care through healthcare IT?

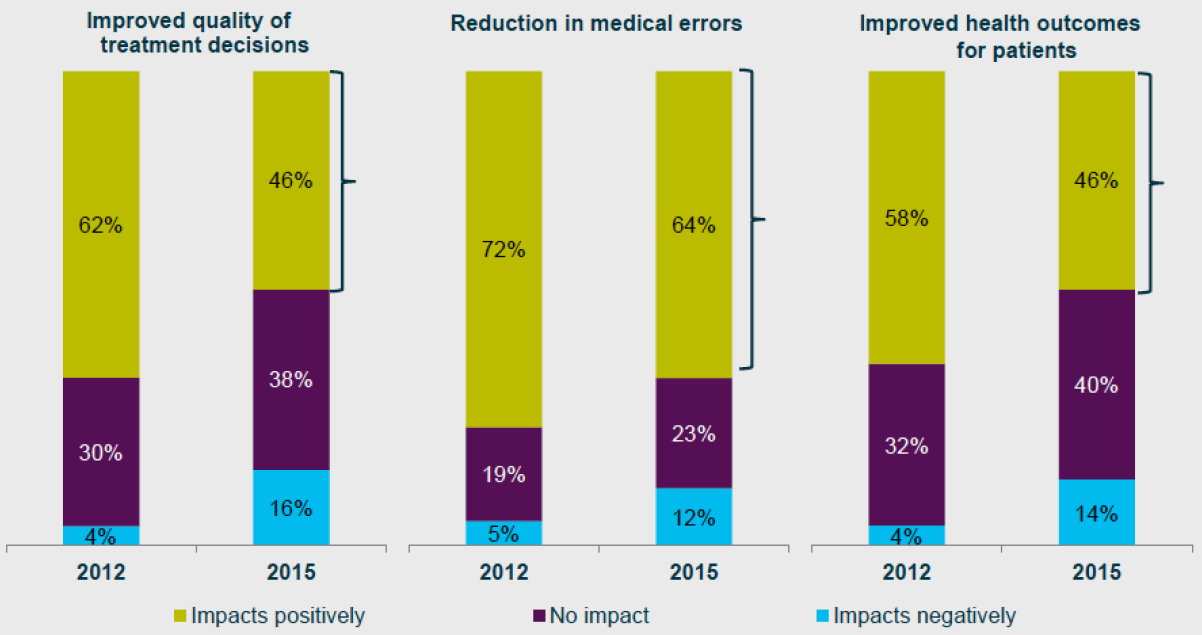
12

Source: Slide 12, Accenture Doctors Survey 2015

Healthcare IT perceived to Reduce Errors – Docs are less Impressed than in 2012

EMR has limits. Fewer US doctors see positive impact on treatment decisions, medical errors, and health outcomes than in the past; reducing medical errors still viewed as main benefit.

Impact of Electronic Medical Records and Health Information Exchange (HIE)



Note: Unweighted Data
Base: All Qualified Respondents (Reduced Base, Excludes Don't Knows)
Q805. To what extent is the use of electronic medical records and health information exchange (HIE) enabling the following benefits?

Source: Slide 14, Accenture Doctors Survey 2015

Optimized EHR'S Could Increase Value of Care

Zulman et al. from Stanford, note that the complexity of modern medicine has completed altered physician practice, and EHRs can be optimized to deliver better patient care.

- They envision in the future that EHRs will "prevent medication errors, decrease duplicative tests and contribute to the safety and value of care"
- Triage of EHR alerts with fewer workflow interruptions
- Recommend utilization of algorithms for preventive care and treatment decision support with systematic integration of patient social health determinants
- Visualization of patient's clinical course via graphics and communication with patients and families

> "Current records miss opportunities to harness available data and predictive analytics to individualize treatment. Meanwhile, sophisticated advances in technology are going untapped. Better medical record systems are needed that are dissociated from billing, intuitive and helpful, and allow physicians to be fully present with their patients."

Source: Zulman et al. Evolutionary Pressures on the Electronic Health Record JAMA August 15, 2016

Digital Health: FDA and Economics

- Regulatory:
  - "FDA .... downgraded — from Class III high-risk to Class I low-risk — mobile device data systems, which include app-tethered wellness devices."
  - FDA issues 'non-binding guidance' for mHealth apps and devices Feb 2015 with definitions for 'mobile medical apps' and manufacturer requirements
  - FDA establishes Digital Health Innovation Action Plan in June 2017, and pilots a Digital Health Software Precertification Pilot Program August 2017

- Cost Effectiveness:
  - "FDA-regulated digital health solutions—which include Internet of Things devices and software created for detection or treatment of a medical indication — are estimated to save the U.S. healthcare system more than $100 billion in the next four years."
  - "....regulated digital applications and devices will improve medical adherence, make health-related behavioral changes in patients as well as decrease emergency room visits therefore reducing spending in these three areas."

- Market:
  - "[Accenture] also predicts that FDA-approved digital health solutions will triple by the end of 2018 from 33 last year to 100."

Source:: Accenture, in Health IT Pulse June 15, 2015; "FDA, Role in Ensuring American Patients Have Access to Safe and Effective Medical Device Technology" FDA: Feb 2015 Classification of medical devices Mobile Medical Applications FDA Digital Health Software Pre-certification program August 2017; HealthAffairs.org blog August 2017

Digital Health: Factors Accelerating Growth

- "Increased use of healthcare IT—driven by meaningful use mandates– by physicians and patients. Accenture found in a recent survey that one in four U.S. physicians use telemonitoring devices for chronic disease management."

- "The growing demand by patients to manage their own care, as seen by the rising number of people who own and use wearable devices. Accenture estimates the number of consumers who own a wearable fitness device will double in the next five years."

- "The shift to value-based reimbursement is creating a prime environment for clinical and business strategies that incorporate digital health devices. Accenture estimates that by 2018, funding for value-based care will reach $6.5 billion."

Source: Accenture, in Health IT Pulse June 15, 2015

Digital Health:
Blurring the lines between clinical/consumer health

- "The proliferation of Internet-connected solutions and evolving regulatory guidelines are blurring the lines between clinical and consumer health solutions"
- "As consumer health platforms support more 'medical' devices, rather than just today's wellness trackers, they'll create a viable self-care model in a segment that today is occupied by chronic-disease monitoring companies."

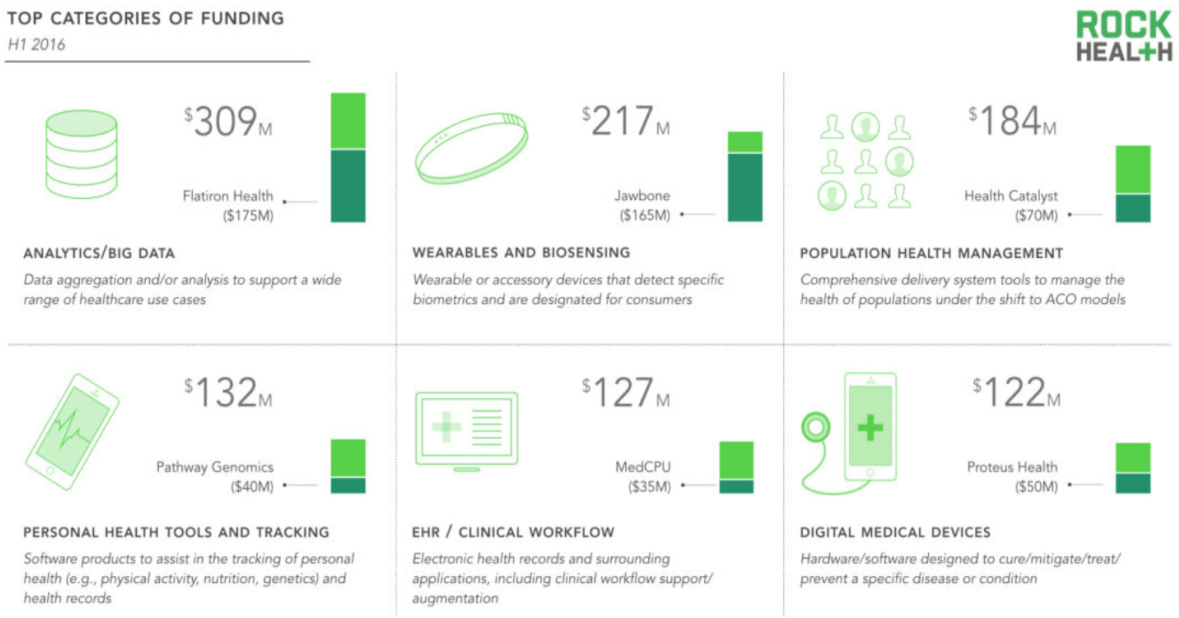
Rick Ratliff, managing director of digital health solutions at Accenture

Source: Accenture, in Health IT Pulse June 15, 2015

Digital Health Funding Record-Breaking

- The top category for digital health funding: analytics/big data with $309M funding in H1 2016.
- Wearables and biosensing devices accounted for $217M funding in H1 2016

These top six categories accounted for more than 50% of all digital health funding in 2016; only wearables and biosensing and personal health tools were ranked in 2015's top six.



Source: Rock Health Funding Database
Note: Only includes U.S. deals >$2M; data through June 30, 2016

Source: Rock Health Mid-Year Report July 18, 2016

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