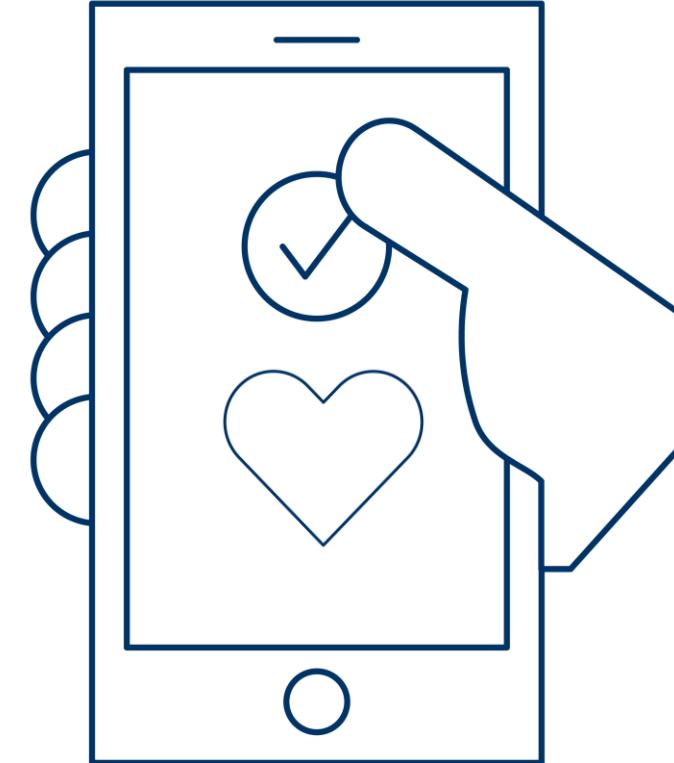


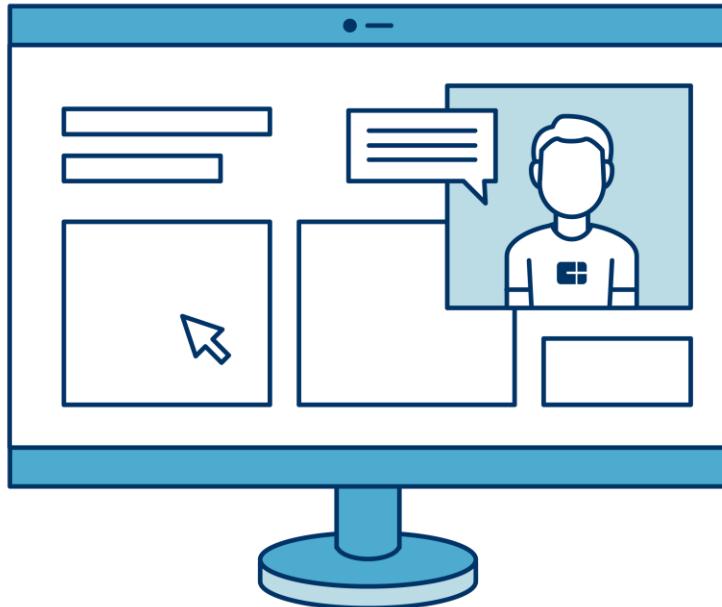
Healthcare Consumerization

How the front door to healthcare is changing



WITHIN 24 HOURS

Webinar recording will be distributed



The presentation will also be sent to you. Feel free to share with colleagues. The resolution of some slides may be suboptimal due to the webinar software. Those slides will look fine in the presentation that we send you.

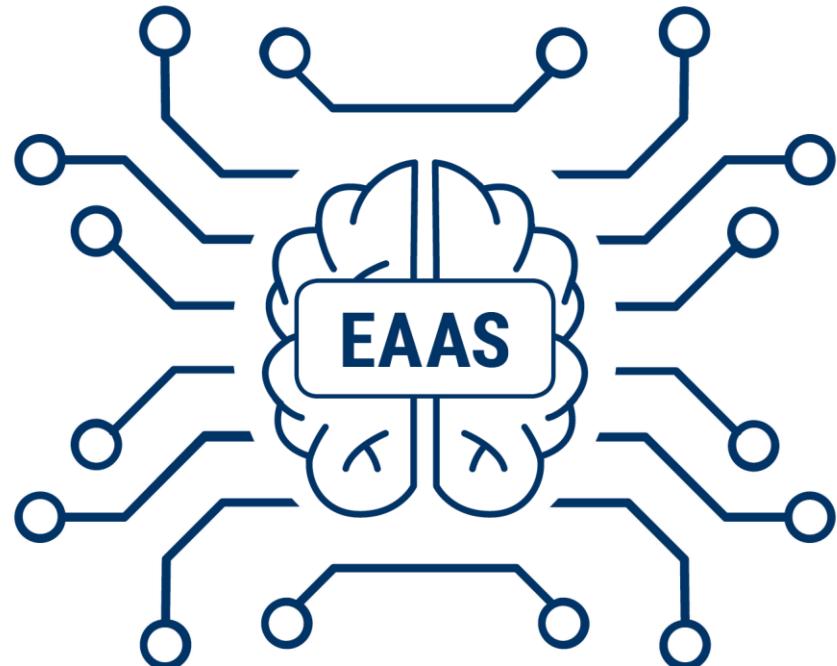
JOIN THE CONVERSATION ON TWITTER

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@nikillinit
#cbihealth

WHO ARE WE

The technology market intelligence platform.

CB Insights software lets you predict, discuss, and communicate emerging technology trends using data in ways that are beyond human cognition.



TRUSTED BY THE WORLD'S LEADING COMPANIES



F-PRIME

FIRSTMARK



NORWEST | VENTURE
PARTNERS



SEQUOIA

“We use CB Insights to find emerging trends and interesting companies that might signal a shift in technology or require us to reallocate resources.”



Beti Cung, Corporate Strategy, Microsoft



FUTURE OF FINTECH

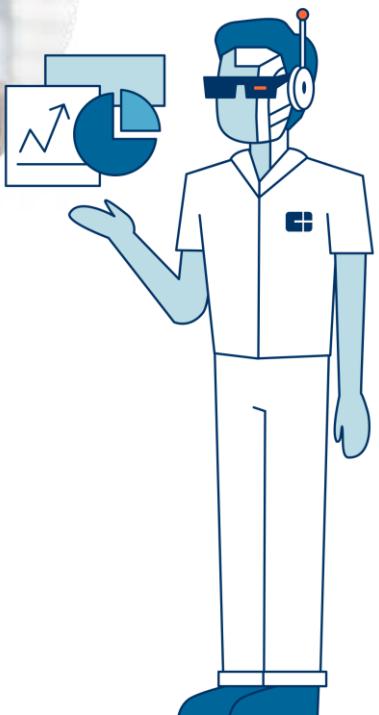


June 19 – 21, 2018 | NYC, NY

The Future of Fintech is an exclusive gathering of the world's largest financial institutions, best fintech startups, and most active venture investors.

ABOUT THE ANALYST

Nikhil Krishnan



Senior Analyst

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Nikhil Krishnan is a senior analyst at CB Insights, where he produces data-driven analysis and research reports on trends in digital health, ag tech, and construction. He sends the weekly Digital Health Insights newsletter to 30K+ members. His research has been featured in The Economist, New York Times, Wall Street Journal, and more.

Prior to joining CB Insights, Nikhil worked at Uber, the Small Business Administration, and Relationship Science.

Most popular analyses by Nikhil:

[Oscar Health Insurance Strategy Teardown](#)

[Apple In Healthcare](#)

Contents

6 Macro Trends

21 Changing Primary Care

- Home diagnostics
- Retail clinics
- Urgent care
- Telemedicine
- Prescription management

88 Looking Ahead - AI

What is “healthcare consumerization”?

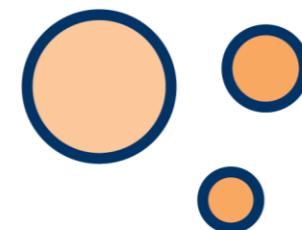
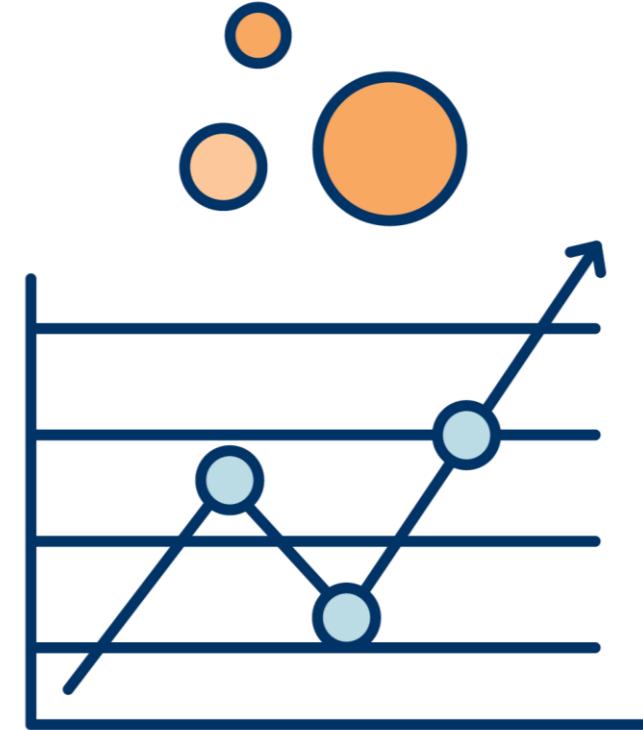


INCLUDES: How new solutions are changing the way healthcare goods and services are being delivered to the population and their business models. Anything that consumers use to interface with the health system

EXCLUDES: Biotech, drug development, tools for providers, or back office functions.

HEALTHCARE CONSUMERIZATION

Macro Trends



IN 2017, US HEALTHCARE EXPENDITURE PASSED

**\$3 trillion
~17% of US GDP**

Healthcare regulatory changes

Future unclear for CMS' mandatory value-based initiatives

March 25, 2017

Modern Healthcare

Congress passes OTC hearing aid legislation

June 1, 2016

dsn.

GOP redoubles efforts to end ObamaCare mandate

October 22, 2017

THE HILL

How MACRA Legislation Advances Value-Based Care Reimbursement

November 9, 2016

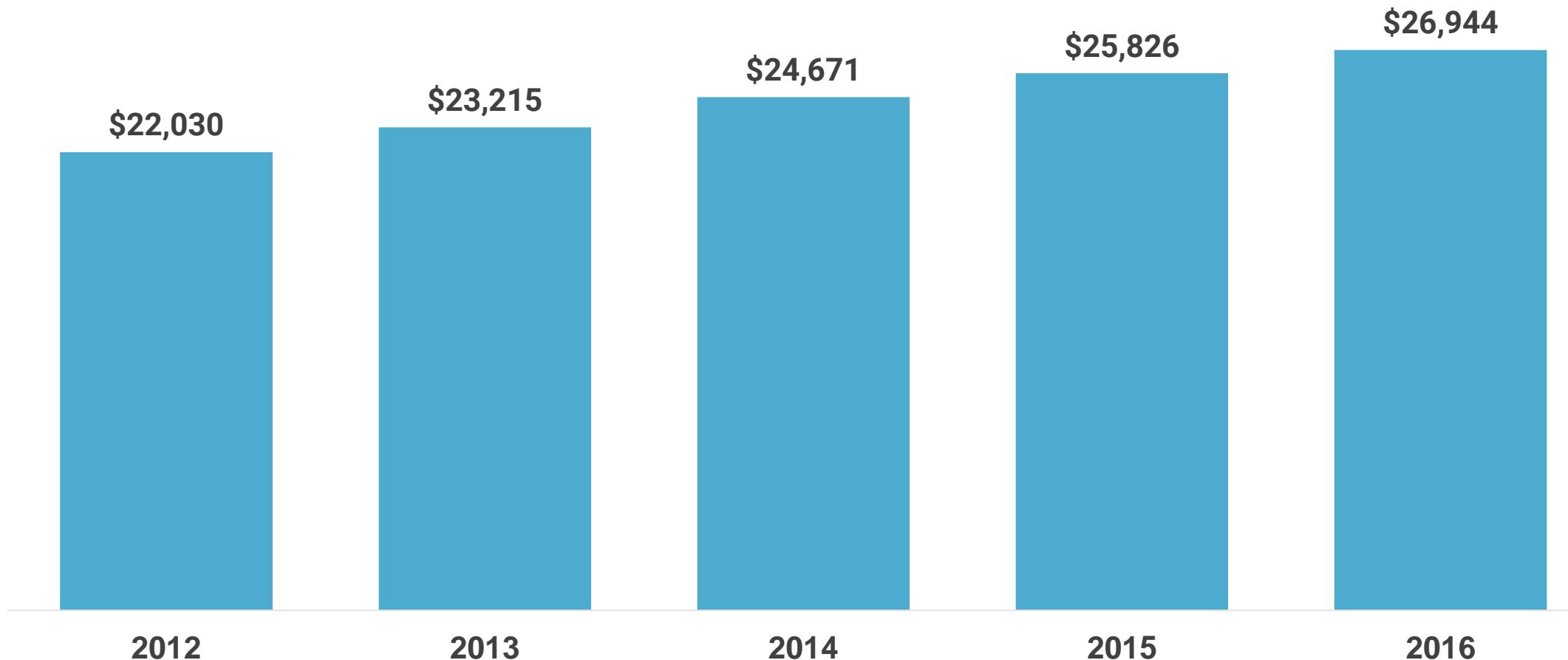
HealthPayer Intelligence

Medicare Will Cover Diabetes Prevention Program for At-Risk Seniors

March 23, 2016

omada

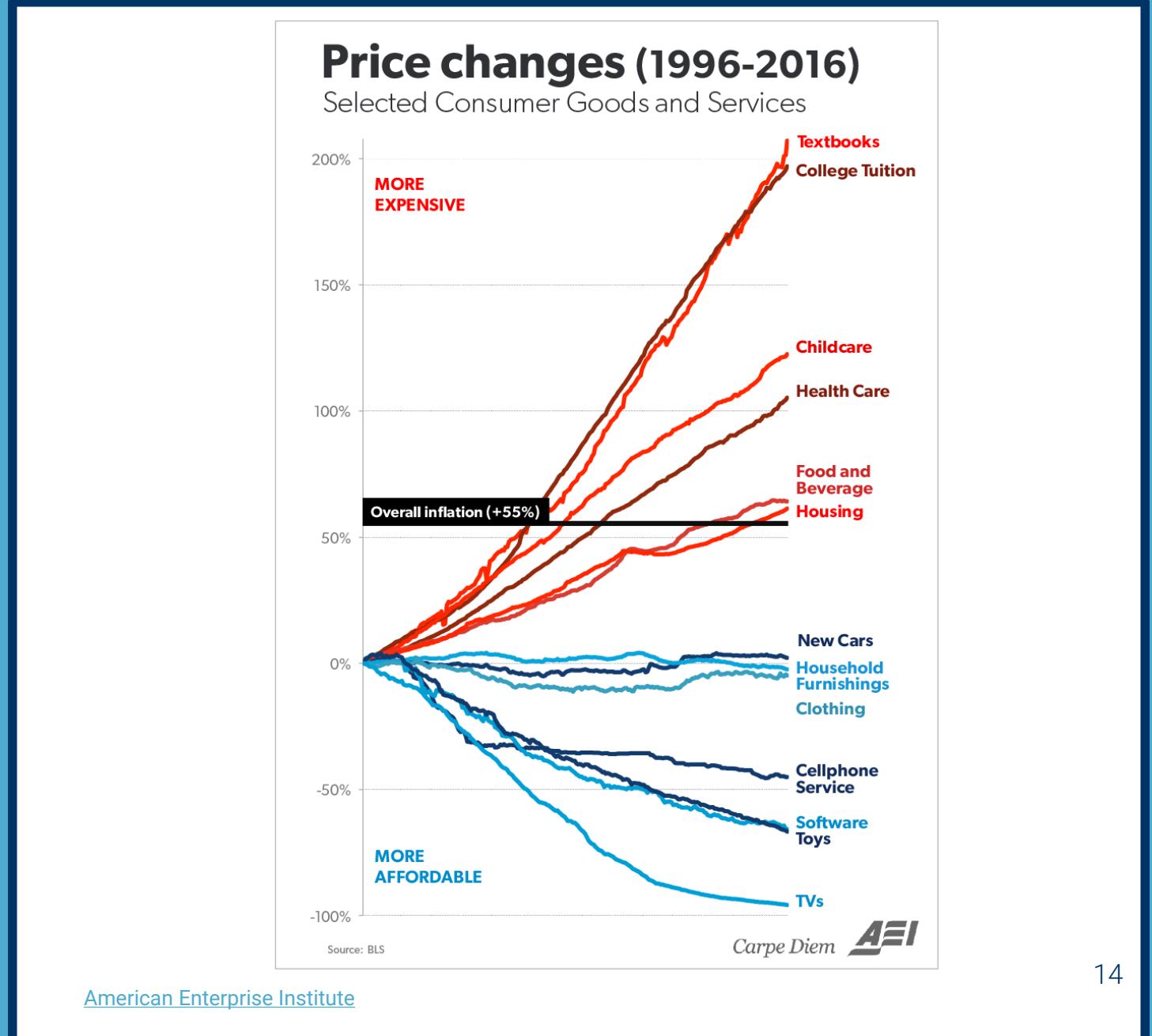
Annual medical cost for a family of four



Healthcare outpaces inflation

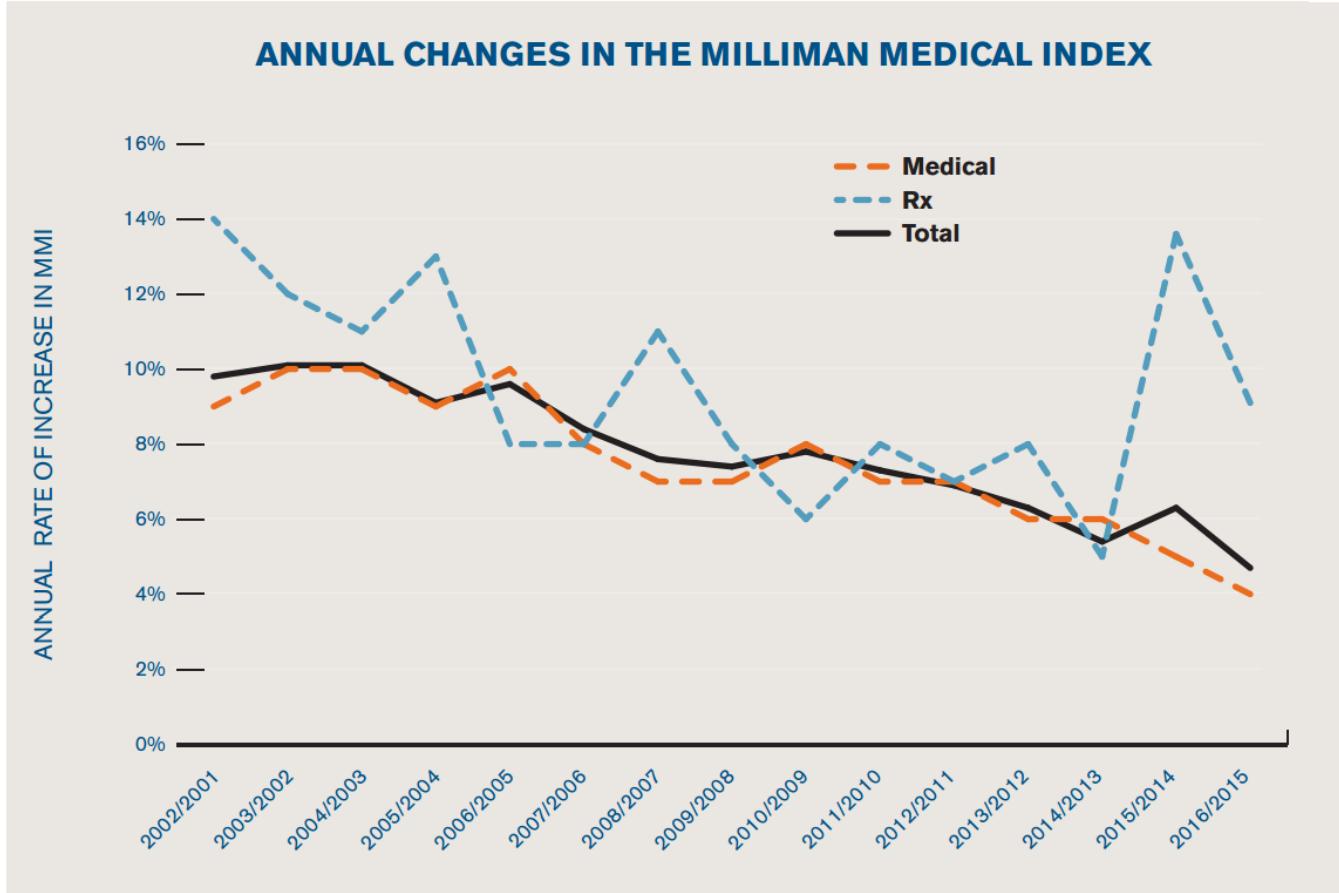
Healthcare is outpacing inflation along with some other services industries and more highly regulated industries.

Compared to the baseline 55% inflation during this time period, healthcare was close to double at 105%.

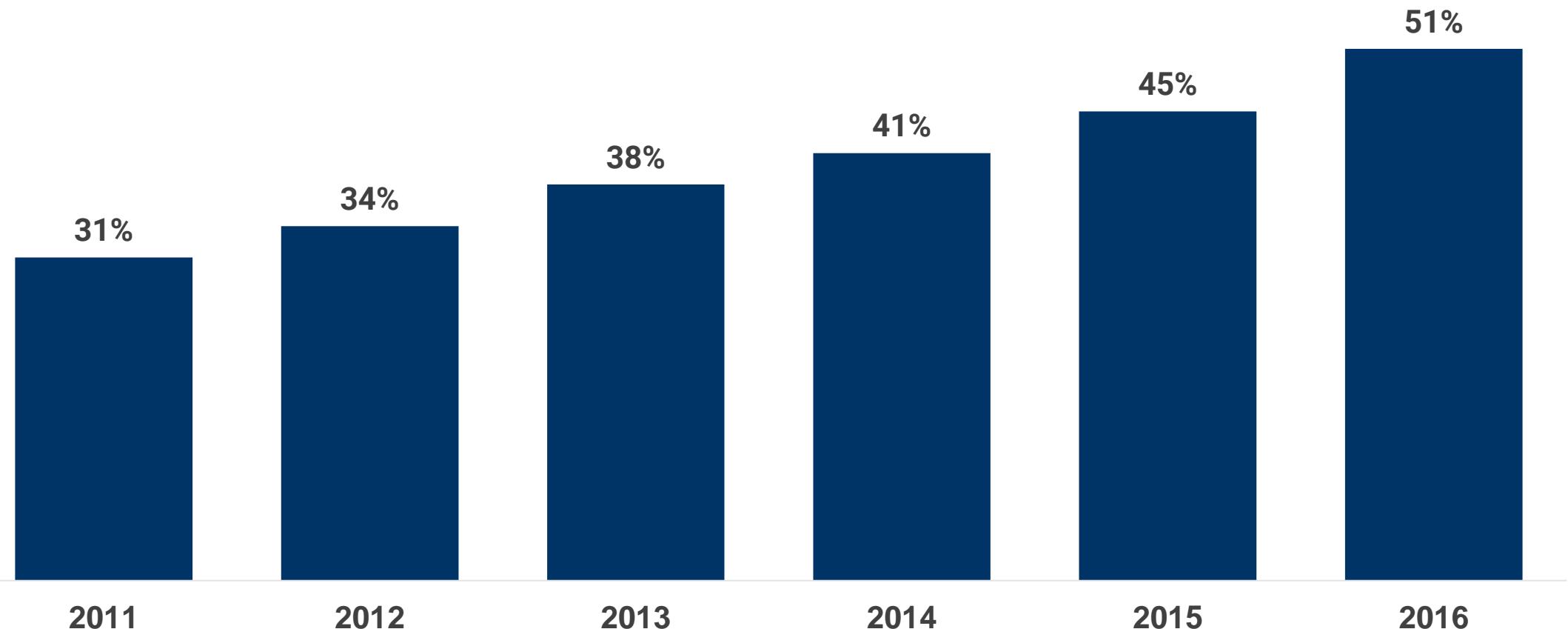


Prescription drug prices spike

While some parts of healthcare are starting to see some slow down in cost growth, prescription drugs is one category that still sees spikes.



Share of workers with \$1000+ annual deductible for single coverage



Healthcare is one of the least digitized sectors

Healthcare is towards the bottom when it comes to digitization, except for parts related to billing and business processes.

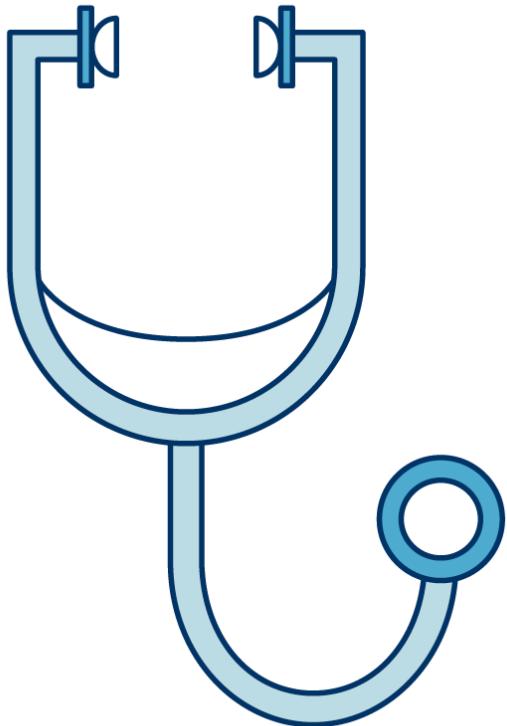
McKinsey Global Institute industry digitization index; 2015 or latest available data

Relatively low digitization Relatively high digitization

● Digital leaders within relatively undigitized sectors



When asked what purchases made a consumer uncomfortable...



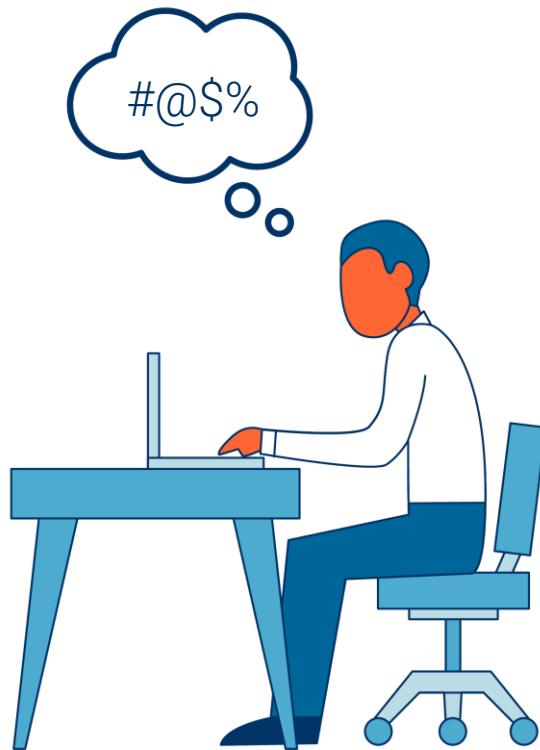
32% said healthcare and medical benefits

25% said a home

16% said tech and electronics

15% said a car

Consumers said their top hassles with the health system were...



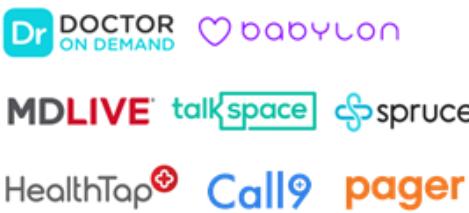
- 55%** Coordinating various aspects of care
- 53%** Understanding what healthcare will cost
- 50%** Understanding healthcare benefits

Chronic disease is
84%
of health expenditure

Mobile Enabled Health

The penetration of mobile devices in society has opened up possibilities in healthcare.

TELEMEDICINE



MEDICAL MARIJUANA DELIVERY



PEDIATRIC CARE



FEMALE HEALTH



MENTAL HEALTH



DIABETES MANAGEMENT



CONTINUATION OF CARE



MEDICATION MANAGEMENT



APPOINTMENT SCHEDULING



RESPIRATORY CARE



PHARMACY DELIVERY

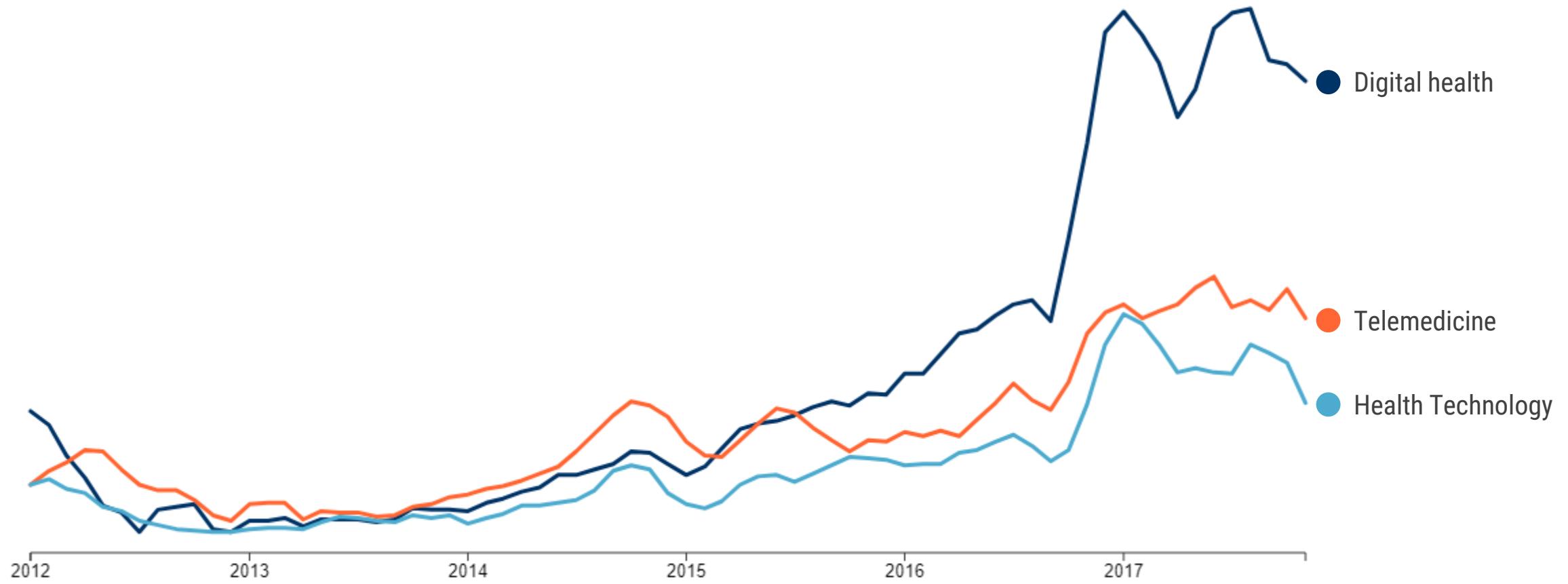


CARDIAC CARE

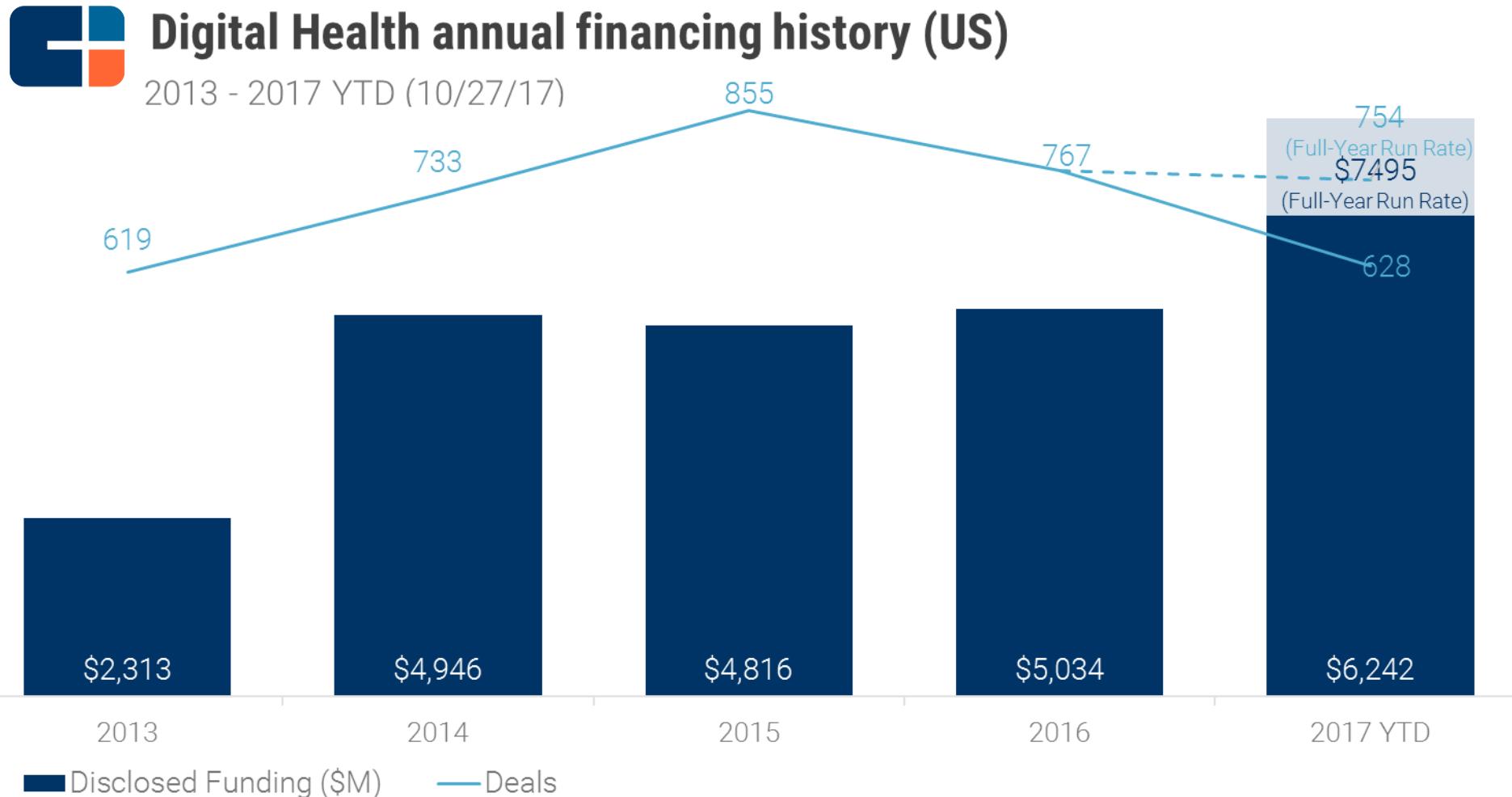


CB INSIGHTS

Digital health is still picking up media attention



...and money

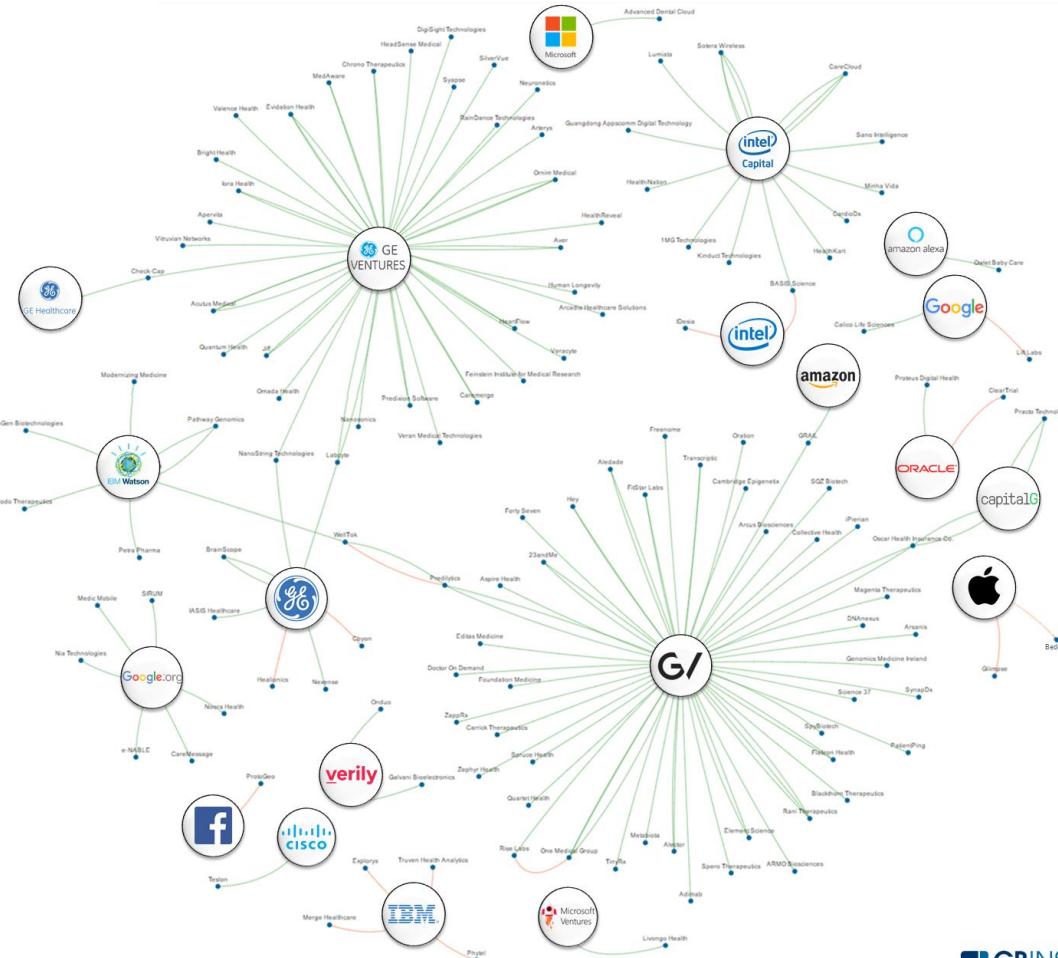


Tech companies are coming to healthcare

As software becomes a point of differentiation in healthcare, tech giants have an advantage with expertise in the area as well as direct relationships with consumers.

Tech giants investing in healthcare

2012 – 2017 YTD (5/18/2017)



HEALTHCARE CONSUMERIZATION

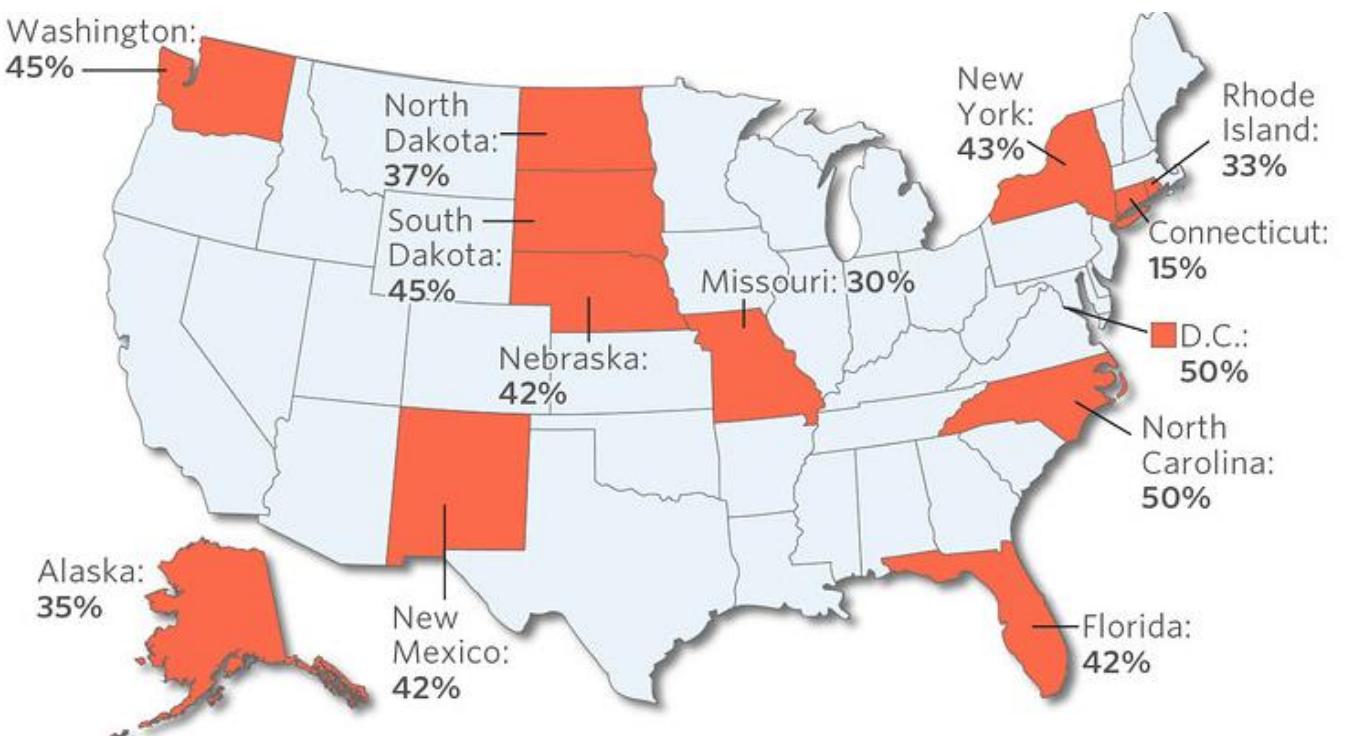
Changing Primary Care



Lacking healthcare access

Many states still lack access to necessary primary care + other services necessary for adequate health (e.g., mental health services).

Primary Care Physicians By Percentage Of Need Met



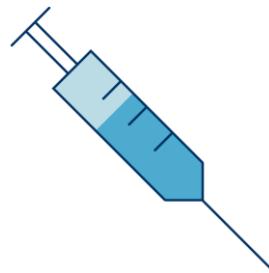
Source: U.S. government statistics

BENEFITS OF PRIMARY CARE

Primary care has clear benefits

A meta-analysis of 30 studies on primary care found

1



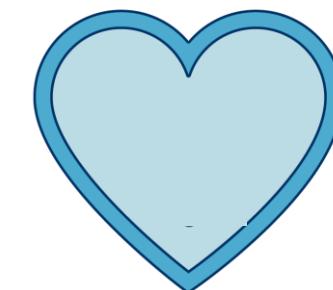
Reduced utilization of
healthcare services

2



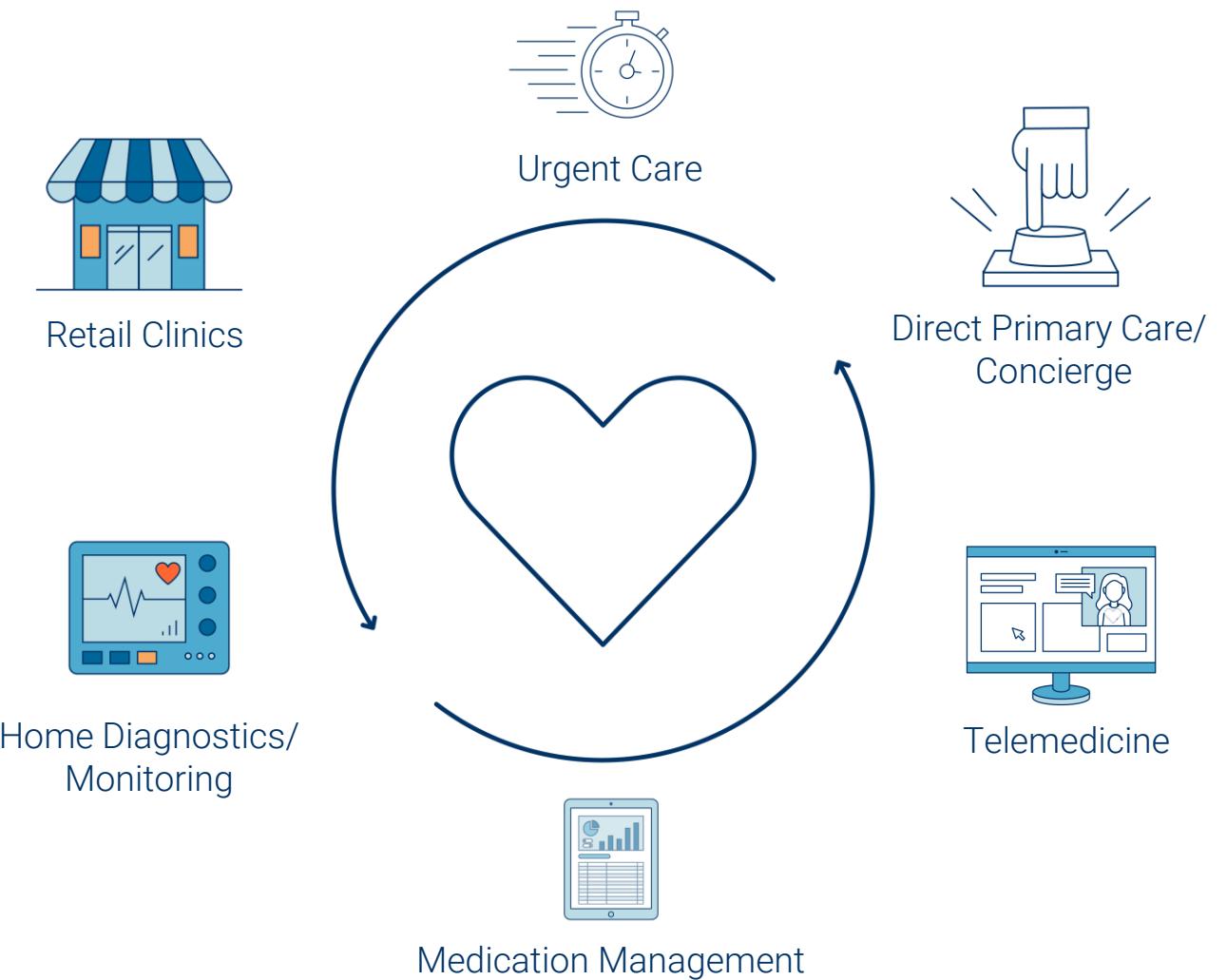
Overall cost decrease

3

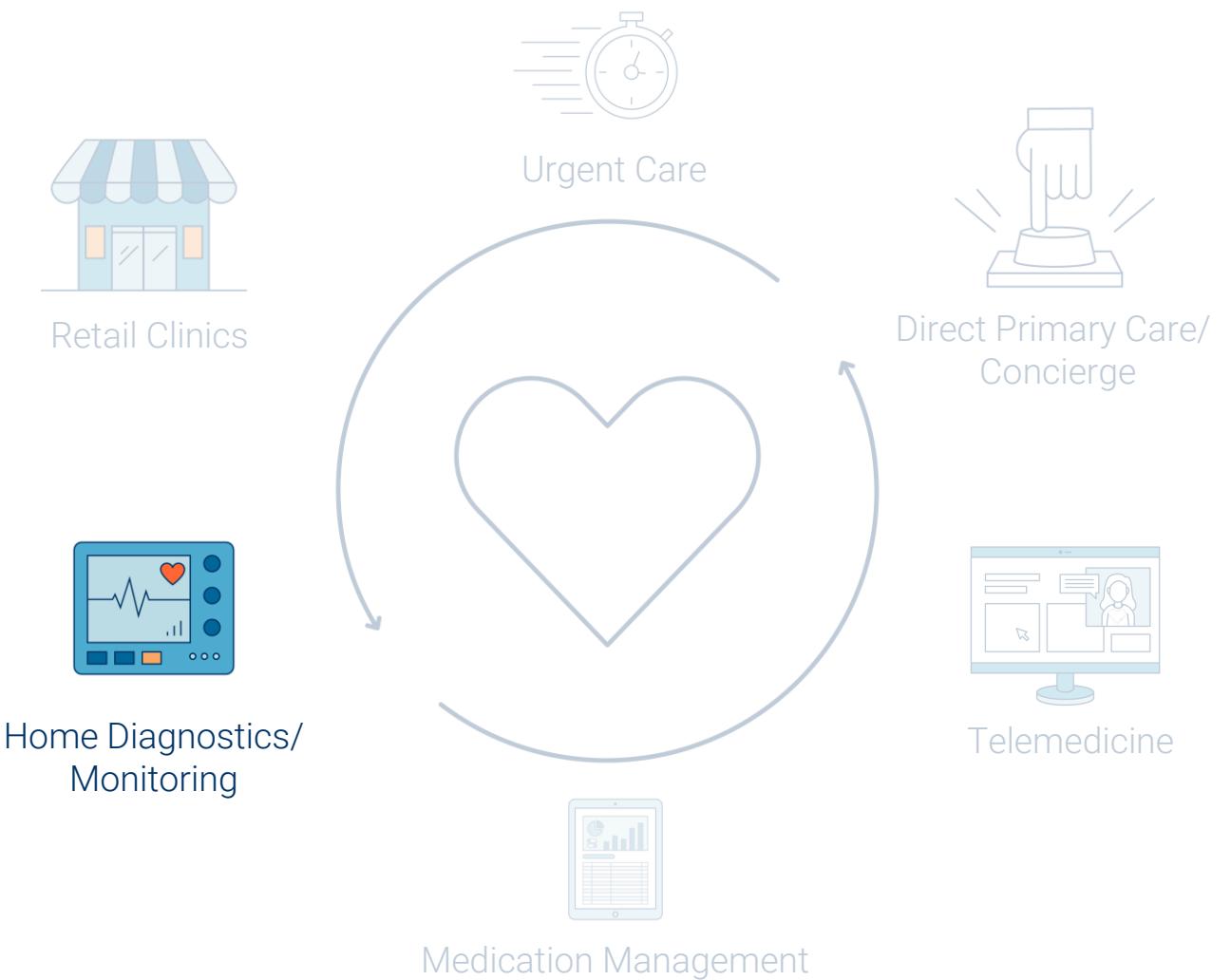


Better long-term health
and/or feelings of wellness

Primary care's functions are being unbundled



Home Diagnostics /Monitoring



We've longed for
a diagnostic
machine for the
average person



However the reality is much harder

ScanaDu Wraps Up Big Indiegogo Campaign,
Raising \$1.66 Million for Medical “Tricorder”

July 22, 2013

All Things D

ScanaDu Raises \$35 Million From
Fosun, Tencent for Its Health Scanner

April 7th, 2015

THE WALL STREET JOURNAL.

ScanaDu to shut down support for its Scout
device per FDA regulation and customers are
mad

December 13th, 2016

TC TechCrunch

Quantified-self needs actionable data

High abandonment rate and lack of actionable data have crippled many of the larger wearable companies and divisions (Fitbit, Jawbone, Intel, Adidas).



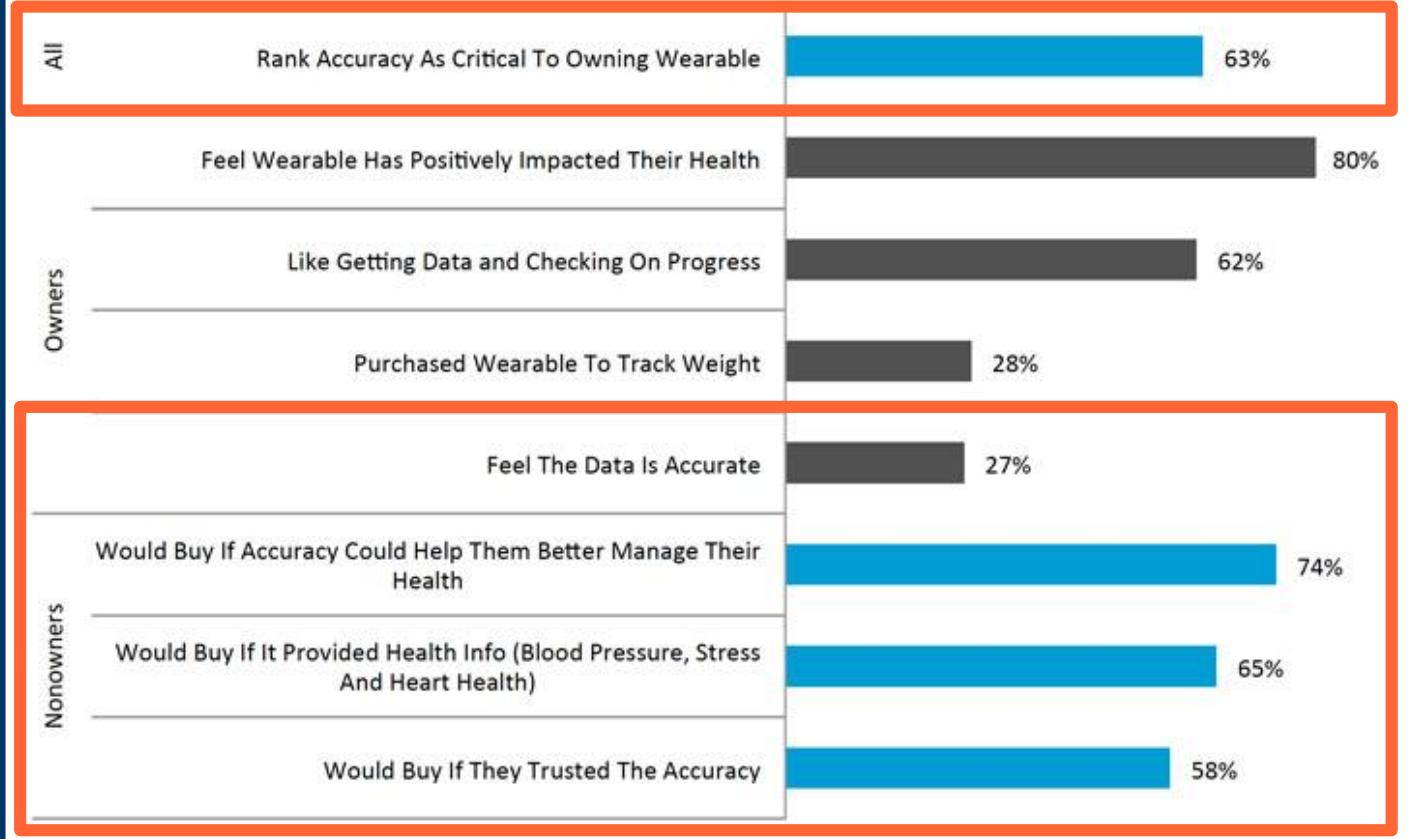
Google Finance - Yahoo Finance - MSN Money

Disclaimer

Accurate data is a priority for consumers

Owners don't believe the accuracy and potential buyers want a device that can accurately monitor important biomarkers.

Figure 1. US: Factors that Influence Consumer Purchase and Ownership of Wearables, 2016



Clinical grade data is more actionable – but requires going through regulated channels

Now ...

Regulations are shifting and
opportunities are opening

**We're seeing new
“medical devices”**

New bill opens the gate for over-the-counter devices

The “Over-the-Counter Hearing Aid Act of 2017” allows hearing aid makers to sell directly to consumers if they meet FDA requirements, eliminating the need for a visit to the doctor.

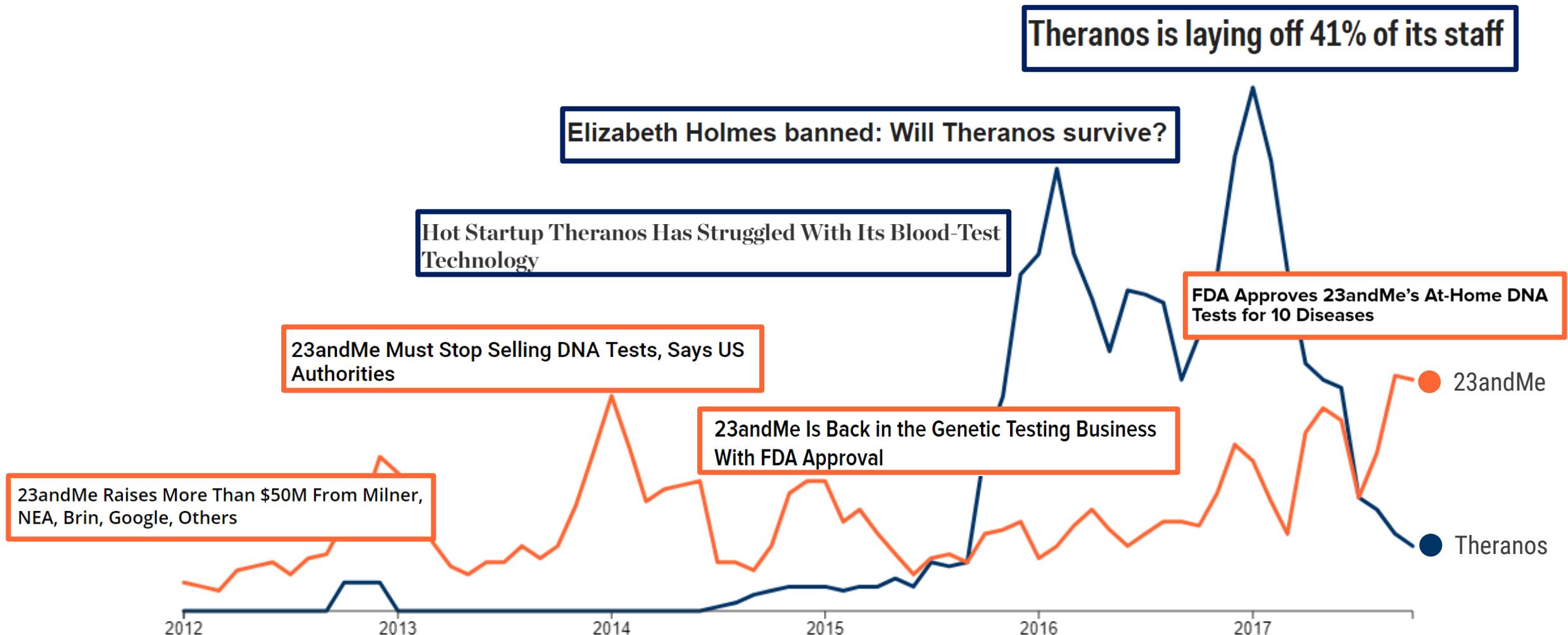
115TH CONGRESS
1ST SESSION

S. 670

To provide for the regulation of over-the-counter hearing aids.

This bill amends the Federal Food, Drug, and Cosmetic Act to require the Food and Drug Administration (FDA) to categorize certain hearing aids as over-the-counter hearing aids and issue regulations regarding those hearing aids. The regulations for over-the-counter hearing aids must: (1) provide reasonable assurances of safety and efficacy; (2) establish output limits and labeling requirements; and (3) **describe requirements for the sale of hearing aids in-person, by mail, or online, without a prescription.**

Regulations can make or break diagnostics



Genomics is blurring the line of diagnostics and prediction

23andMe forced the FDA to create a classification for predictive diagnostics. This allows people know their risks in advance and allows companies establish direct relationships with these patients.



A NEW ERA OF SEEKING OUT CARE

Medical grade wearables + predictive
diagnostics = proactive health services

Today

Reactive Health

1. Seek health services when feeling ill
2. Consumer sorts through different care options
3. Data is then captured to confirm diagnosis

Today

Reactive Health

1. Seek health services when feeling ill
2. Consumer sorts through different care options
3. Data is then captured to confirm diagnosis

Tomorrow

Proactive Health

1. Data is captured via medical-grade wearables
2. Care option reaches out if there is an anomaly
3. Provider already has historical dataset of relevant biomarkers and genetic predispositions

Apple sees this as an opportunity

An important part of the Apple Watch 3 unveiling was the announcement that the company is working with Stanford and the FDA to determine whether the watch can detect common heart conditions and partnering with American Well to offer telemedicine services to those at risk.



Google sees this as an opportunity

Google's parent company, Alphabet, has a subsidiary called Verily with several projects focused on sensors that produce medical-grade data and ways to intervene, suggesting that the company is entering the proactive health field as well.

The screenshot shows the Verily website with a dark blue header featuring the word "verily" in white. Below the header, there are two main sections: "Sensors" and "Health Platforms & Population Health Tools".

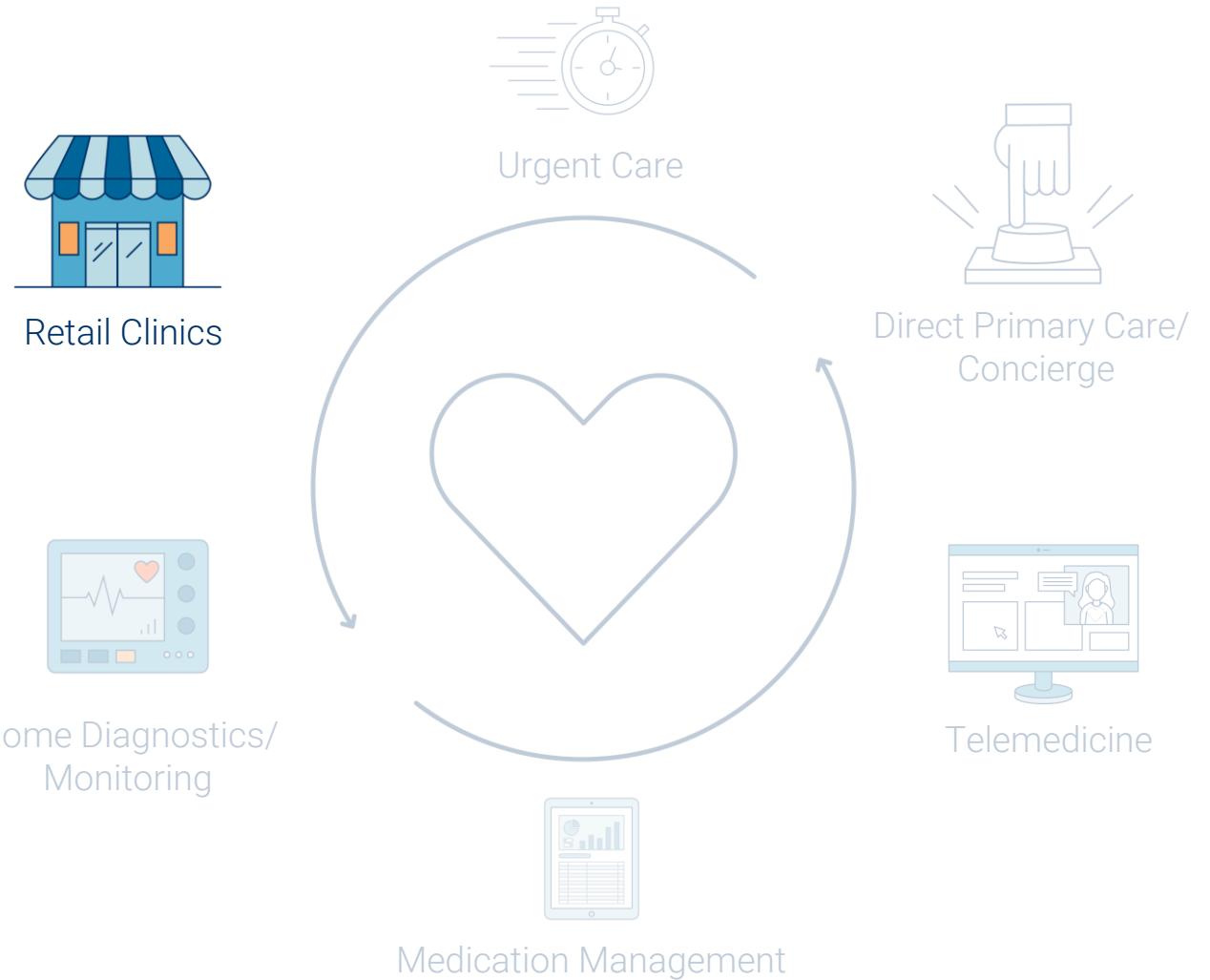
Sensors

- Miniaturized CGM**: Working with Dexcom to reduce the barriers to use of continuous glucose monitors for people with diabetes. [READ MORE](#)
- Smart Lens Program**: Partnering with Alcon, a subsidiary of Novartis, to build wireless sensing capability into ocular devices for applications including glucose sensing and accommodative vision correction. [READ MORE](#)

Health Platforms & Population Health Tools

- Healthcare performance measurement**: Partnering with 3M Health Information Systems to develop software tools to better analyze and report quality performance data across health care delivery systems and patient populations. [READ MORE](#)
- NHS Early Intervention Program**: Developing risk-prediction models to drive innovation in chronic disease care with NHS Heywood, Middleton and Rochdale Clinical Commissioning Group and Merck Sharp & Dohme Limited. [READ MORE](#)
- Onduo**: Developing comprehensive solutions for simple and intelligent diabetes management with Sanofi. [READ MORE](#)

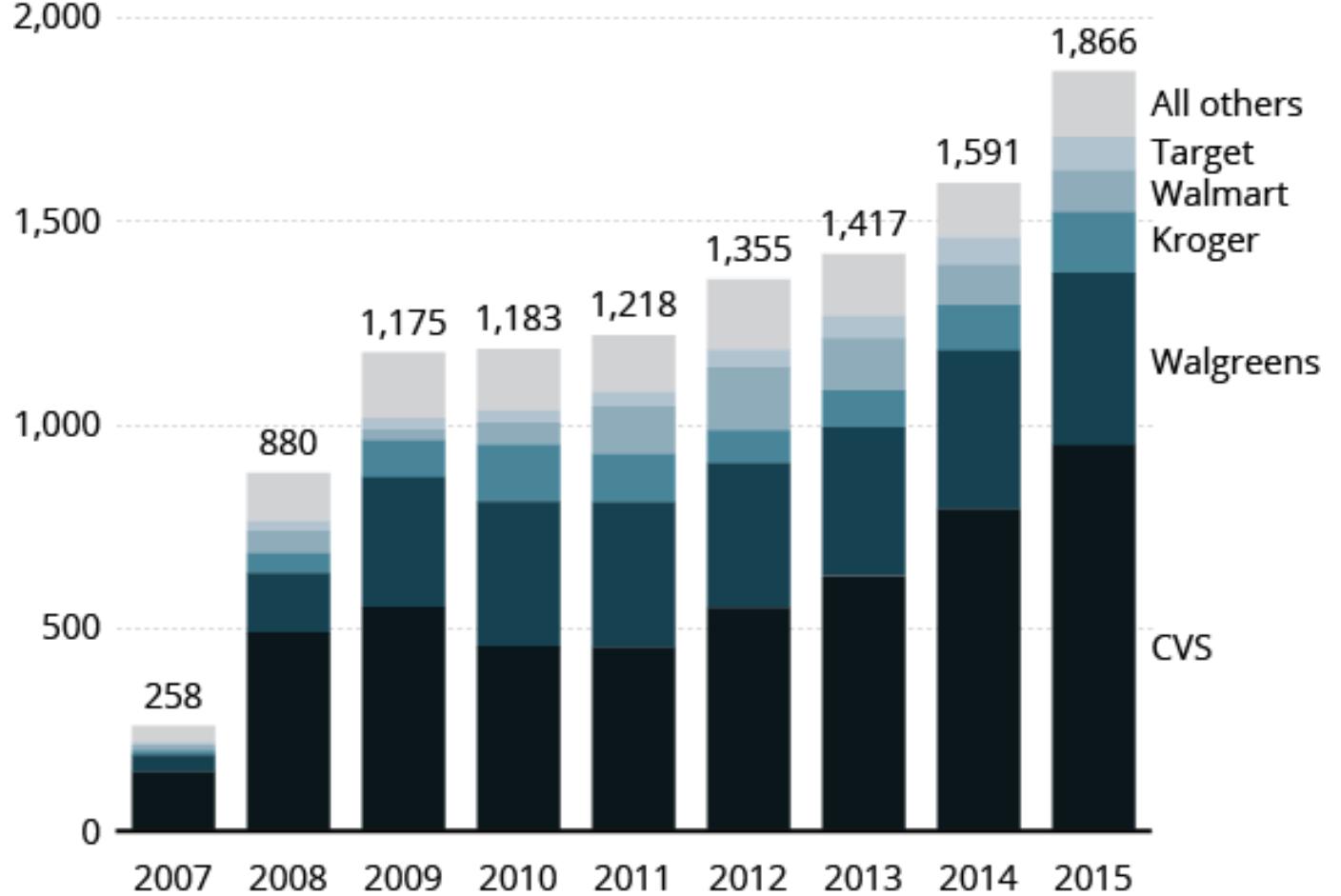
Retail Clinics



The rise of retail clinics

Retail clinics are starting to become more and more popular among grocery and pharmacy chains, and now offer a wide variety of services and tests.

Retail clinics at the beginning of each year

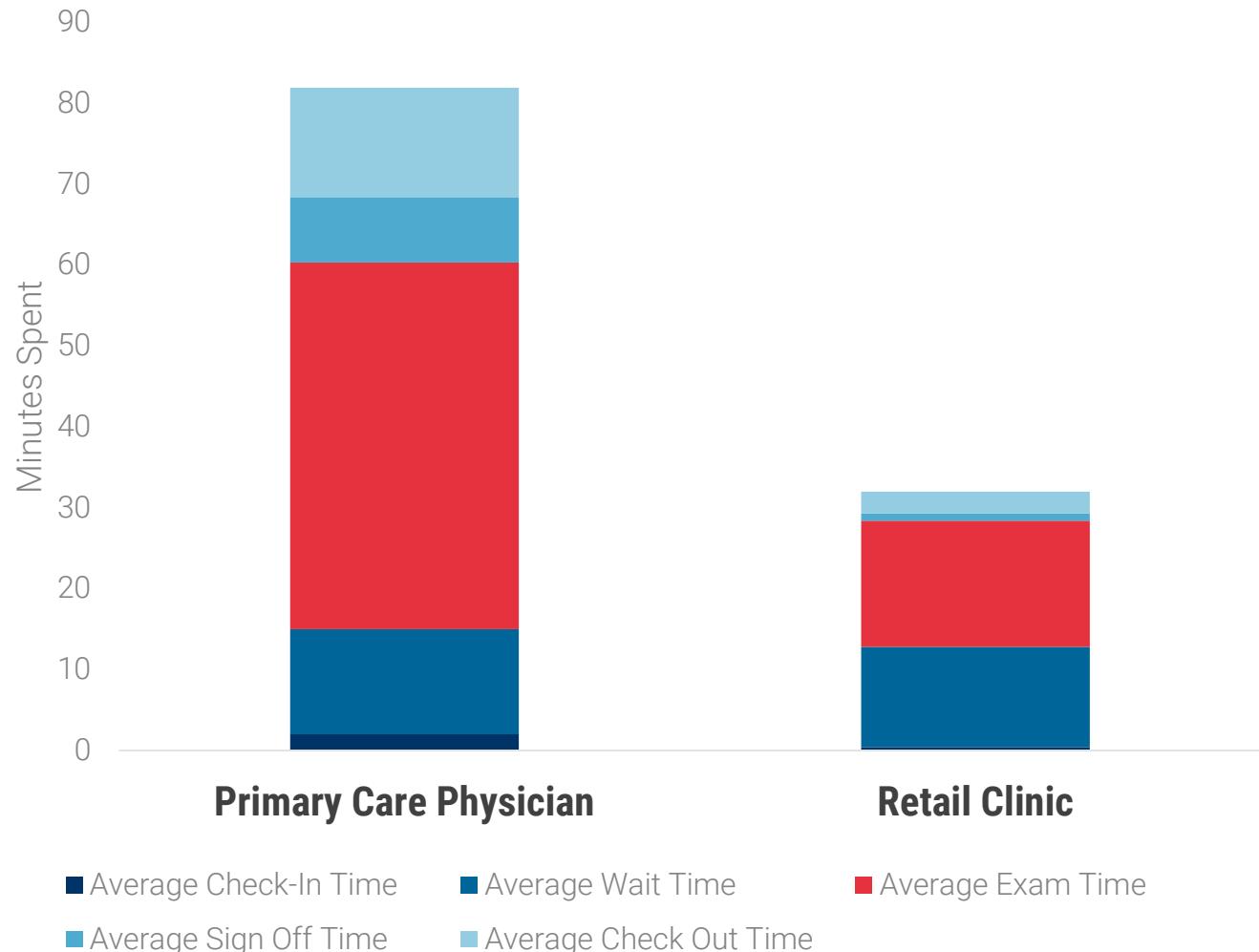


Retail clinics are faster

Retail clinics are fast because the exam time is quicker since most people know the reason they're going to the clinic and it's for a more focused group of tests and services.



Amount of time spent at a primary care physician vs. a retail clinic



Kiosks give retail pharmacies more services

Some companies are bringing telemedicine and diagnostics to retail locations in the form of kiosks using different approaches.



Disclosed Funding: \$30M

Status: Private

Select Investors: Redmile Group, Pura Vida Investments, Walgreens



healthspot™

Disclosed Funding: \$32.7M

Status: Dead

Select Investors: Cardinal Health, Cleveland Clinic, Luxemberg Capital



Disclosed Funding: \$40M

Status: Private

Select Investors: BlueCross BlueShield Venture Partners



PURSUANT HEALTH

Disclosed Funding: \$50.1M

Status: Private

Select Investors: Novartis Venture Funds, WellPoint, Dell Technologies Capital

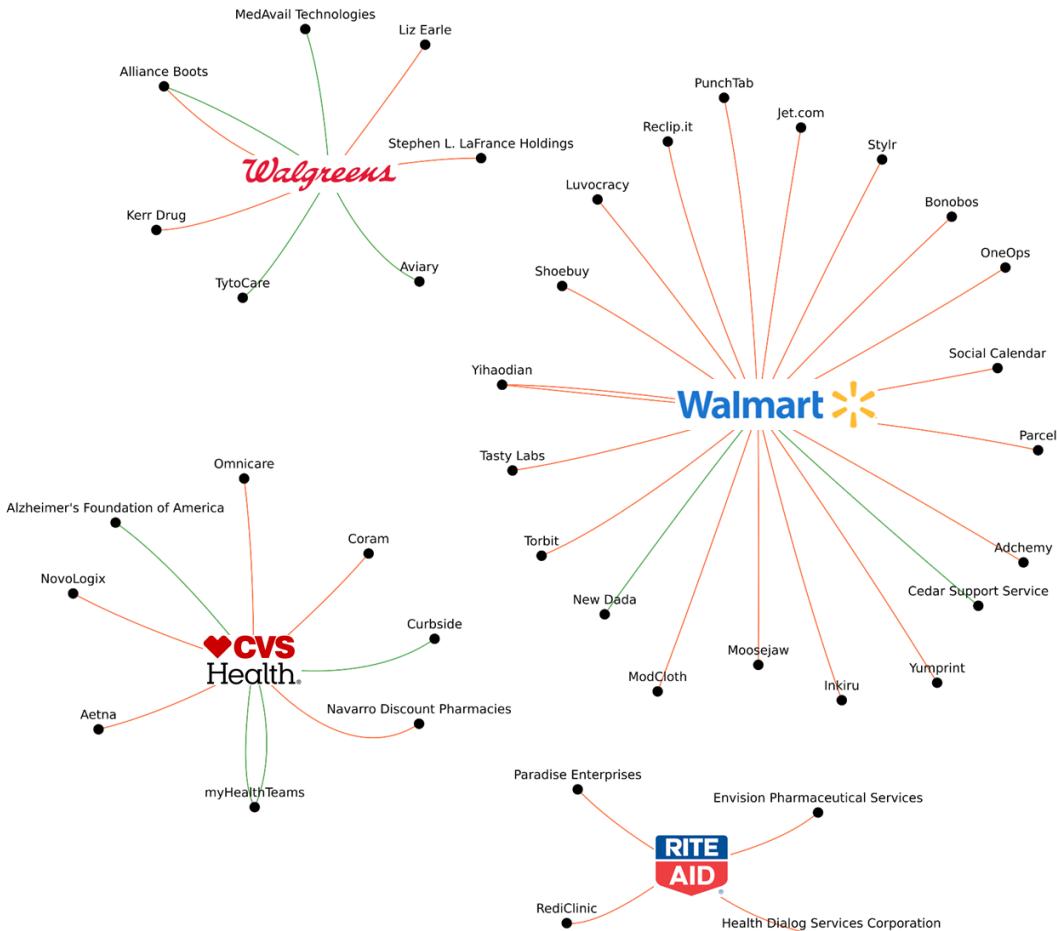
Retail pharmacies are investing

Retail pharmacies have invested, acquired, and partnered with private companies to increase their reach and improve customer loyalty.



TOP PHARMACY RETAILERS: INVESTMENTS & ACQUISITIONS

2012 – 2017 YTD (12/4/2017)



Green lines represent investments; orange lines represent acquisitions.

CVS: POPULATION HEALTH MANAGER

“For us, the benefits of technology aren’t just driving people back to our platforms: it’s about uncovering the most effective ways to help all people on their path to better health. Our vision is to create a ‘connected’ health experience that makes it radically easier for people to save time and money—and stay healthy.”



CVS/pharmacy®

Brian Tilzer

Chief Digital Officer, CVS

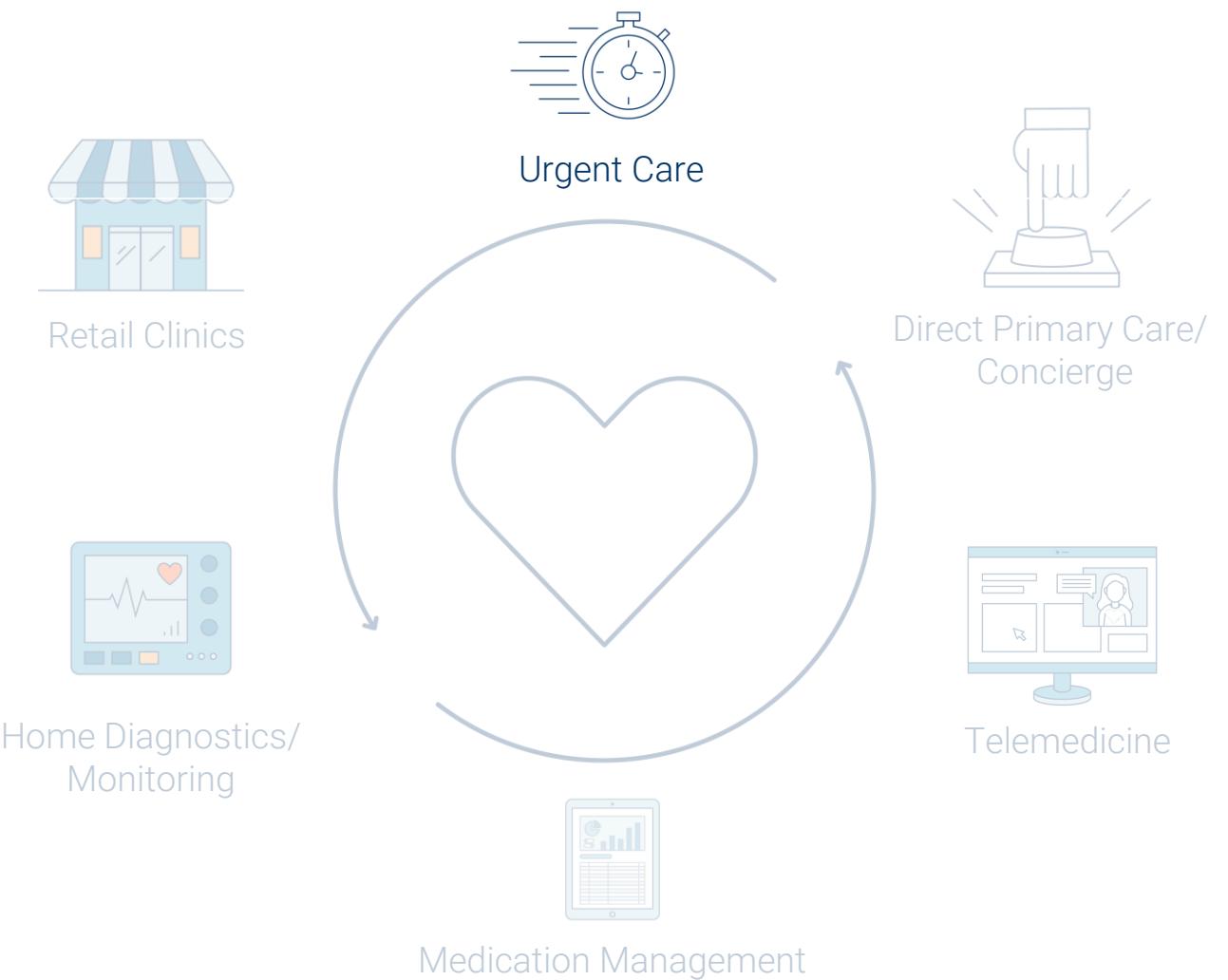
[HIT Consultant](#)

CVS \$66B acquisition of Aetna changes the incentives

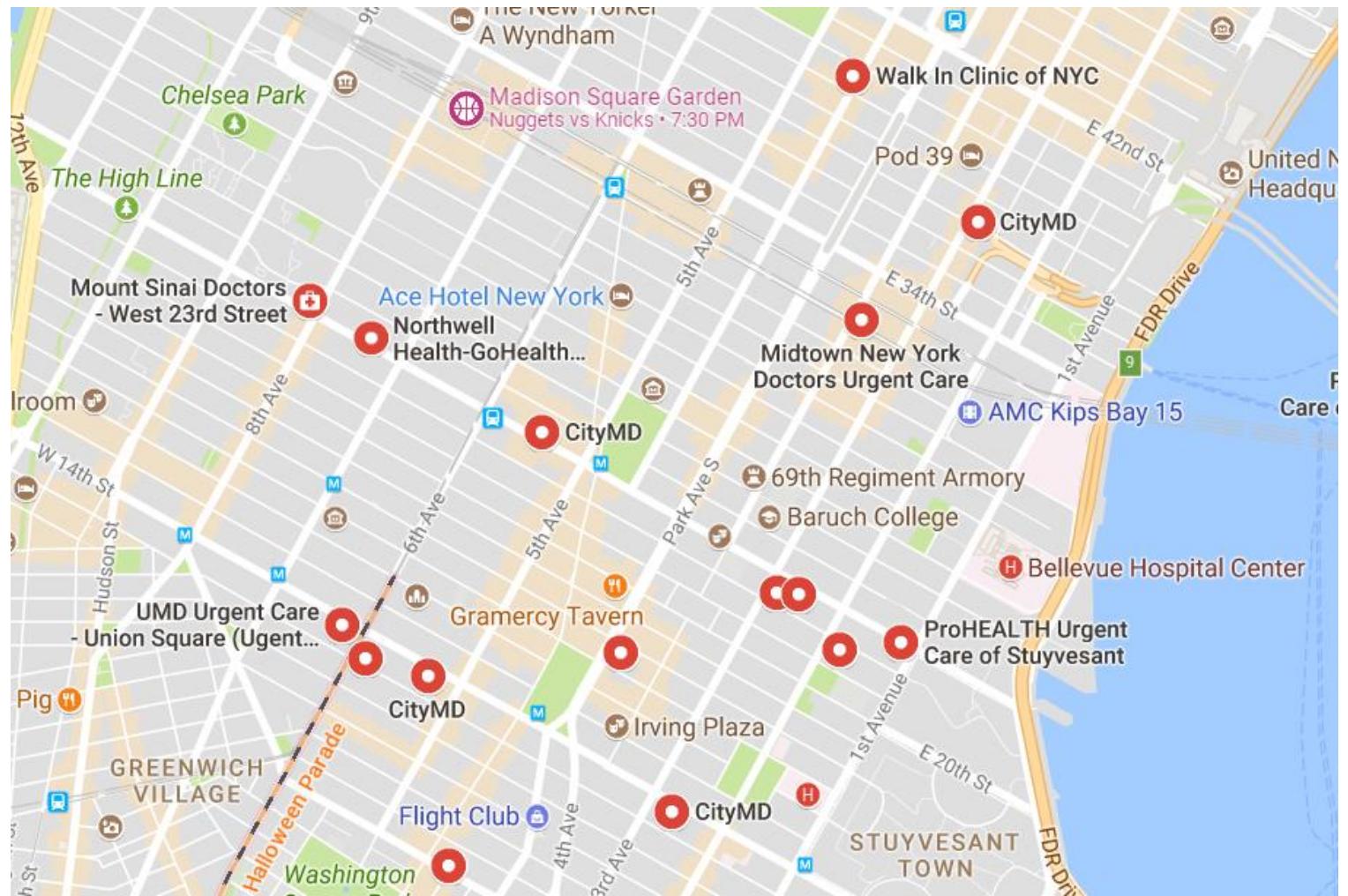


1. CVS is taking on the financial upside of managing its population beyond just loyalty and distribution
2. There will likely be more digital tools and more preventive health services at retail locations
3. **Could more pharmacies follow suit?**

Urgent Care



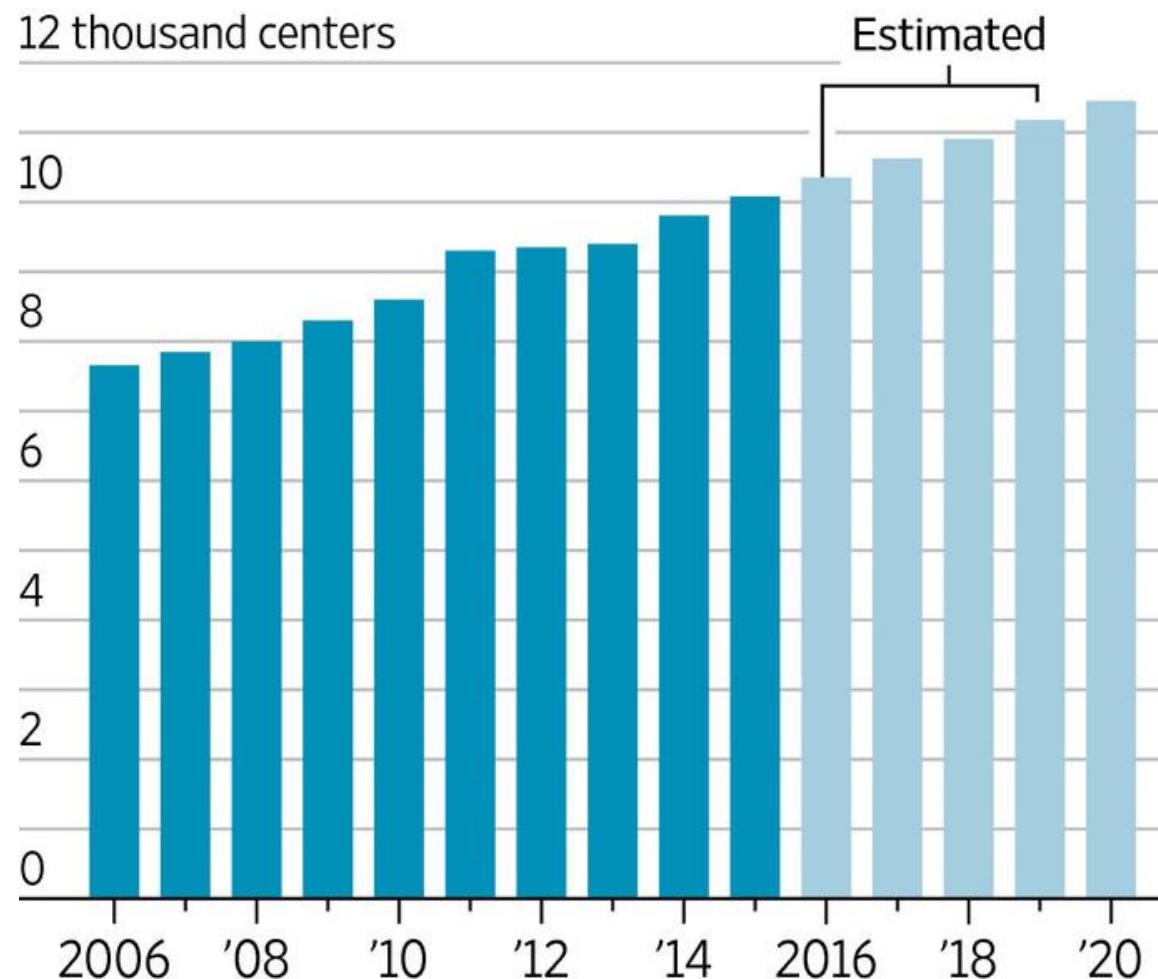
Urgent care clinics... The new Starbucks?



Urgent care increasing in popularity

Urgent care clinics are becoming more popular, increasing significantly in the last few years and projected to increase further.

Urgent Care Clinics



Urgent Care vs. Emergency Department

	URGENT CARE	E.D.
Allergies	\$97	\$345
Acute Bronchitis	\$127	\$595
Earache	\$110	\$400
Sore Throat	\$94	\$525
Pinkeye	\$102	\$370
Sinusitis	\$112	\$617
Strep Throat	\$111	\$531

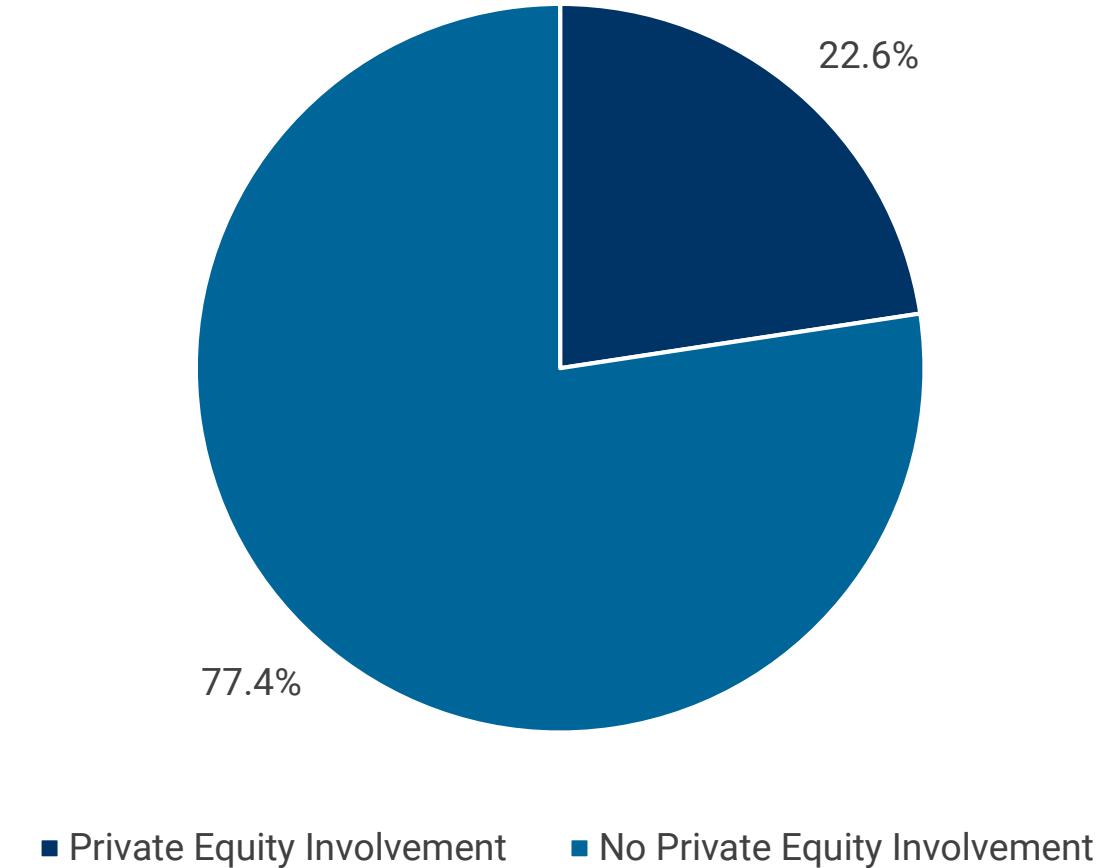
Private equity likes urgent care

Private equity investors were involved in more nearly a quarter of all urgent care transactions since 2010 and several large exits.



Private Equity Involvement In Urgent Care

2010 - 2017

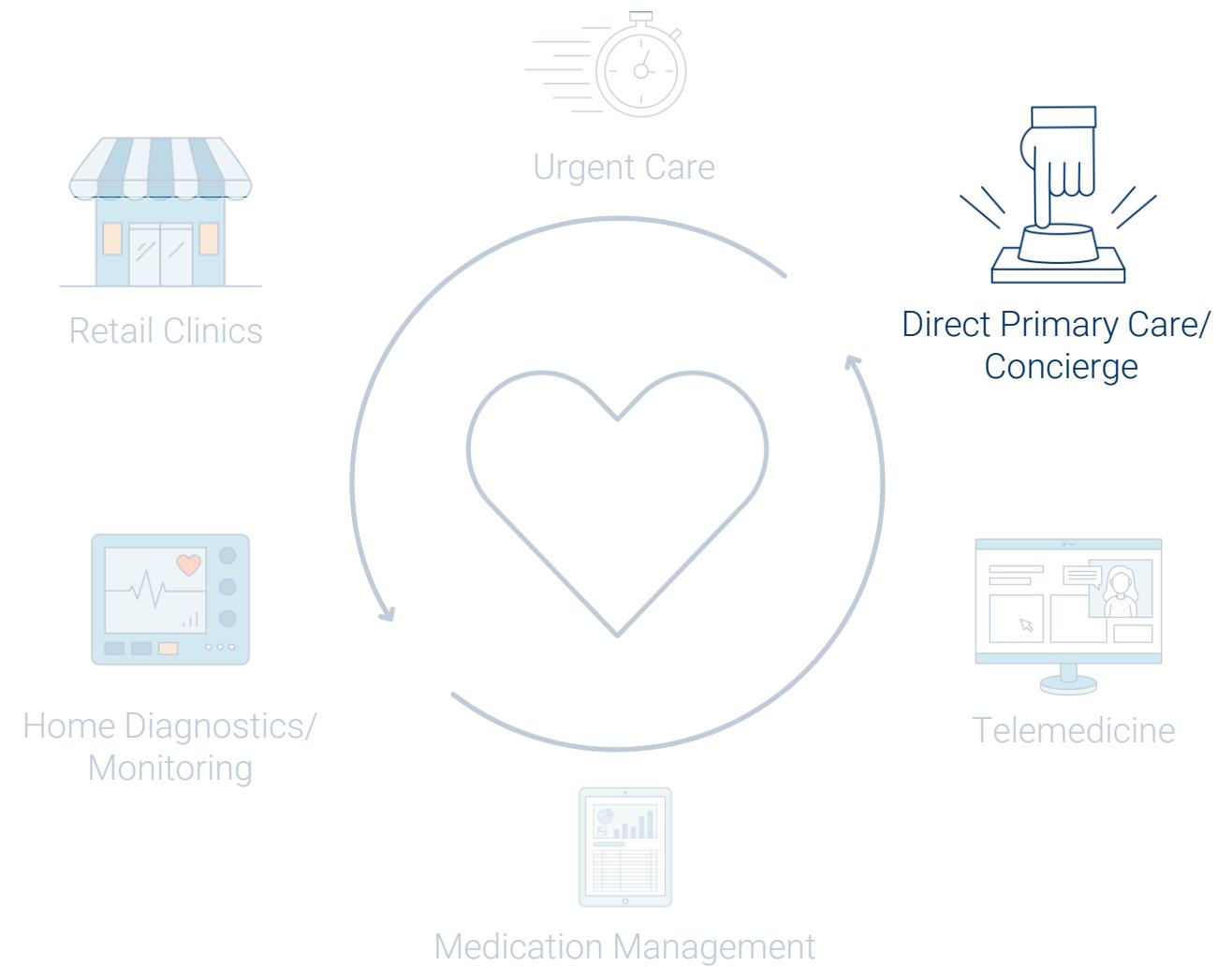


Warburg Pincus acquires CityMD at a **\$600M valuation**

WARBURG PINCUS



Direct Primary Care/Concierge

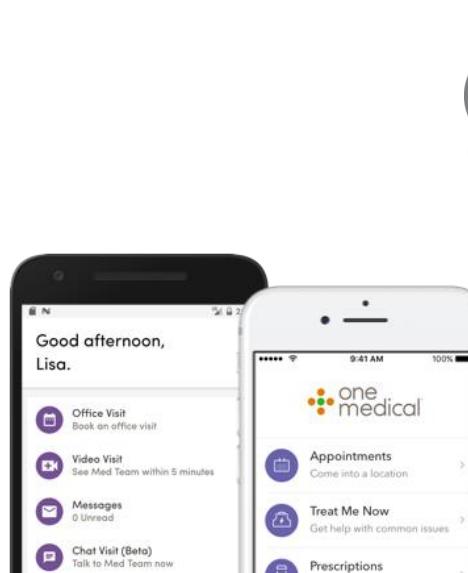


Direct primary care and concierge use retainers and smaller patient sizes

	FAMILY PRACTICE	DIRECT PRIMARY CARE/CONCIERGE
Patients per doctor (panel size)	Estimated ~2500	Estimated ~500-1000 (DPC) or ~200-600 (Concierge)
Cost	Depends on insurance	~\$78 per month (DPC) ~\$182 per month + insurance charges (Concierge)
Visit Time	13-16 minutes	30 – 60+ minutes and increased access to physicians
Cost of Blood Test/Drugs	Depends on insurance	Wholesale price, + ~10% (DPC) Varies (Concierge)

Clinics From The Ground Up

Many of the retainer-based primary care clinics are bringing services in-house and building their own workflow tools (lab testing, new EMR systems, standalone apps, etc.)



On-Site Labs

We offer **lab and blood tests** on a walk-in basis to help remove the hassle out of getting your lab work done. No appointments are necessary, but hours vary by office.

[CHECK NEARBY LAB HOURS](#)

A green rectangular callout box contains the 'On-Site Labs' section. It features a small circular icon with a dot pattern above the text. Below the text is a white button with blue text.

Care Team Tasks

- Alert Triggered: @CT blood glucose at 212 mg/dL
- Import data from UCSF Orthopedics for @IA
- Verify medication dosage for @CE
- Review lipid panel for @RS
- Release genetic testing results to @NB

A screenshot of the Forward Health mobile application. On the left is a vertical navigation bar with a profile picture of Dr. Agbowo and links for 'TASKS', 'ALERTS', 'MEMBERS', 'ANALYTICS', and 'SCHEDULE'. The main area is titled 'Care Team Tasks' and lists several tasks with colored circular icons and user names.

Direct Primary Care as a perk

Many of the new direct primary care models are using employers as a distribution avenue to help with lowering health spend as well as help with employee retention and satisfaction.

The image shows a screenshot of the One Medical Group website. At the top is the One Medical Group logo, which consists of the word "one" in a lowercase sans-serif font with a small orange graphic of four dots above the letter "o", and "MEDICAL GROUP" in smaller capital letters below it. Below the logo is a dark banner with a white rectangular overlay containing the text "An Employee Benefit Your Team Will Love" in orange, followed by a description in white: "Lower your health costs by giving your team VIP access to One Medical, a modern primary care practice that is in-network with major health plans." A green "CONTACT US" button is at the bottom right of this overlay. Below the banner is a photograph of a modern medical office lobby with a reception desk and a chandelier. Three smaller boxes are displayed below the banner:

- Near Site Primary Care**: Shows an exterior view of a One Medical Group clinic building with glass doors. The text describes same-day appointments with top physicians in 50+ locations.
- 24/7 Telemedicine**: Shows a close-up of a person holding a tablet displaying a telemedicine interface with three patient profiles. The text describes the Virtual Care team being on call 24/7 via mobile app.
- Onsite Care**: Shows an interior view of an onsite medical clinic with a reception desk and waiting area. The text describes flu clinics and full-time centers.

Can direct primary care scale?

Many of the new subscription primary care models have raised significant amounts of money and have been private for a long time. Is it possible to scale these brick and mortar businesses?



Disclosed Funding: \$123M

First Funding: 06/2007

Status: Private

Number of clinics: ~59



Disclosed Funding: \$30M

First Funding: 7/2016

Status: Private

Number of clinics: 2



Disclosed Funding: \$123M

First Funding: 10/2011

Status: Private

Number of clinics: 9



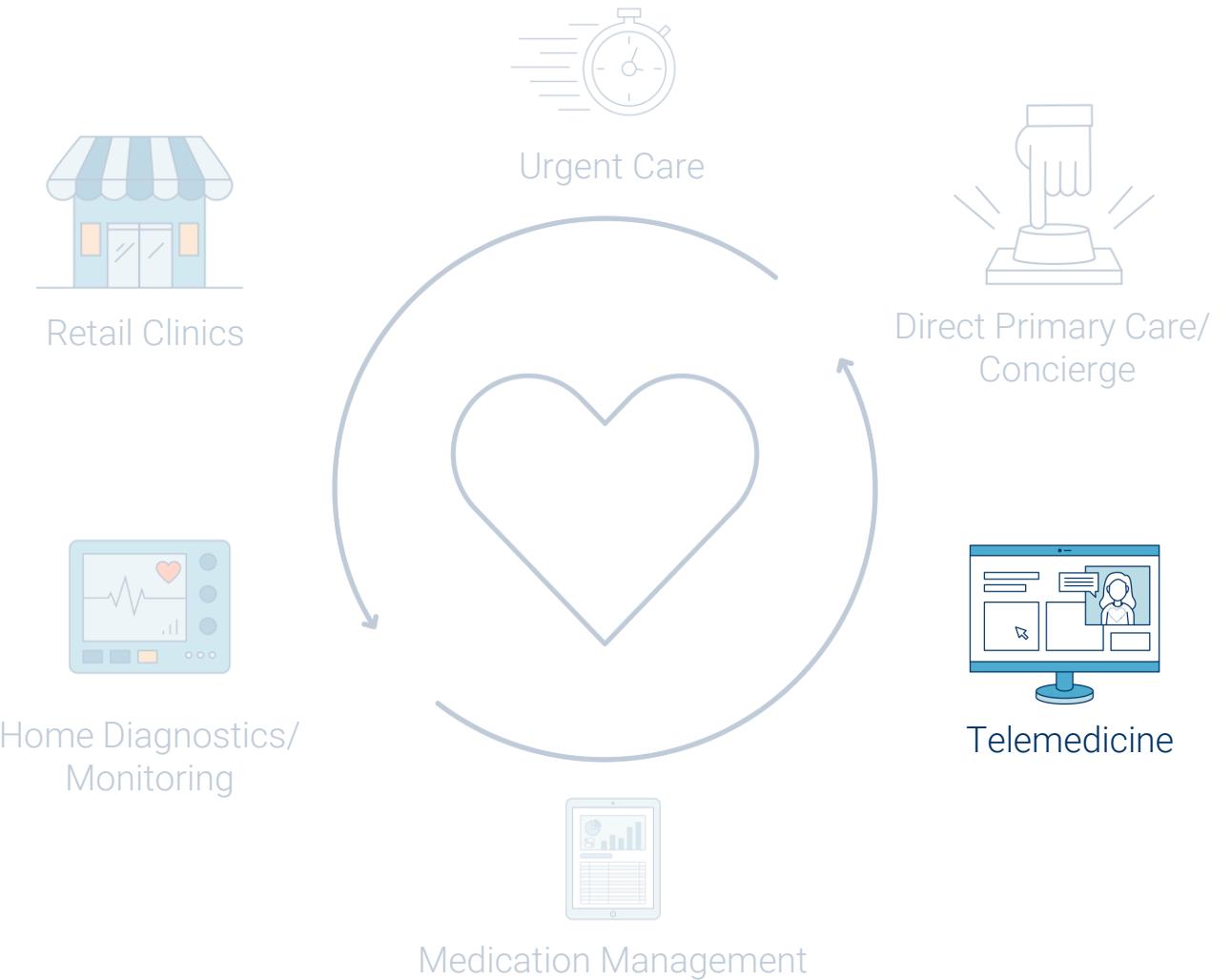
Disclosed Funding: \$34M

First Funding: 4/2007

Status: Dead

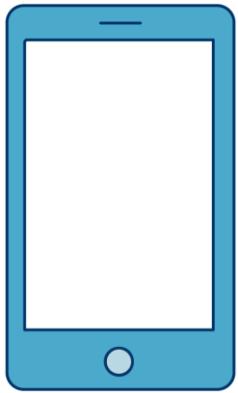
Number of clinics: N/A

Telemedicine



VIRTUALLY PAINLESS

Benefits of telemedicine



Lowered friction



Stored, mineable,
referenceable



Location agnostic

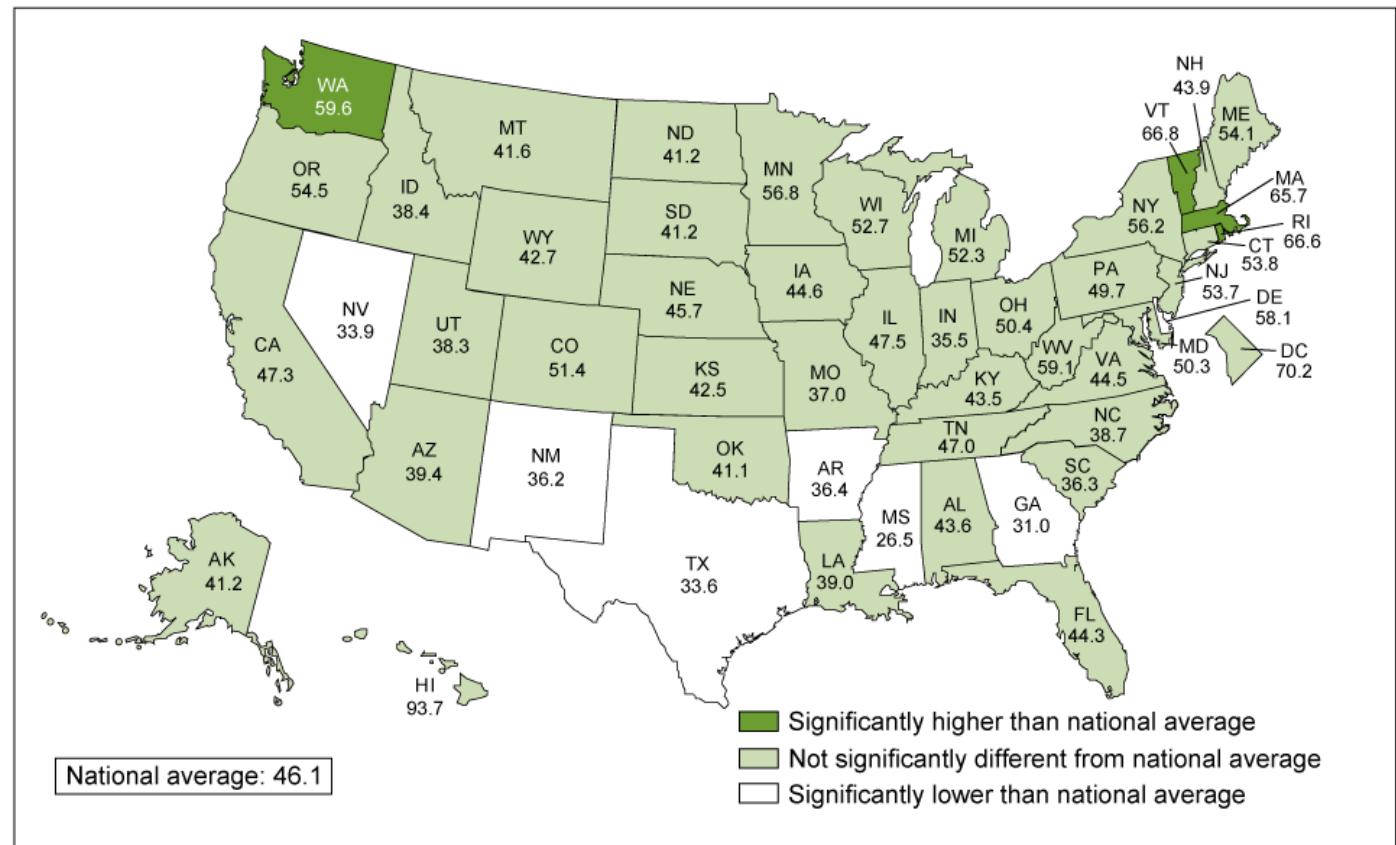


Asynchronous

Balancing PCP supply and demand

In areas with a high patient:primary care physician ratio, telemedicine can help distribute and extend the reach of doctors to areas that may have difficulty with access.

Primary Care Physicians Per 100,000 People (2012)



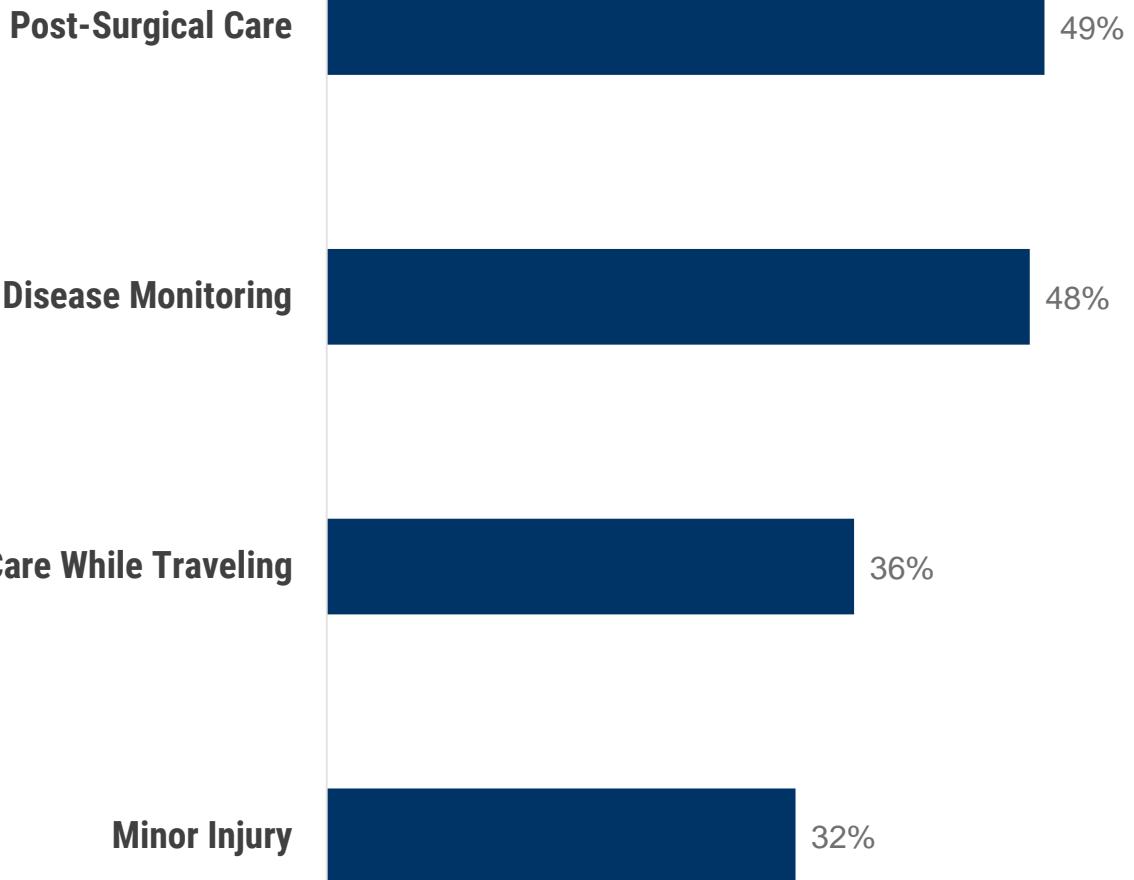
NOTES: Primary care physicians include those in family and general practice, internal medicine, geriatrics, and pediatrics. Significance was tested at the $p < 0.05$ level.

SOURCE: CDC/NCHS, National Ambulatory Medical Care Survey, Electronic Health Records Survey.

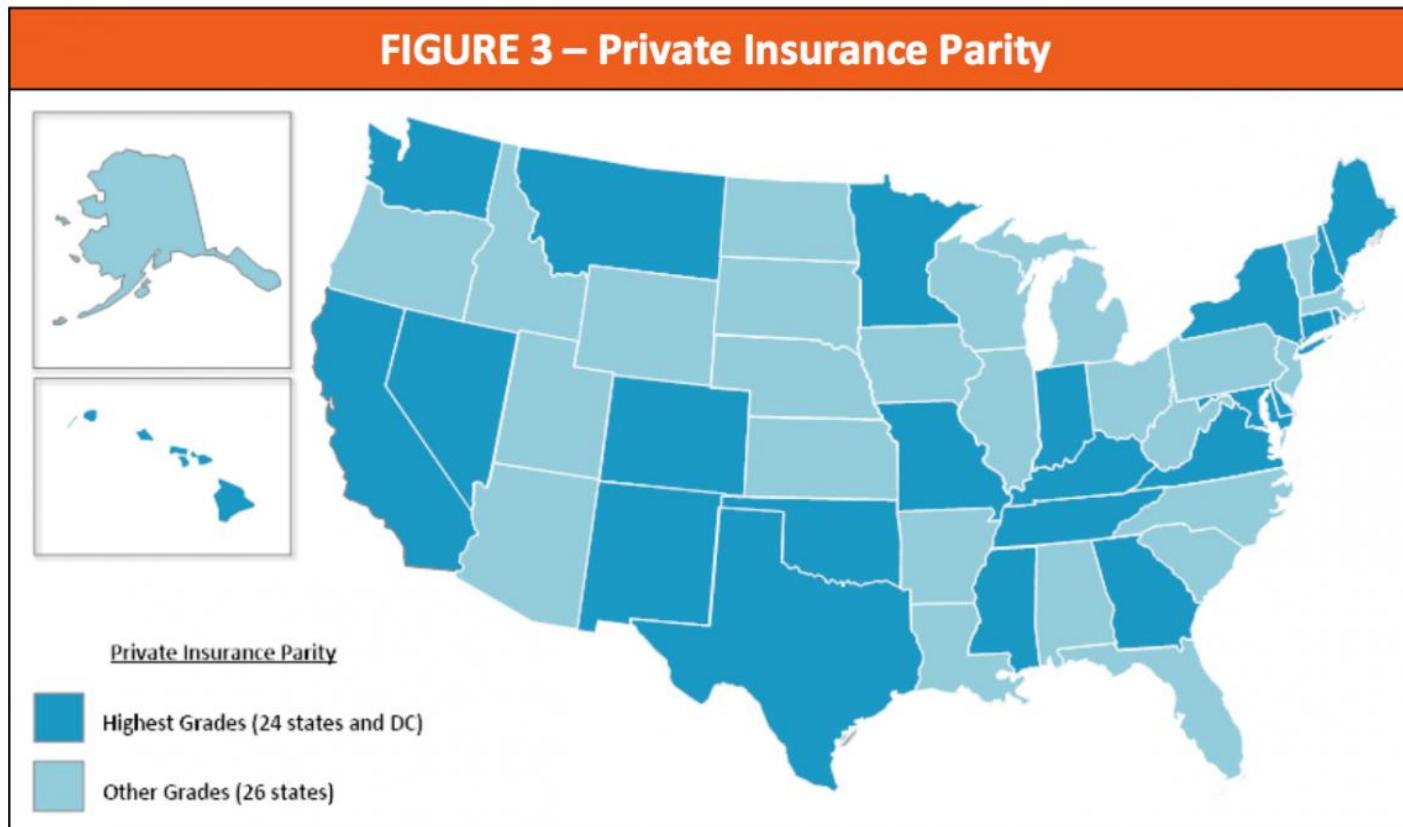
Telemedicine areas of interest

Telemedicine can help with post surgical monitoring to prevent readmissions and conduct follow-up visits. Chronic conditions can be managed with lifestyle adjustments, a good use case for telemedicine. These are both areas of high consumer interest.

Top Areas Of Consumer Interest To Use Telemedicine



Areas where telemedicine is reimbursed like a regular visit



More and more states have laws that ensure telemedicine visits would be reimbursed equivalent to a face-to-face visit (aka private insurance parity).

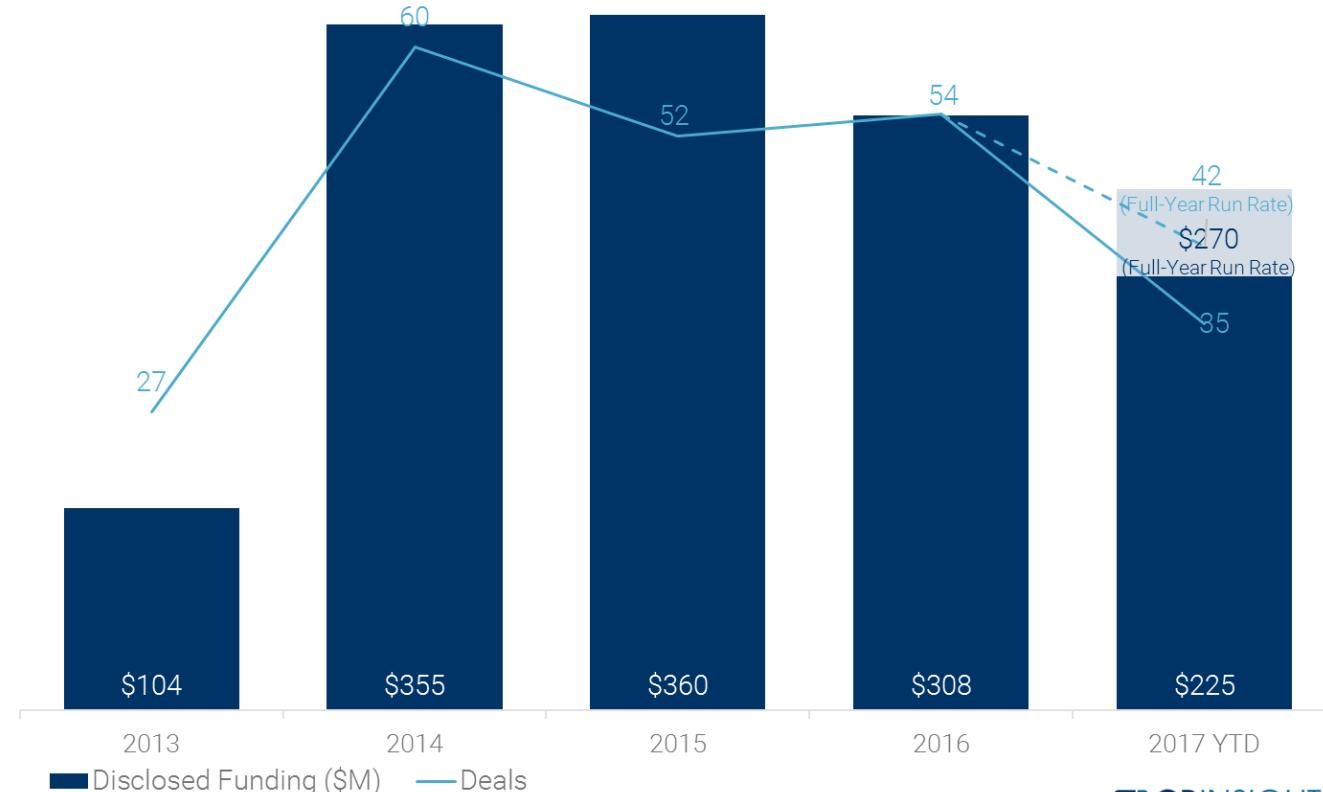
Private market activity has slowed down

Telemedicine companies saw a spike in deals and funding in 2014, but has since stagnated in 2017. Part of this could be due to a slow exit environment and business model uncertainty.



Telemedicine annual financing history

2013 – 2017 YTD (10/27/2017)



Well-capitalized telemedicine startups have not brought liquidity

American Well®



Disclosed Funding: \$141M
First Funding: 2007

SOC | SPECIALISTS ON CALL™
Telemedicine Powered by Partnership



Disclosed Funding: \$89M
First Funding: 2007

dr. on demand



Disclosed Funding: \$87M
First Funding: 2013

MDLIVE®



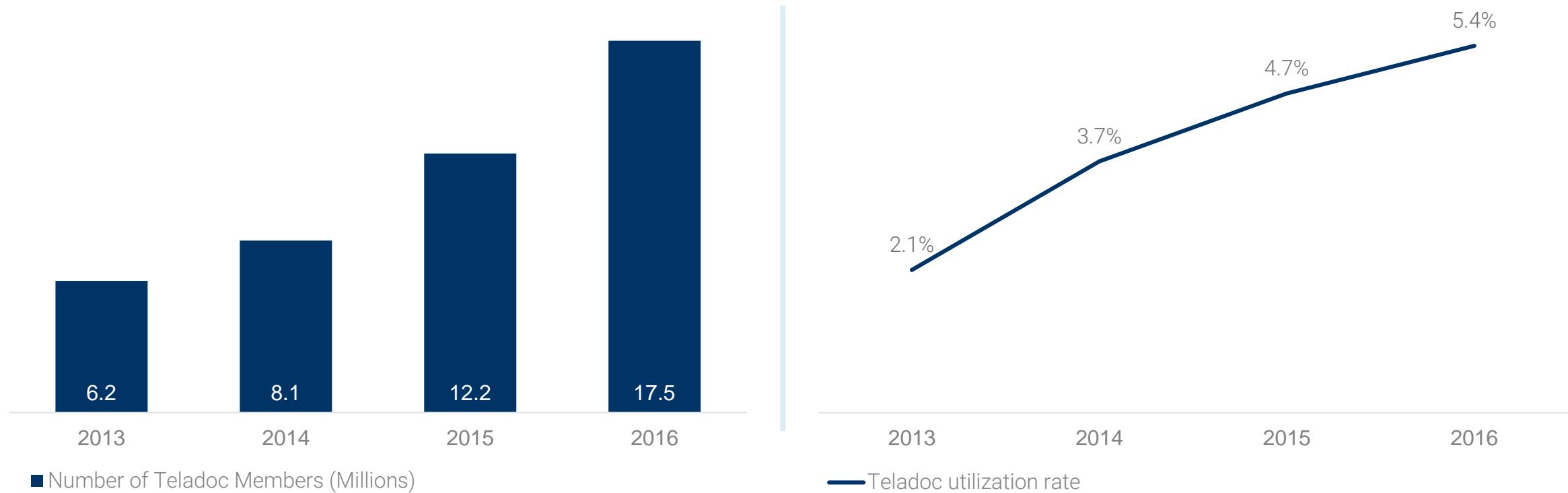
Disclosed Funding: \$74M
First Funding: 2014

The successes have been slow

Teladoc was one of the early startups in this space, and after struggling for the first couple of years in public markets, has slowly climbed.



TELADOC® by the numbers



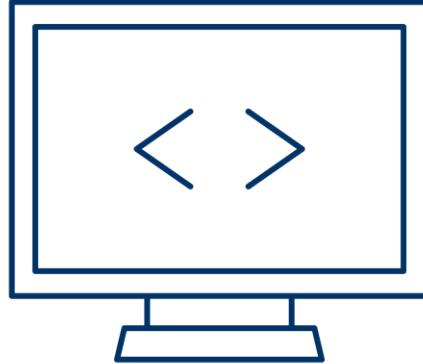
Teladoc is signing up more people and giving them access to telemedicine, but the number of people actually using it has barely broken 5% (though notably it continues to grow)

The first wave of telemedicine



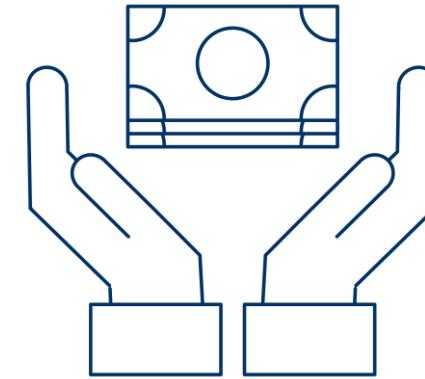
PER MEMBER PER MONTH

Uses employers as distribution and claims to lower their employee medical costs.



LICENSING

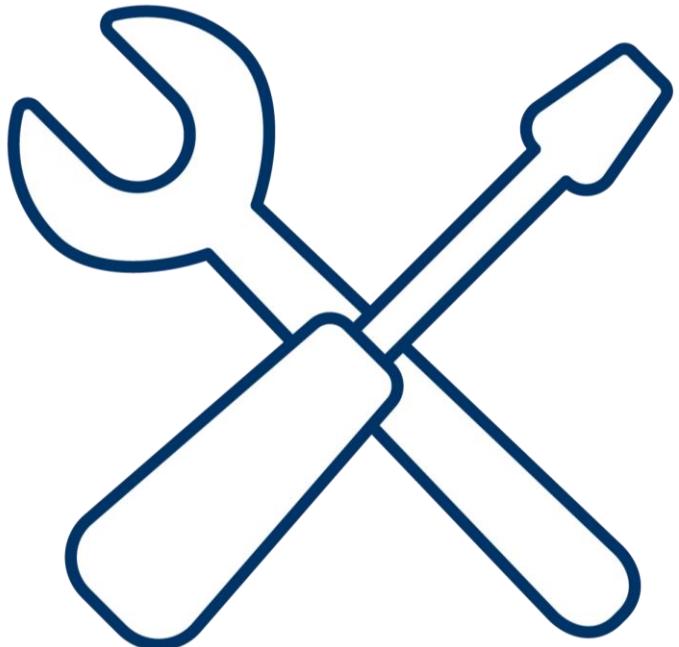
Flat-fee, use of telemedicine software is effectively “sold” to the customer.



PER TRANSACTION

“Pay as you use.” Customers are charged per transaction.

Issues to fix with these models



1. They don't receive the financial upside of a healthier population
2. Employers are a saturated market with long sales cycles
3. Return on investment takes a long time to prove
4. Doctor's time investment is still significant, cost of service doesn't change for the consumer

Next wave of telemedicine models
attempt to address these issues

Telemedicine as a part of digital therapeutics

Using a suite of tools (wearables, chat, online portals, etc.) we're starting to see more remote programs with lower overhead costs and more scalable services targeting conditions which are rooted in lifestyle choices.

The image shows a screenshot of the Omada Health website. The header features the Omada logo, which consists of a stylized orange circle icon followed by the word "omada". Below the header, there are six cards arranged in a grid, each highlighting a different feature of the program:

- Full-Time Health Coach**: Every participant is supported by a full-time health coach who monitors progress and gives daily, around-the-clock feedback. A "PLAY VIDEO" button is present above a photo of a woman in a red long-sleeved shirt.
- Smart Technology Included**: We deliver smart technology directly to their doorstep, already synced to their private account - no setup required. An image shows a black smart scale, a smartphone displaying the Omada app, and a tablet showing a graph.
- Online Support Group**: Participants are matched with a like-minded online peer group for added encouragement and accountability. An image shows a person using a laptop to view a virtual support group interface.
- Interactive Curriculum**: Over 16 weeks, each participant is guided through an online health lesson that tackles the physical, social, and psychological components of their condition. An image shows hands interacting with a tablet displaying a colorful curriculum interface.
- Games That Reinforce Learning**: Interactive games reinforce learning and help participants make connections to real-world scenarios. An image shows a person smiling while playing a game on a tablet.
- Lasting Habits**: After graduation, participants continue to receive support as long as they need. This ensures they maintain - or even deepen - their weight loss and healthier habits over time. An image shows three people walking along a path in a park.

Outcomes-based pricing for therapeutics

Reimbursement is SLOWLY being figured out...



The FDA is warming up to digital therapeutics companies...



And more companies are employing the outcomes model

 **Livongo®**

 **virta**

 **omada**

Fully asynchronous visits change the cost

Fully asynchronous visits for low-risk products allow doctors to efficiently evaluate more people without seeing them face-to-face.



⌚ 2 Hour Doctor Response
M-F 8AM-5PM PACIFIC TIME

SAME DAY ONLINE DOCTOR VISITS FOR \$25

Birth Control Pills →	Urinary Tract Infection (UTI) →	Sinus Infection →	STD Testing →
A1C Blood Sugar Test →	Erectile Dysfunction →	Cholesterol →	Hair Loss →
Acne →	Flu →	Acid Reflux →	



3 Steps to Birth Control



Choose your Brand

Select your brand, answer a few questions, enter your insurance and shipping info.



Our Doctors Review

A doctor in your state will review the request and write a prescription.

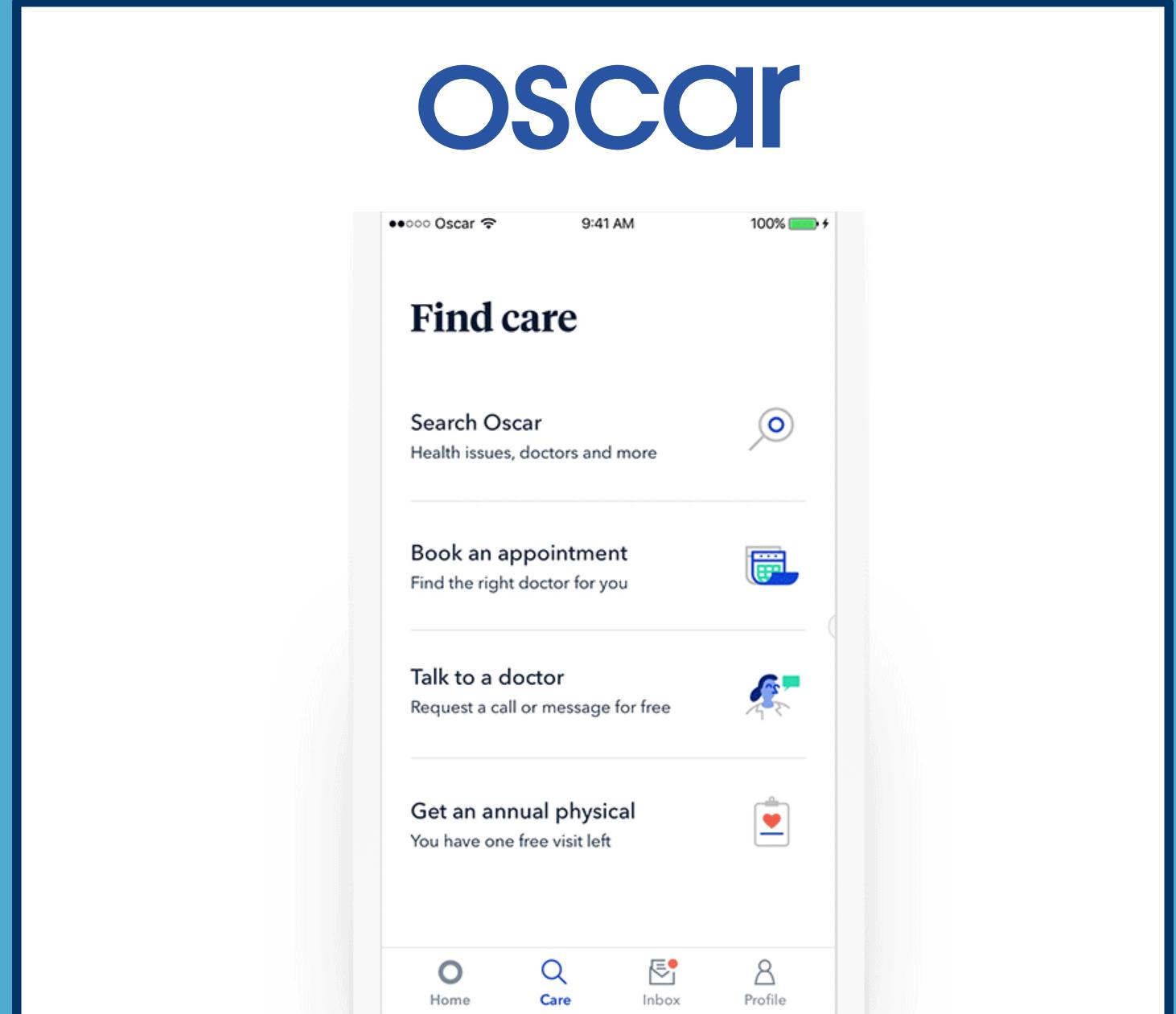


We Deliver Free

Your prescription is delivered on-time and at no extra cost.

Telemedicine as part of insurance

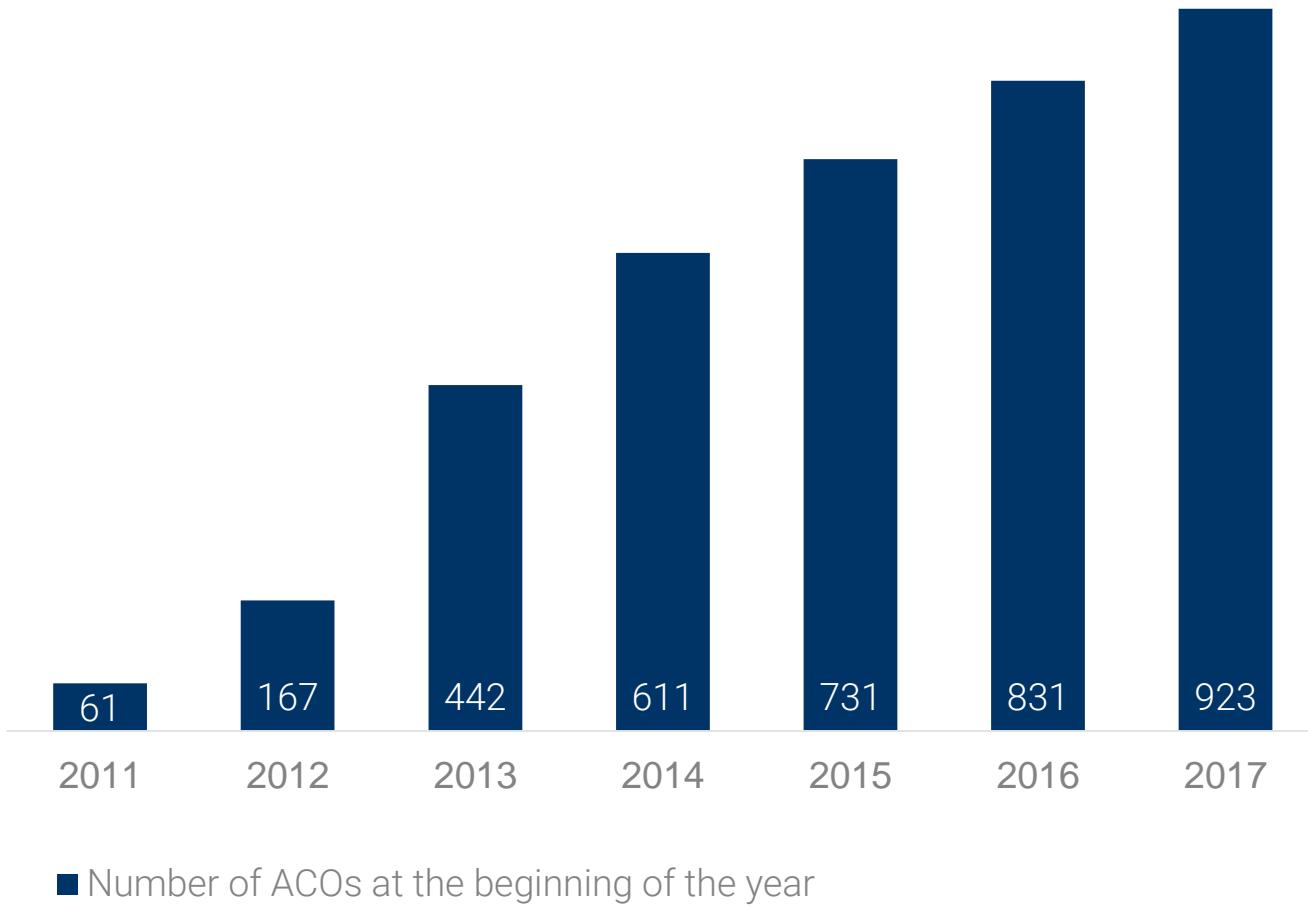
Oscar and other insurers assume the financial risk of giving telemedicine to their enrollees.



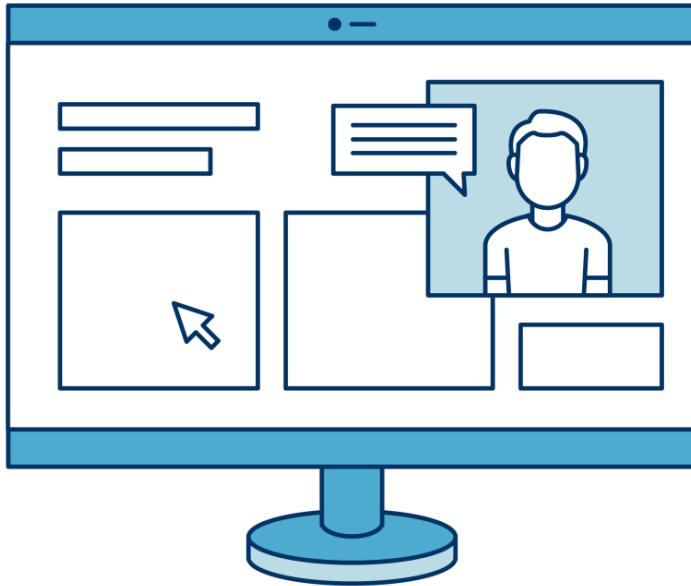
Telehealth helps hospitals take on risk

As value-based care models expand and ACOs become more popular, telehealth is becoming table stakes and hospitals are assuming more risk.

Number of Accountable Care Organizations



Top reasons providers want telemedicine:



72% Meet patient demand

66% Improve clinical outcomes

62% Meet the goals of delivering value based care

Telemedicine helps hospitals...

...EXTEND PHYSICIANS



Increase Capacity

Increase provider panel size by 30% – with no additional staff or facilities

- Care for more patients by helping your providers work smarter, not harder
- Create same-day openings for complex and high-needs patients
- Inexpensively and conveniently expand evening and weekend coverage

...ACCESS SPECIALISTS



Patient Care at Risk Due to Limited Access to Specialists

Patients Wait
24
Days for an Appt.

Of All ED Visits
70%
Are Non-Emergent

ED Visits Cost
\$1,233
on Average

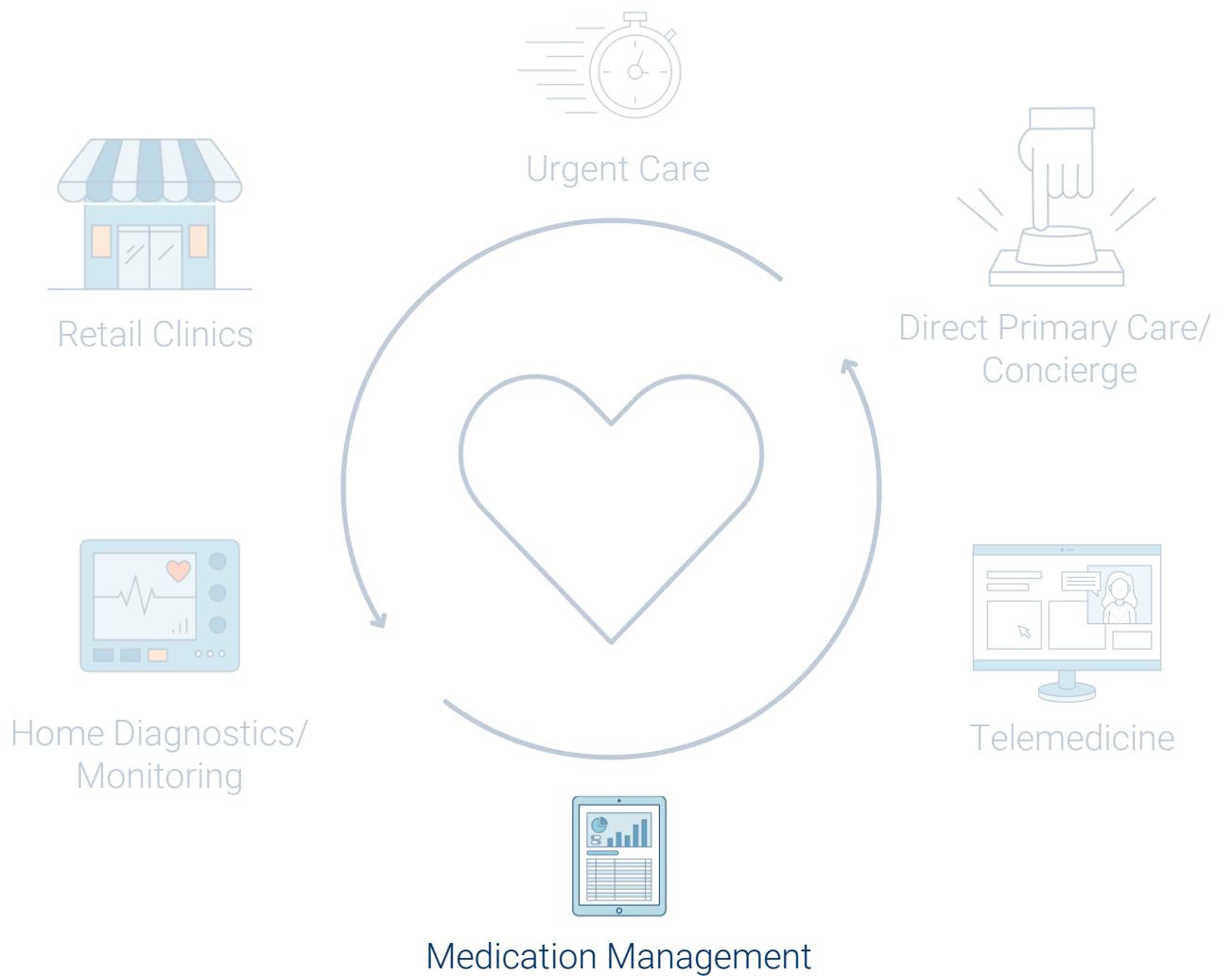
...MANAGE CHRONIC DISEASE



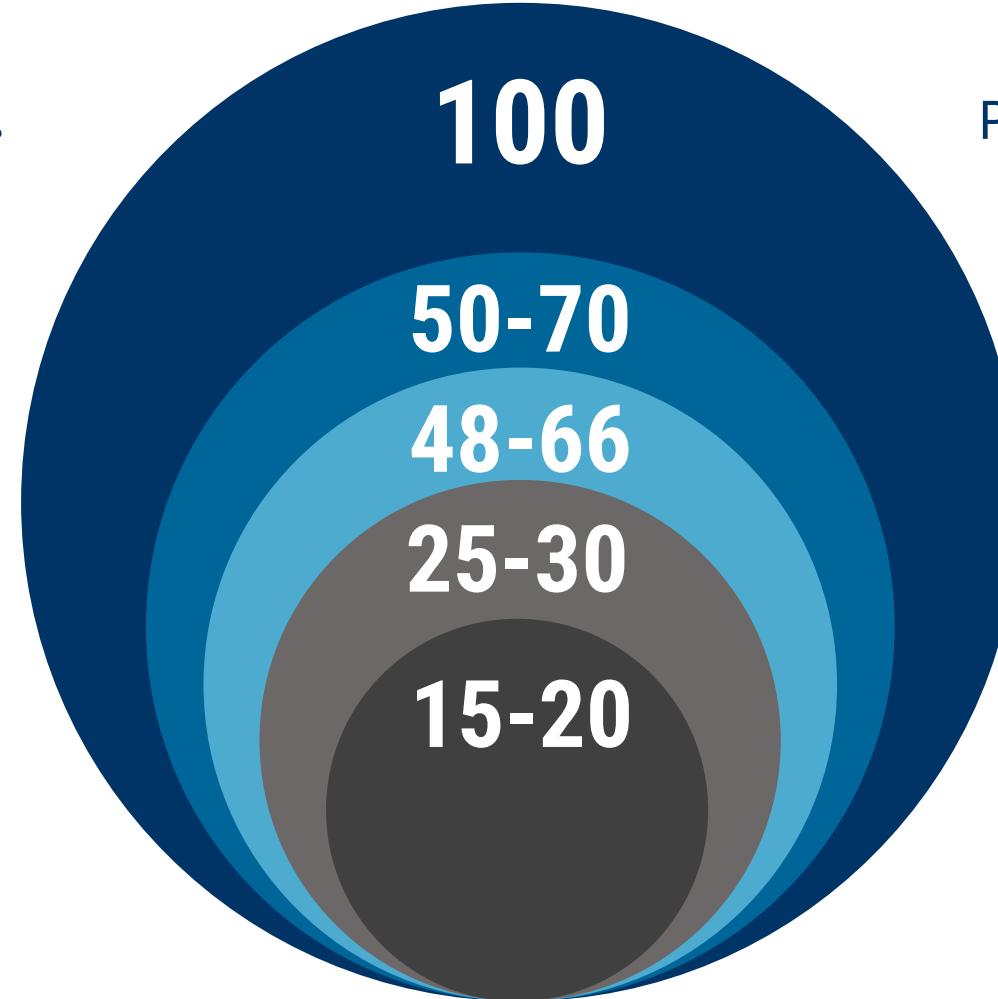
Medicare CCM Program

The new Chronic Care Management Program reimburses providers \$42.50 per month for 20 minutes of clinical staff time spent on patients with two or more chronic conditions. In a year, practitioners can earn upwards of \$200,000 in additional revenue. Telemedicine is ideal for taking advantage of the CCM program.

Medication Management



For every...



Prescriptions written...

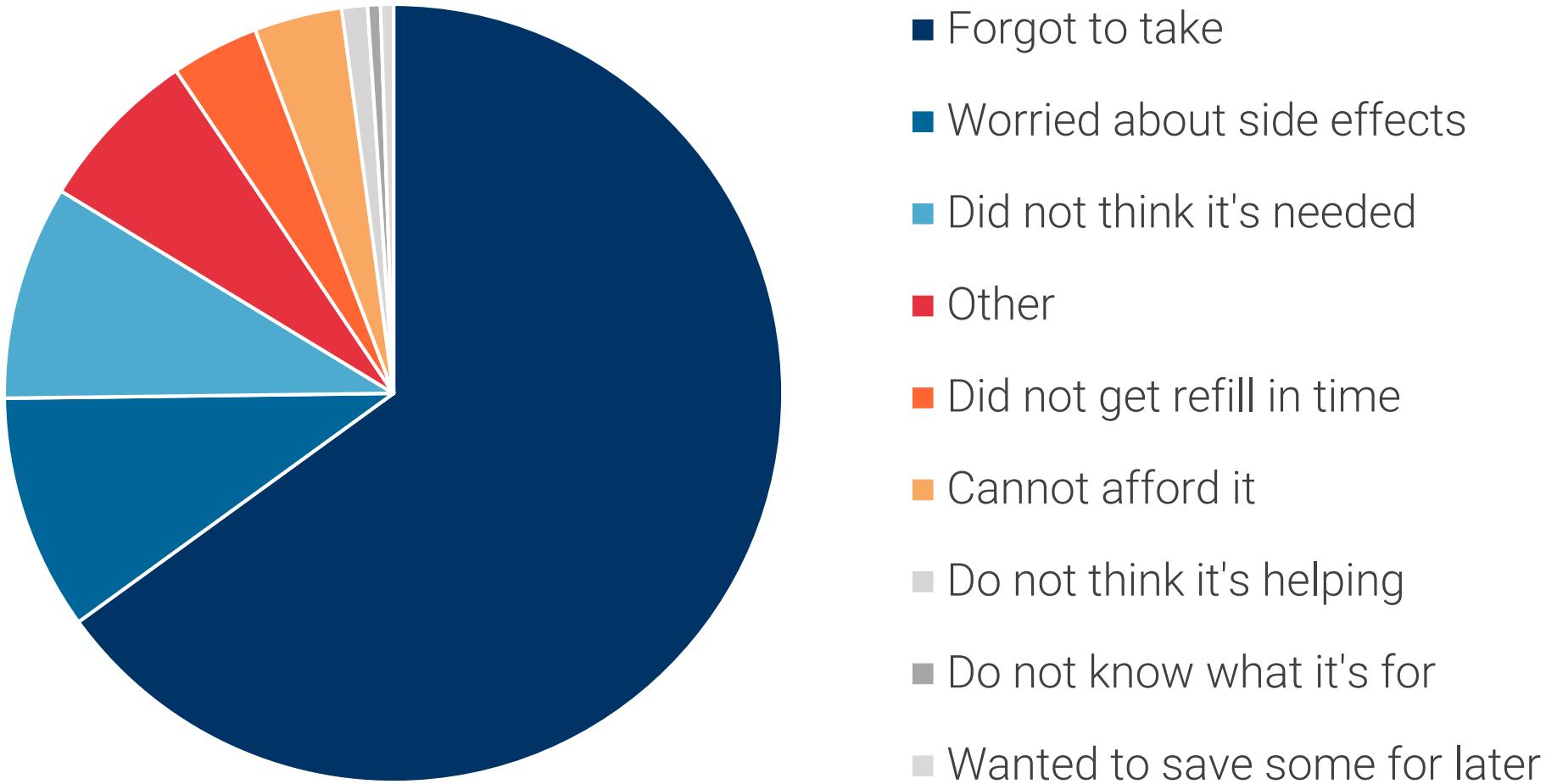
Are filled at the pharmacy

Are picked up from the pharmacy

Are taken properly

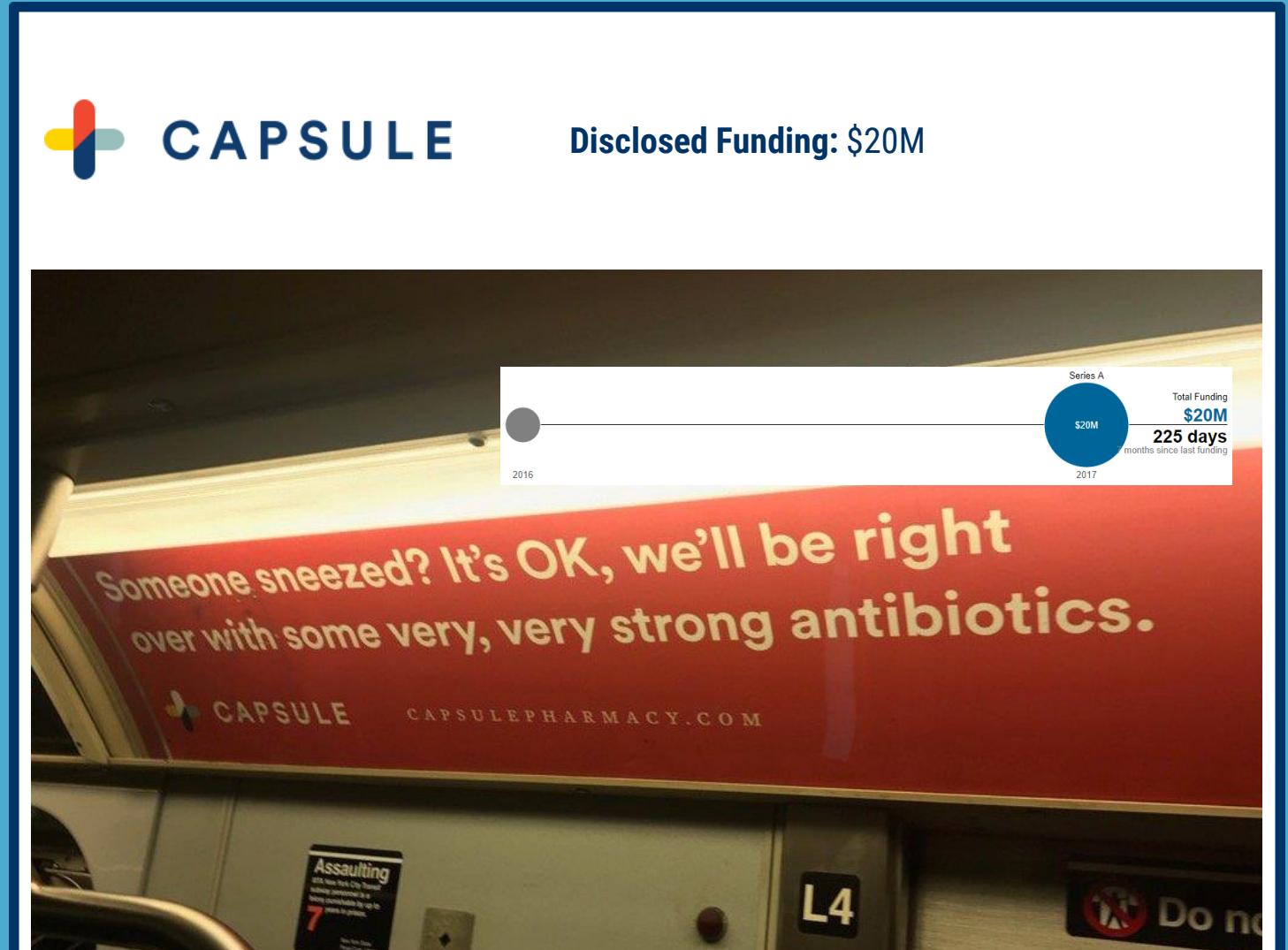
Refilled as prescribed

Reasons for non-adherence



Making it easier to get drugs

Many of these startups are trying to ease the process of getting a prescription and refilling by providing things like last-mile logistics and concierge services.



Making it easier to understand drugs

A big part of these new virtual pharmacies is they offer services to explain drugs, offer concierge teams to coordinate refills and handle insurance, and address packaging to simplify complex drug routines.



Disclosed Funding: \$118M



AUTOMATIC REFILLS

We contact your doctors and proactively manage your refills for you.



COORDINATED CARE

Your doctors send new prescriptions directly to our pharmacy.



COMPLETE ACCURACY

We use an automated dispensing system with multiple pharmacist checks.



CONVENIENT PACKAGING

We sort and package your medications into individual dose packs.

ALL YOUR PHARMACY NEEDS

Inhalers, creams, diabetes testing supplies, and refrigerated items
As-needed medications in bottles
Preferred brands of vitamins and OTCs



Making it cheaper to buy

By getting more consumers to use platforms, companies are aiming to leverage negotiating power and bring down the costs of drugs, while providing transparency in the process.

BLINK·HEALTH

Disclosed Funding: \$171M

STEP 1
Search for your prescription

Drug name

STEP 2
Pay for it online or in the app

Pay

STEP 3
Pick up at your pharmacy

\$0.00

How we do it

Blink provides one, low price.

When you use Blink Health, you are joining a network of over 25 million people. Together, we are able to negotiate with pharmacies to determine one, low price for each medication that is accepted at over 57,000 pharmacies nationwide.

We negotiate

One Low Price

You save \$\$\$

Different approaches to reminders + adherence

Companies are taking different approaches to adherence, from smart pillboxes and bottles, to leveraging the smartphone and machine vision, to creating ingestible sensors that monitor pills.

AdhereTech



Approach: Smart pill bottle



TowerView
Health



Approach: Smart pill box



Approach: Cellphone +
machine vision



Approach: Digital pill +
wearable patch

Smart gadgets alone may not be enough

Simply notifying users that they need to take their medication may not be enough. Many of these hardware companies are including services as part of their bundle too.

February 27, 2017

Effect of Reminder Devices on Medication Adherence

The REMIND Randomized Clinical Trial

Niteesh K. Choudhry, MD, PhD^{1,2}; Alexis A. Krumme, MS^{1,2}; Patrick M. Ercole, PhD, MPH³; et al

Key Points

Question To what extent can 3 low-cost reminder devices improve medication adherence among individuals who are receiving therapy but are poorly adherent?

Findings In this randomized clinical trial of 53 480 enrollees of a pharmacy benefit manager, no statistically significant difference in adherence was found between those in the control group and those who received a reminder device (pill bottle strip with toggles, digital timer cap, or standard pillbox).

Meaning Future research should focus on effective targeting of interventions and strategies that ensure sustained medication use.

Fancy pill boxes might not work by themselves



EVERYDAY OBJECTS

AM/PM Pillbox

\$500

For more information, please call Customer Service at 800 843 3269.

[FIND IN STORE](#)

[SAVE](#)

[DROP A HINT](#)

SHARE / PRINT

DESCRIPTION & DETAILS

The Everyday Objects collection transforms utilitarian items into handcrafted works of art. Here, a traditional pill box gets a whimsical Tiffany twist.

- Sterling silver with Tiffany Blue® enamel accent finish
- 2.1'L x 1.4'D x .75'H
- Instantly recognizable, the signature Tiffany Blue® hue of this design's enamel accent has been as iconic as the brand itself since its founding in 1837

ENGRAVING AVAILABLE

+

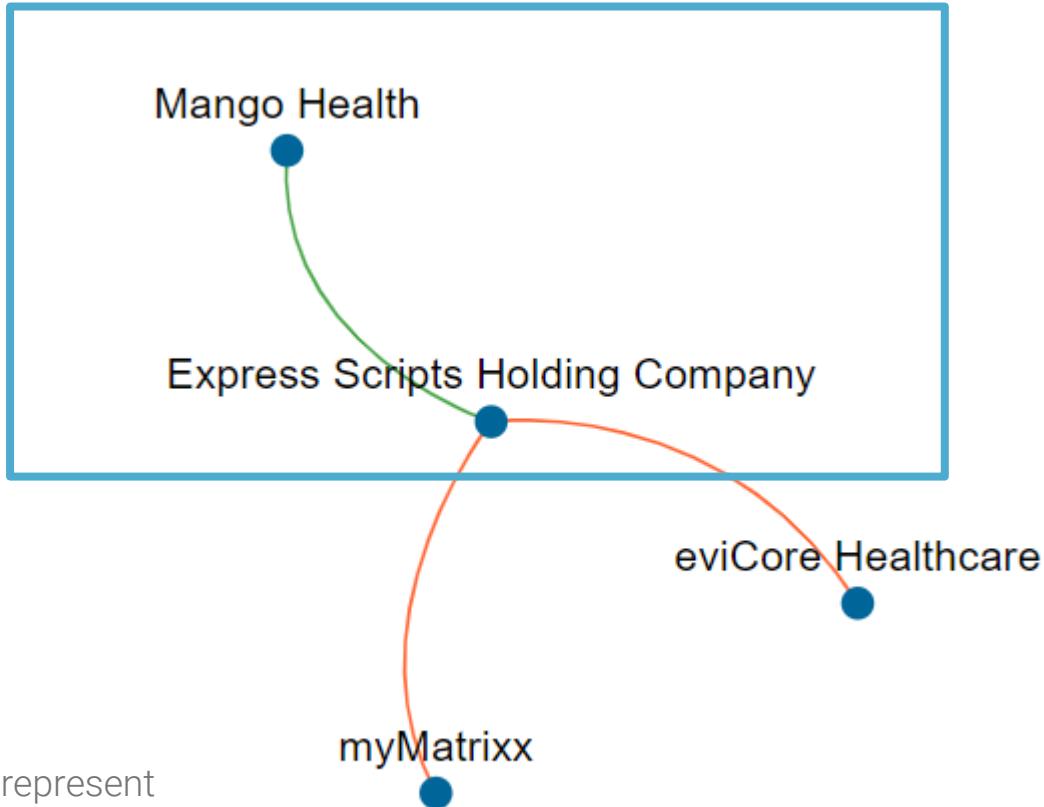
PBM players see adherence as an opportunity

Express Scripts recently invested in Mango Health, a medication adherence startup. This was its first investment since 2012.

The company is also partnering with Propeller Health, a smart asthma pump.



Express Scripts Holding Company Activity



*Red lines represent
M&A, green lines
represent investments

INSURERS ARE TAKING IT INTO THEIR OWN HANDS

"So you always have an issue, low adherence with a medication like [statins], because sometimes, people equate, "Oh, I feel great. I don't need to take my medication." Or you may even halve it because you have side effects or whatnot. And so now, that, in and of itself, creates alert in our system.

So that alert goes to our customer experience team. So they're outreaching, now, you as a customer to find out what's going on... And so we're now able to see if once we get the claim again, did you actually get that refill or not?"



Clover

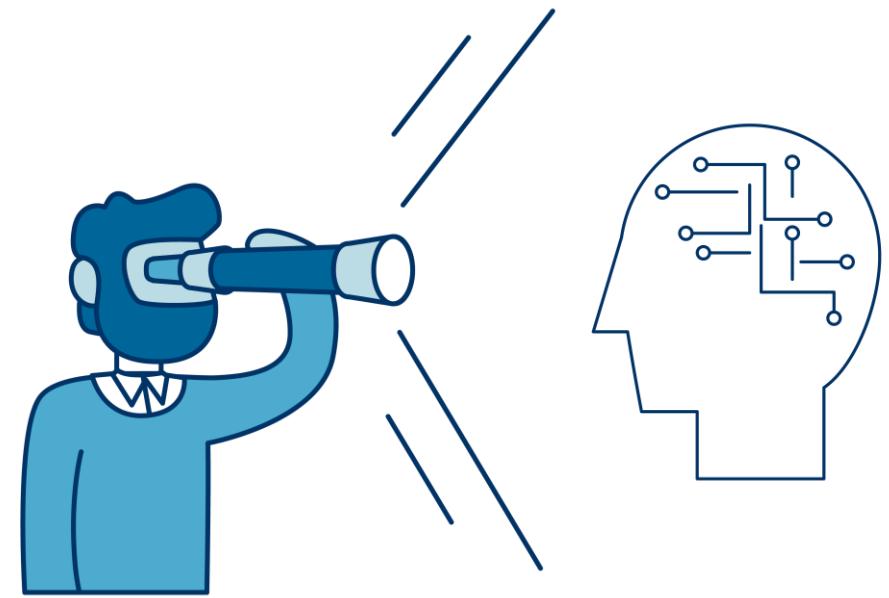
Vivek Garipalli

CEO, Clover Health

[CB Insights Future of Fintech](#)

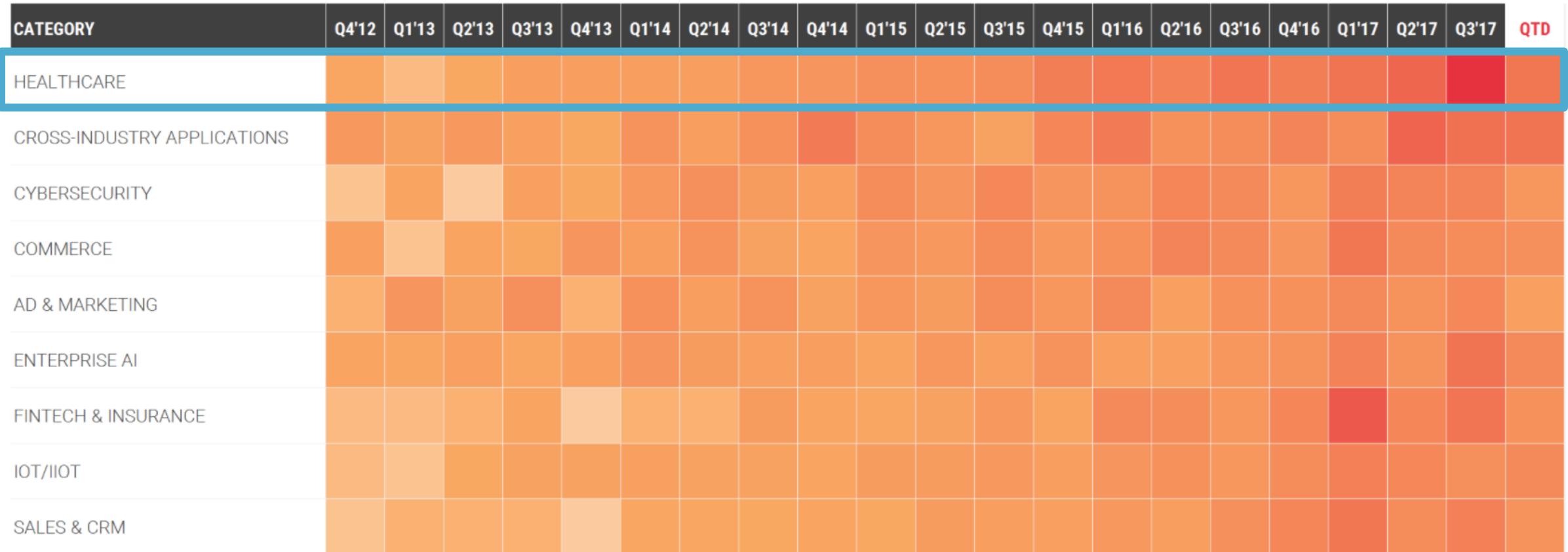
HEALTHCARE CONSUMERIZATION

Looking Ahead - Artificial Intelligence



THE NEXT FRONTIER

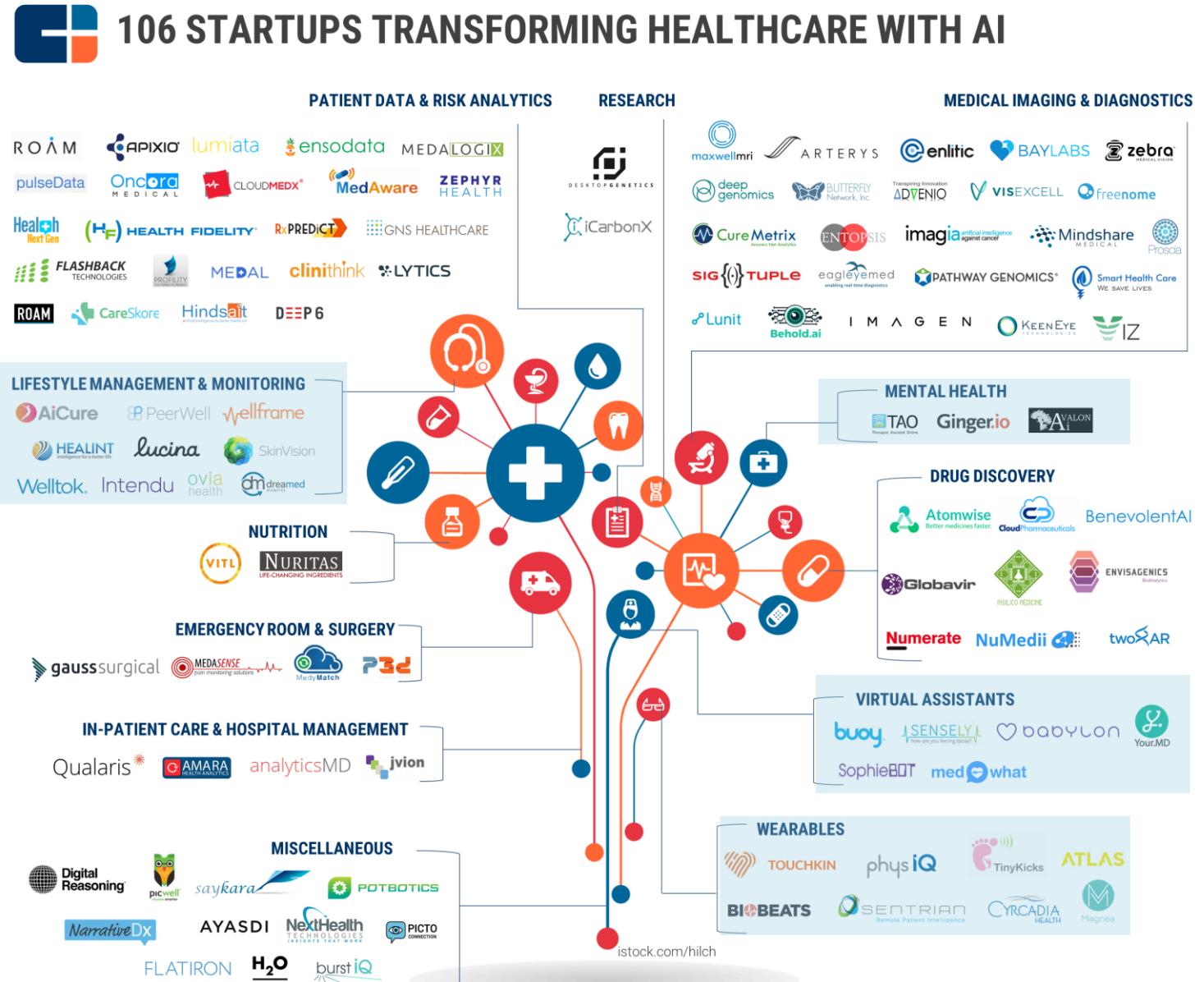
Healthcare has seen the most AI deals



THE ECOSYSTEM

Healthcare + AI Landscape

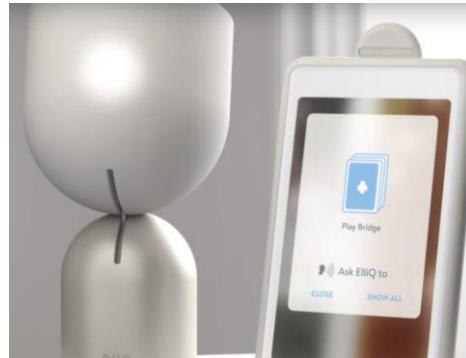
Artificial Intelligence startups are attacking different parts of healthcare, from preventive care to virtual assistants. Many of these startups are patient facing, and can reshape patients' interactions with the healthcare system.



Filling the health services void with robots

Home robots can help assist elderly patients with managing dementia, medications, and even provide companionship.

intuition robotics

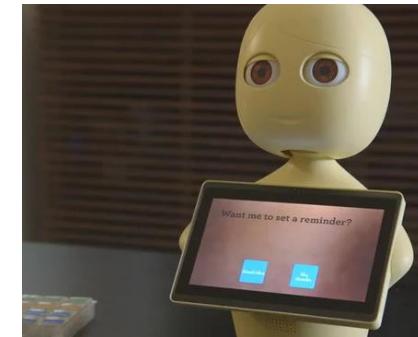


Description: Developing social companion technology to positively impact the lives of older adults

Disclosed Funding: \$20M

Select Investors: Toyota AI Ventures, Bloomberg Beta, iRobot

Catalia Health



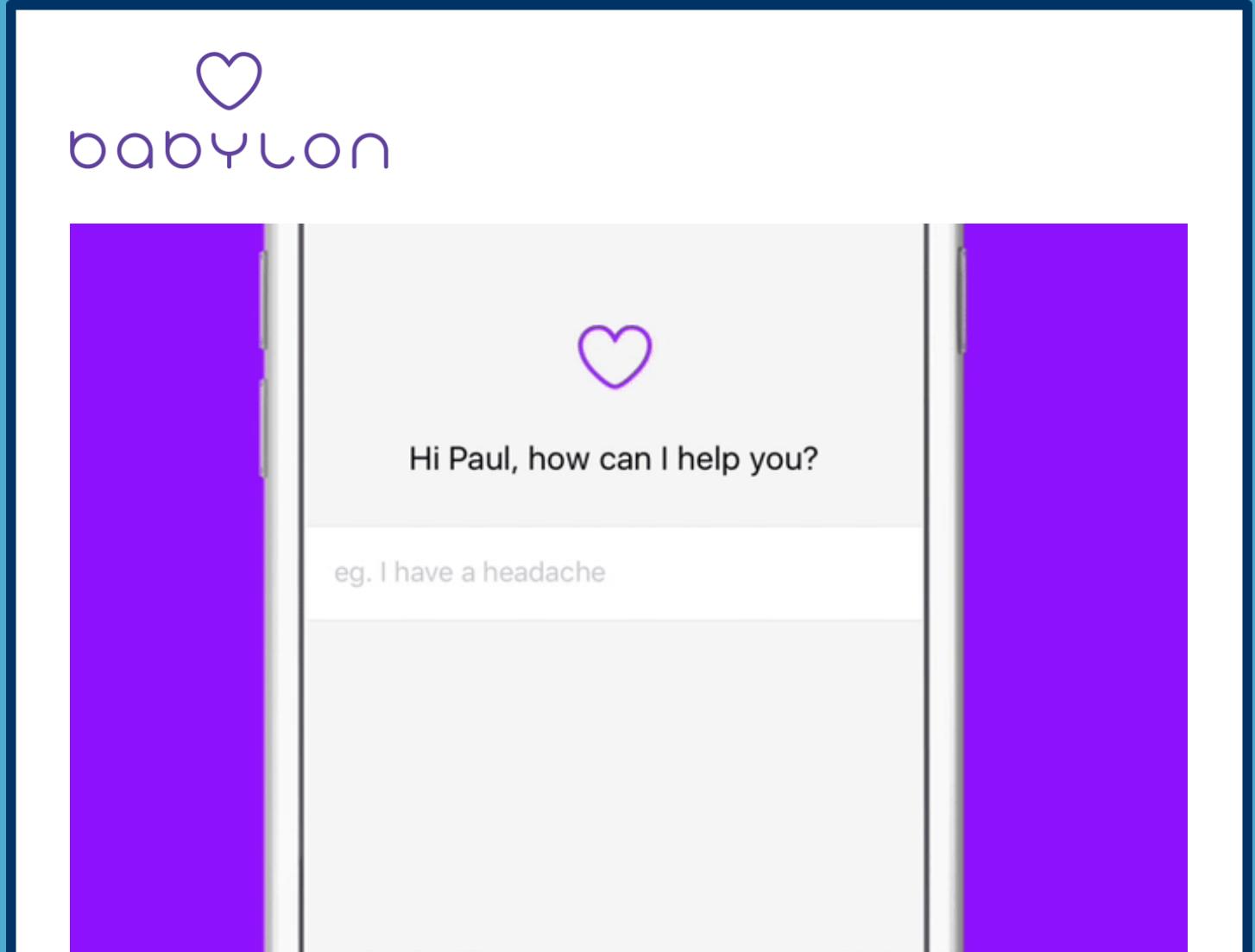
Description: Home robot to help patients with medication, monitor them, and give tailored content

Disclosed Funding: \$7.75

Select Investors: Khosla Ventures, Abstract Ventures, Ion Pacific

Can AI chatbots help triage care?

Chatbots can use conversational interfaces to help guide patients to the right point of care, depending on the severity of their issue.



Medical grade wearables + AI = Proactive care



AI acts as the bridge between the massive troves of data that wearables produce to actionable information for a provider, who can then reach out

TECH GIANTS WANT TO USE AI IN HEALTHCARE

“Right now, many hospitals depend on manual analysis of test results to flag potential issues, and then manual escalation of these issues via pagers, desktop systems and phone calls. Each step introduces the potential for delay, or for important information to be missed entirely. And each step could be improved through AI and mobile tools.

In the future, we think AI tools will be able to learn how to analyse test results and scans to instantly recognise whether a patient might be at risk, and continually improve to get even better.”



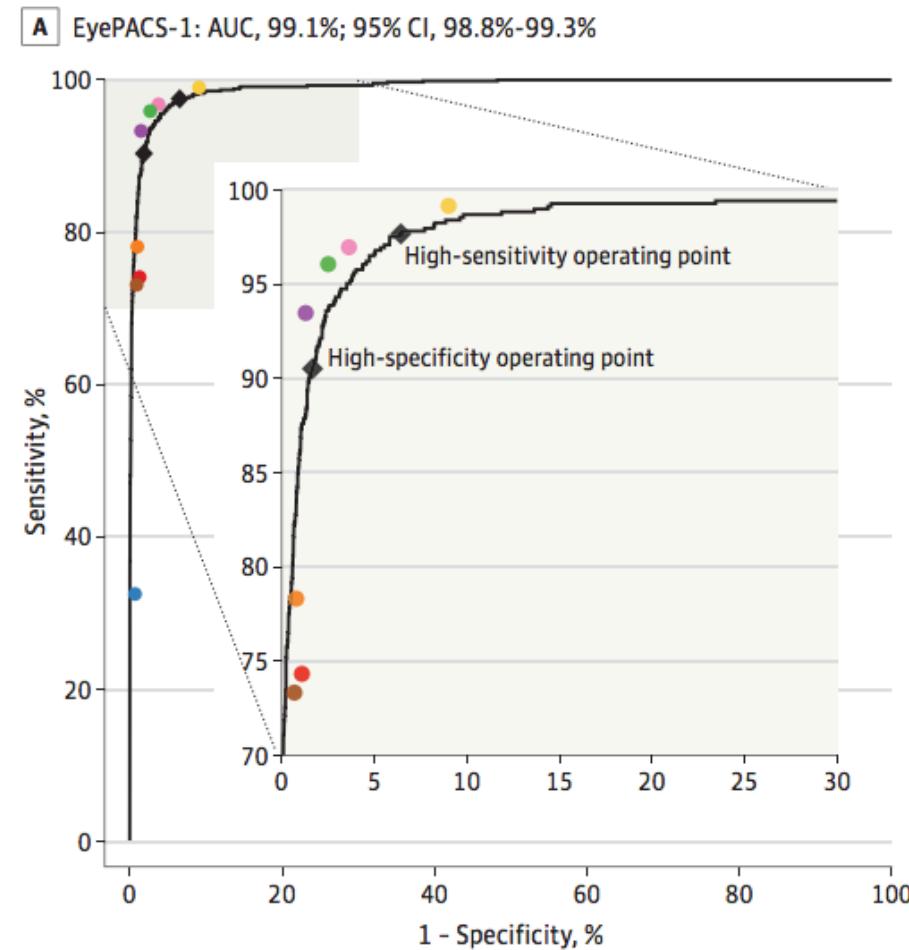
Google's algorithms are matching doctors



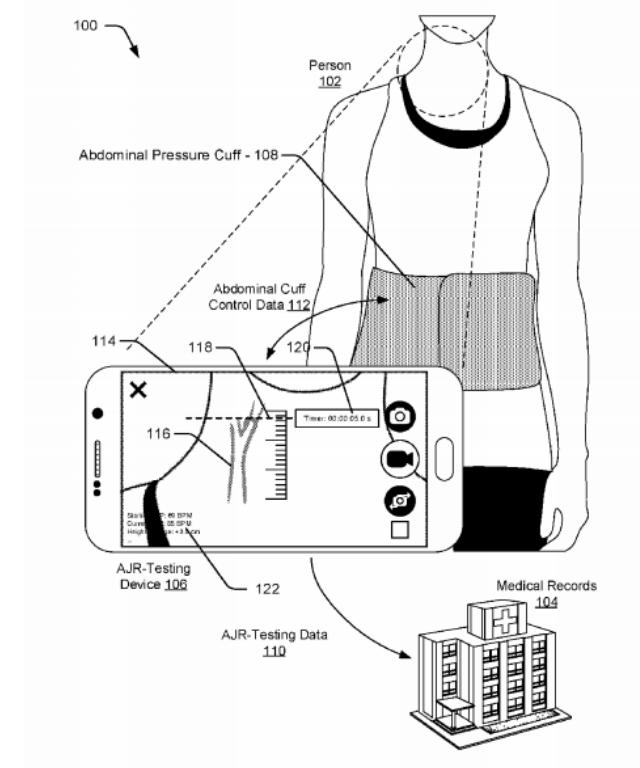
Google Research Blog

"The results show that our algorithm's performance is on-par with that of ophthalmologists."

Performance of the algorithm (black curve) and eight ophthalmologists (colored dots) for the presence of referable diabetic retinopathy based on 9,000+ images.



Google wants to automate diagnostics



Patent:
Abdominojugular reflux test

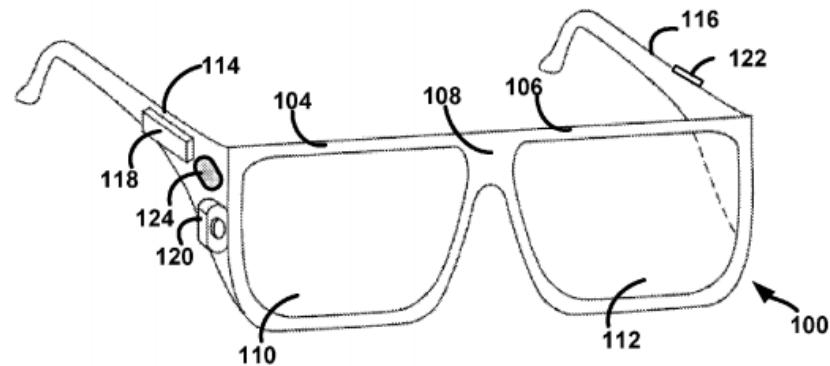
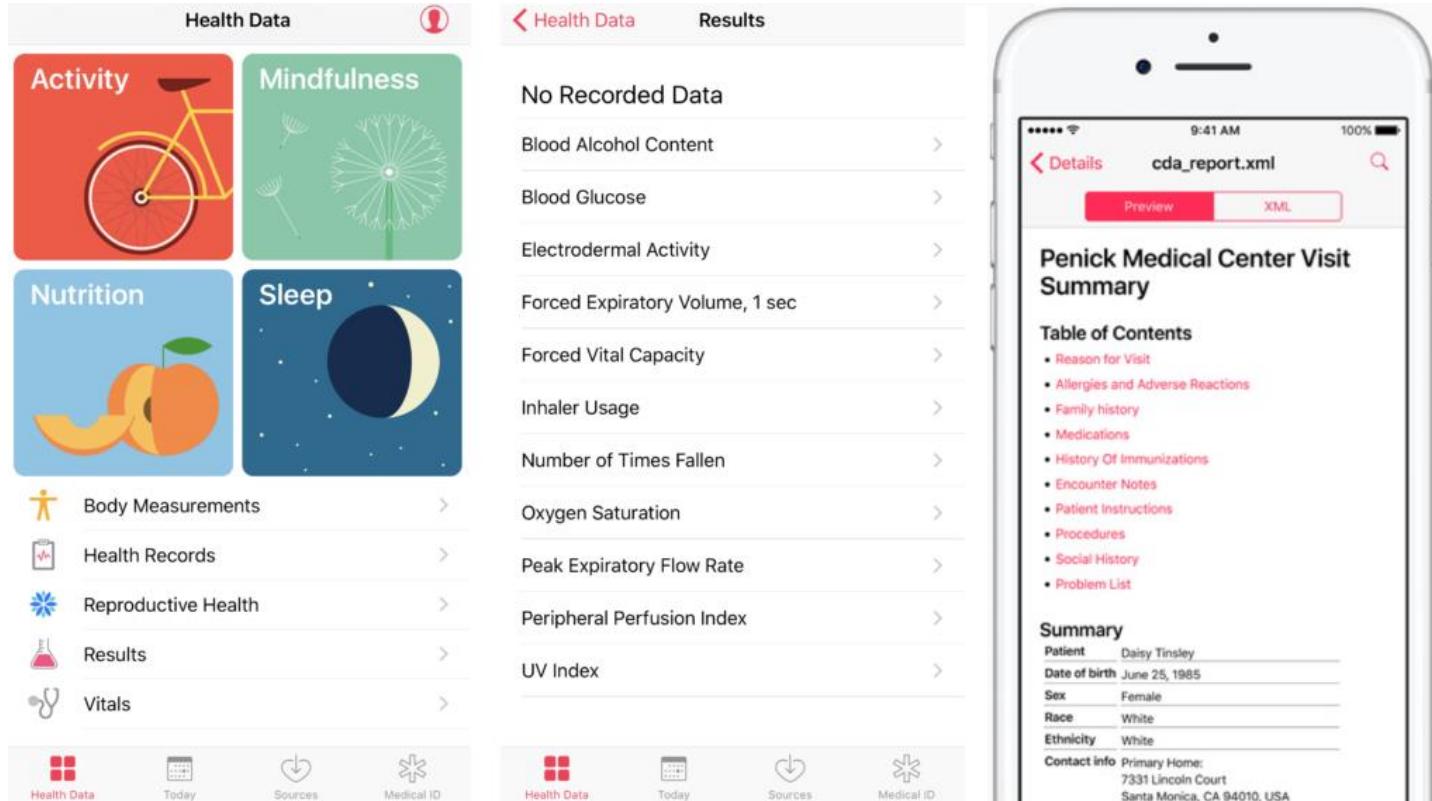


FIG. 1A

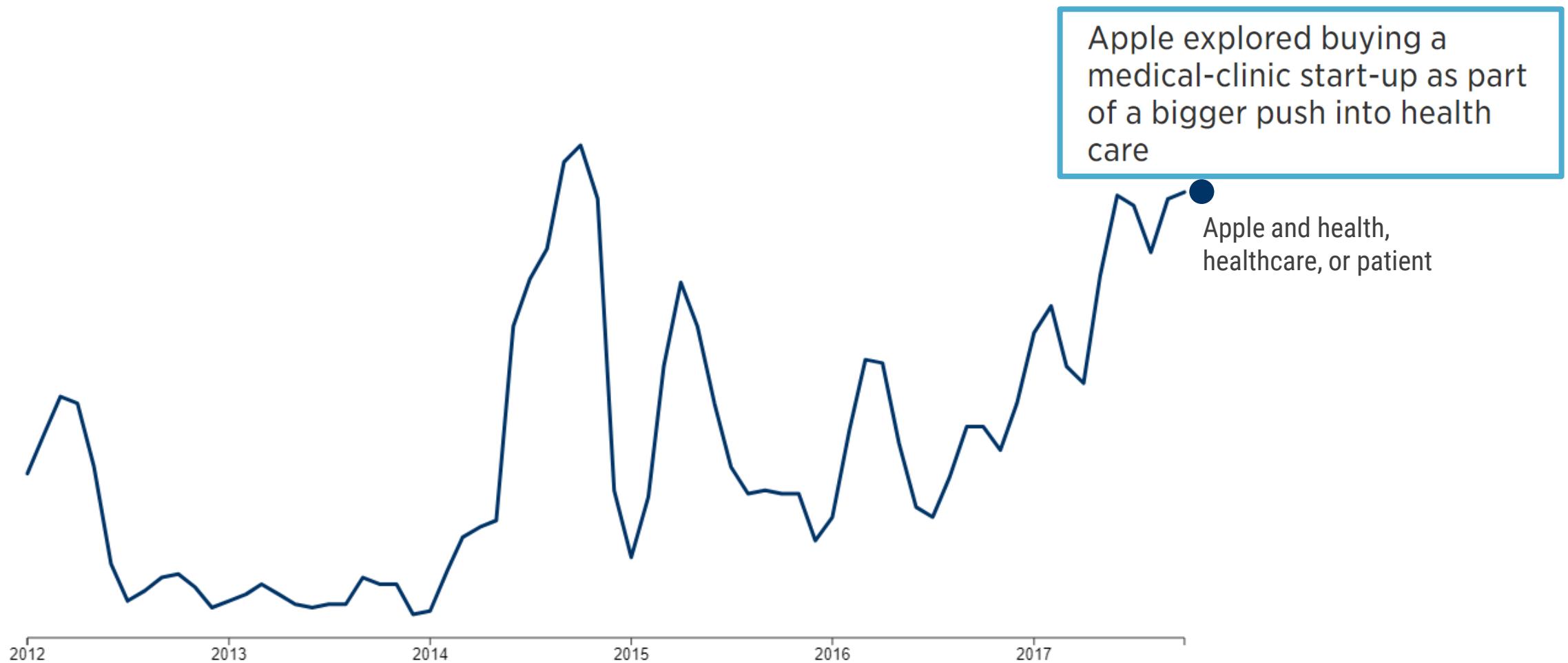
Patent:
Concussion test

Apple – health in your pocket



Apple is building out a health platform in your pocket, combining devices, personal health records, and applications. Could Apple be your first wave of care in the future?

Dr. Apple? Apple + healthcare media mentions



THE PIECES TOGETHER

Tomorrow's Primary Care

1



WEARABLES + DIAGNOSTICS

Medical grade wearables
and accurate home
diagnostics generate data

2



TRIAGING TOOLS + CHATBOT

Chatbots and AI tools will
assess risk when they
notice an anomaly

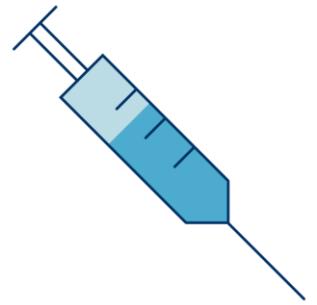
3



TELEMEDICINE FOLLOW-UP

Patients that require an
examination will receive a
telemedicine consult from a
physician

4



ROUTED FOR SERVICES

Patients are routed to
appropriate care or testing
facilities

Not yet, but one day...?



"You can't list your iPhone as your primary-care physician."

Questions?

TWITTER: @NIKILLINIT

NKRISHNAN@CBINSIGHTS.COM

