EUROPEAN HEALTHCARE DESIGN
RESEARCH • POLICY • PRACTICE

TELEMEDICINE AND THE FUTURE OF DISRUPTION

June 11, 2018

BALLINGER

SPEAKERS

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AGENDA

WHY IS TELEMEDICINE NEEDED?

- Access
- Cost
- Staff retention
- Chronic patient needs

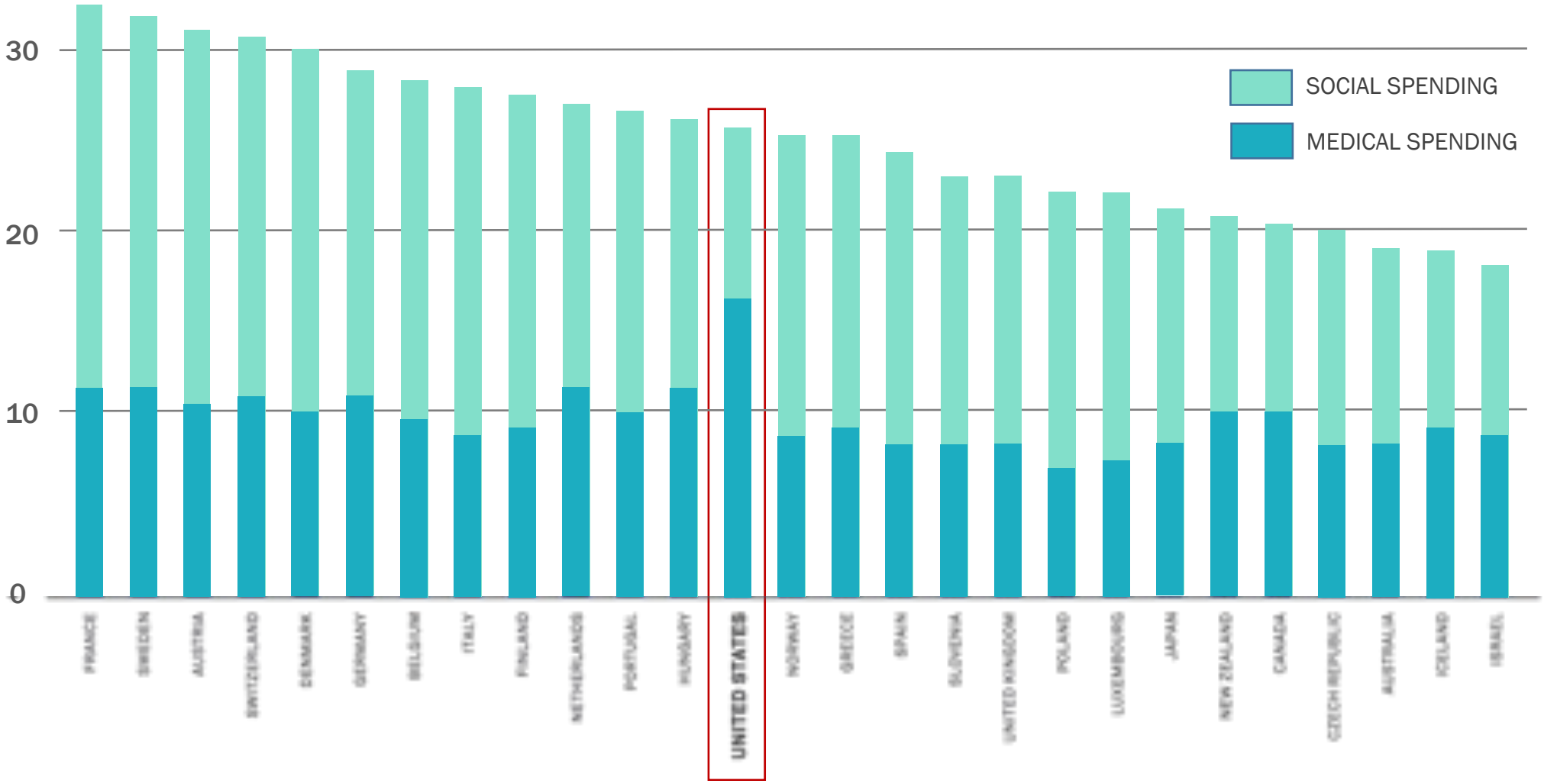
WHAT IS TELEMEDICINE?

- Virtual visit
- Chronic care management
- Inpatient access to specialists
- Opportunities for clinician engagement

WHERE IS TELEMEDICINE?

WHY IS TELEMEDICINE NEEDED?

U.S ANOMALY IN HEALTH AND SOCIAL SPENDING



Source: OECD

HEALTHIEST COUNTRIES INDEX

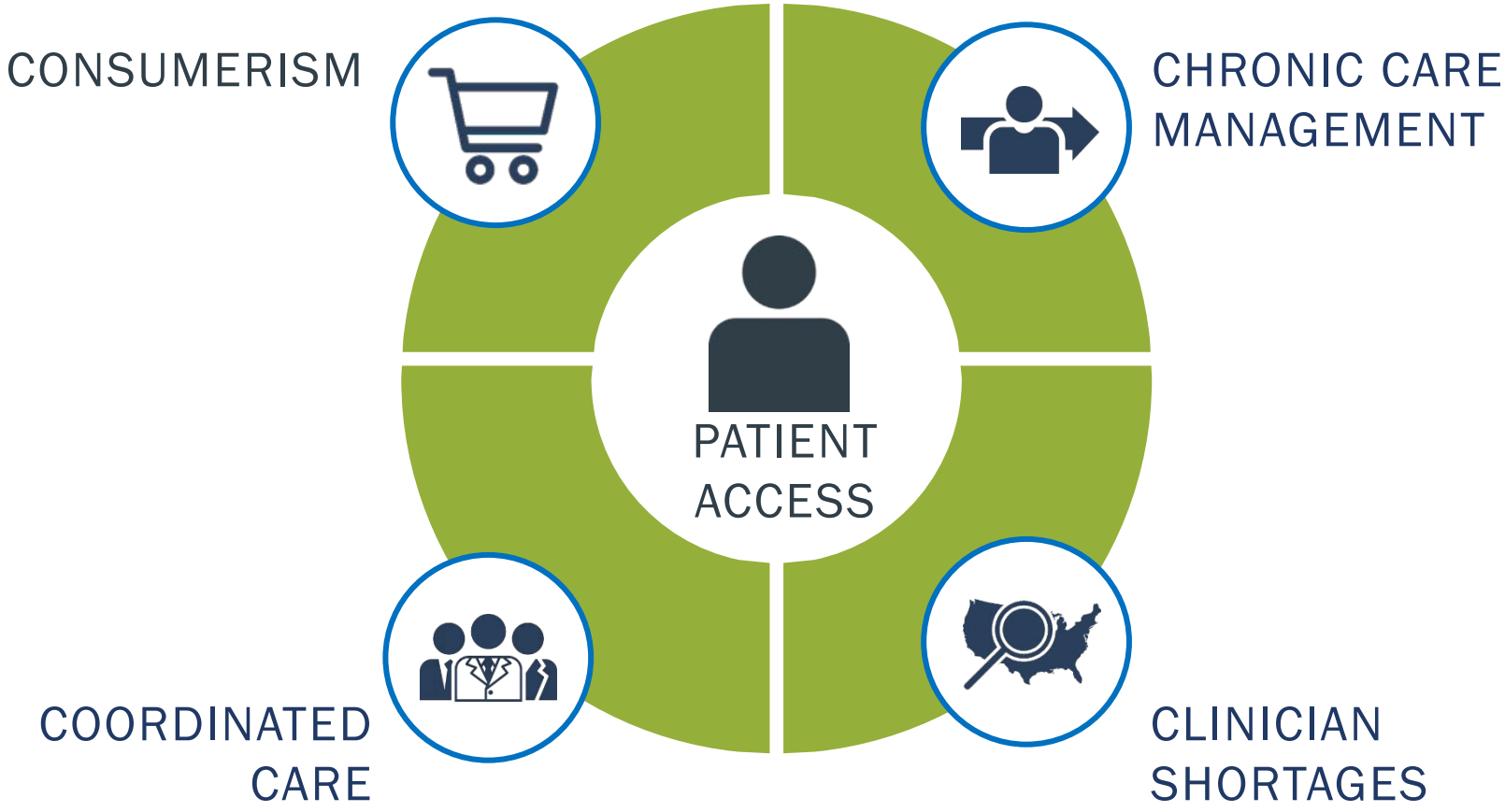
1. Italy
2. Iceland
3. Switzerland
4. Singapore
5. Australia
6. Spain
7. Japan
8. Sweden
9. Israel
10. Luxembourg

Source: Bloomberg Global Health Index 2017

THE EVOLVING QUADRUPLE AIM

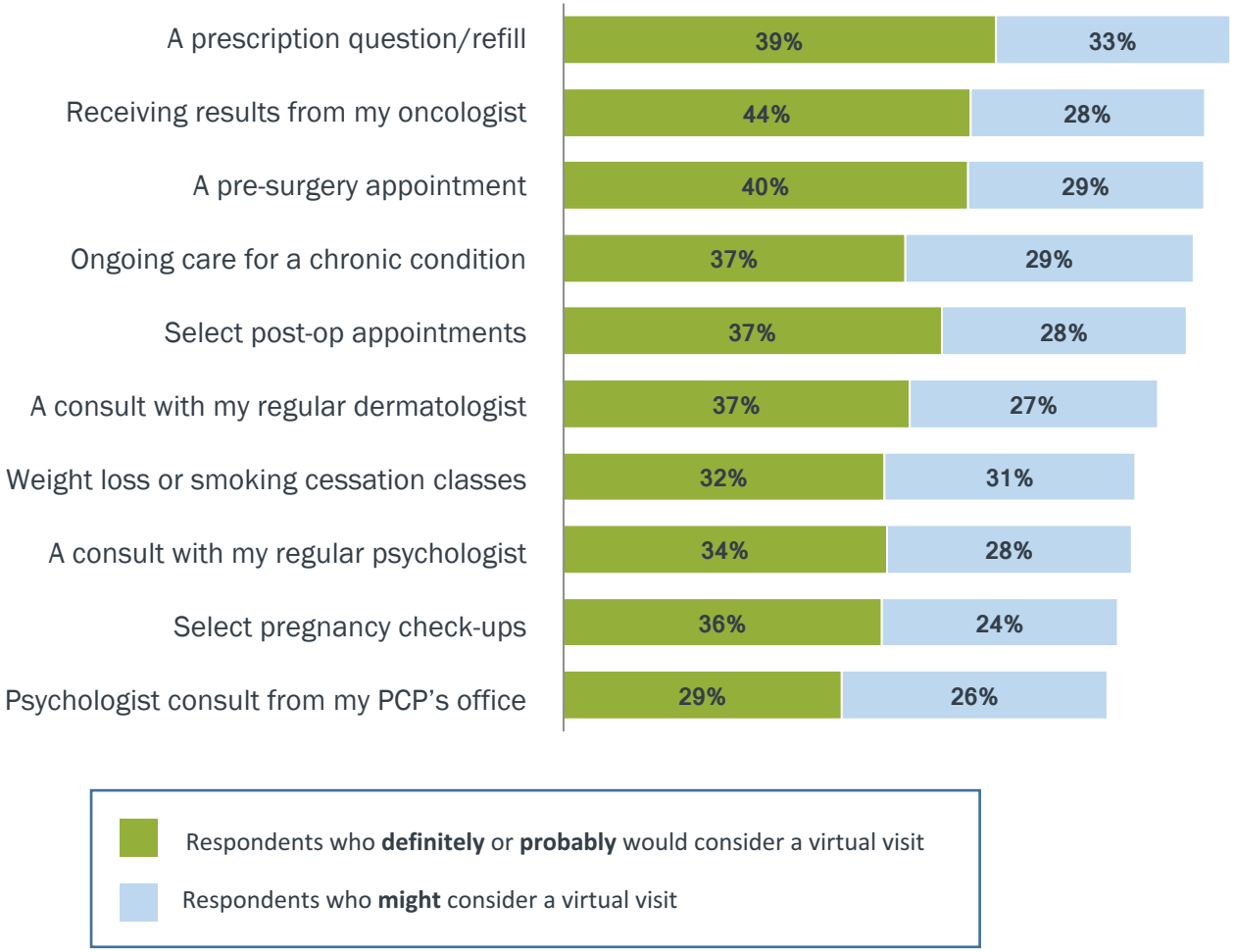
Delivering the Right Care, for the Right Price, at the Right Time – in the Right Place

TELEMEDICINE DRIVERS



CONSUMERISM

CONSUMERS' TOP 10 VIRTUAL VISIT USE CASES



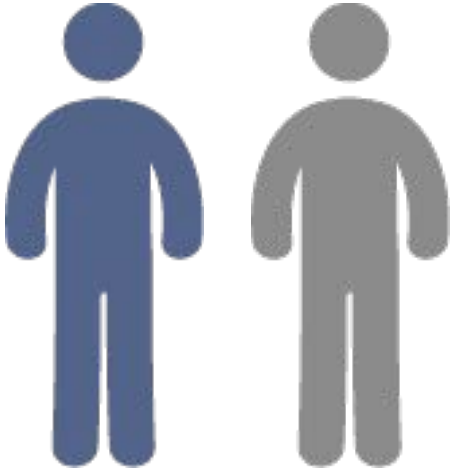
80% of internet users in the US have searched for health related information online

Pew Research Center

PATIENT VALUE PROPOSITION

- Shorter wait times to next appointment
- No need to travel for care
- Visit in the privacy of home
- More frequent and ongoing care

Source: Market Innovation Center 2016 Virtual Visits Consumer Choice Survey; Service Line Strategy Advisor research and analysis..

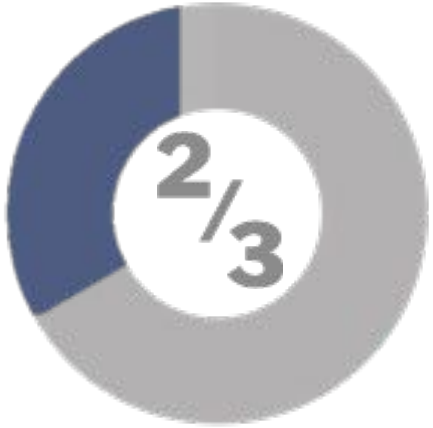


NEARLY ONE HALF
OF ALL AMERICANS SUFFER
FROM AT LEAST ONE
CHRONIC DISEASE

CHRONIC DISEASES

ACCOUNT FOR $3 OF EVERY $4

SPENT ON HEALTHCARE



OF **ALL DEATHS** ARE
CAUSED BY ONE OR MORE OF
5 CHRONIC DISEASES

- HEART DISEASE
- CANCER
- STROKE
- COPD
- DIABETES

Source: https://www.cdc.gov/chronicdisease/overview/index.htm

CHILDHOOD OBESITY

Childhood Obesity Rates have tripled since the 1970's

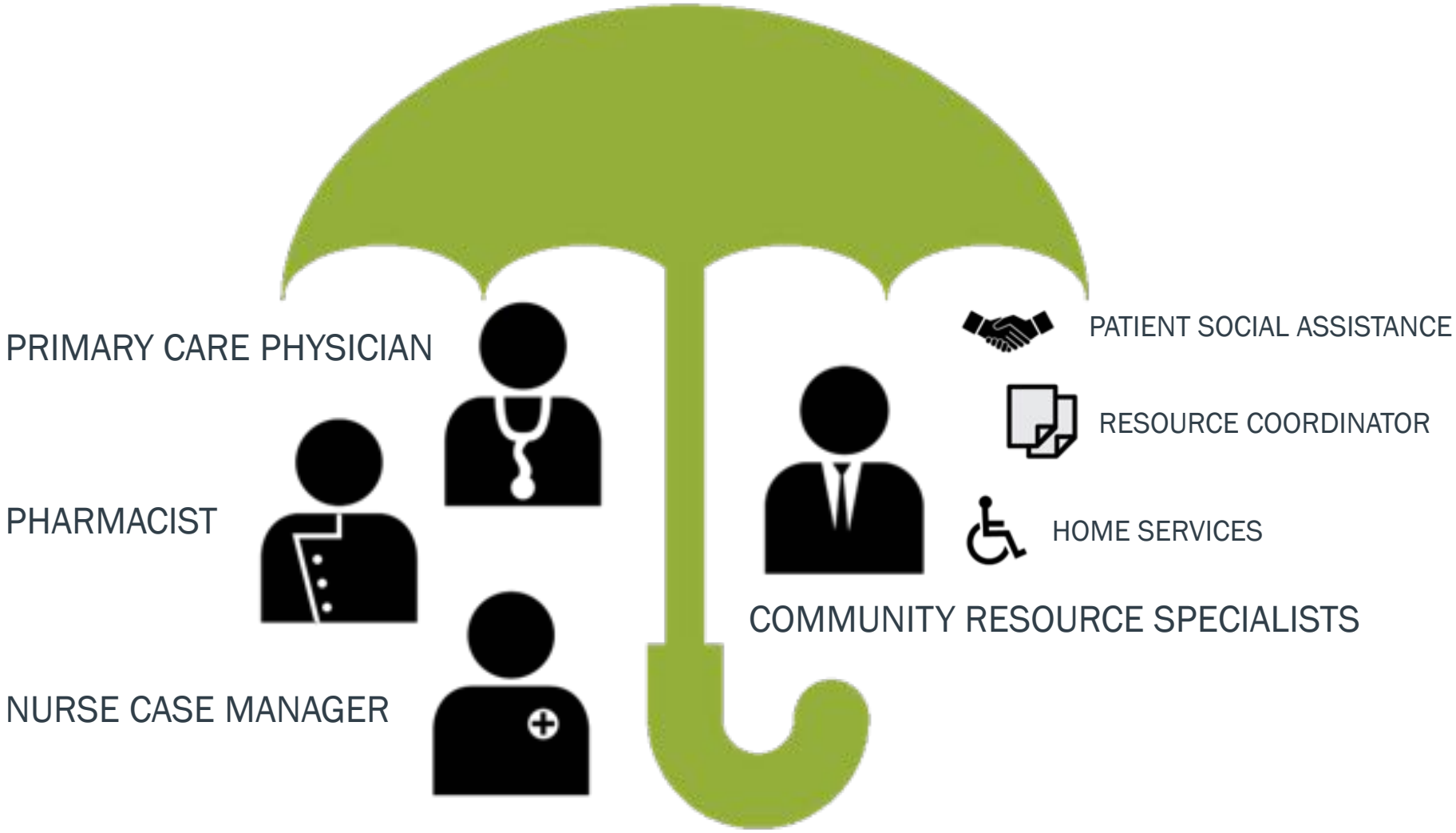
More likely to be Teased and have Self-Esteem Issues...

More Likely to have Risk of Other Chronic Health Issues for Longer Period of Time...

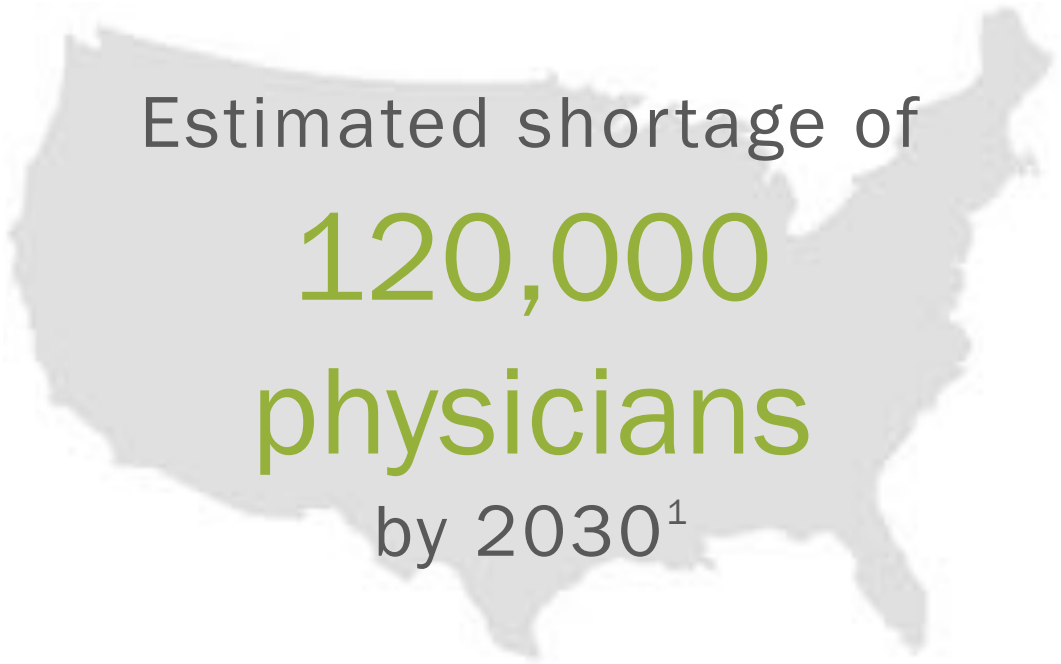
More Likely to be Obese as an Adult with All of the Associated Health Issues...

Just Over 70% Of All Americans Are Either Overweight Or Obese

COORDINATED CARE



PHYSICIAN SHORTAGE



Estimated shortage of

120,000 physicians

by 2030[1]

2/3 of hospitals and **47%** of GP's report vacancies

3/4 of these have been unfilled for more than 6 months[2]

1. Source: Association of American Medical Colleges, "New Research Shows Increasing Physician Shortages in Both Primary and Specialty Care, https://news.aamc.org/press-releases/article/workforce_report_shortage_04112018/, 2018
2. Source: The Telegraph. "Most hospitals and GP practices have shortage of doctors, survey suggests", https://www.telegraph.co.uk/news/2018/01/23/hospitals-gp-practices-have-shortage-doctors-survey-suggests/, 2018

RISING NUMBERS OF NOMADIC WORKERS

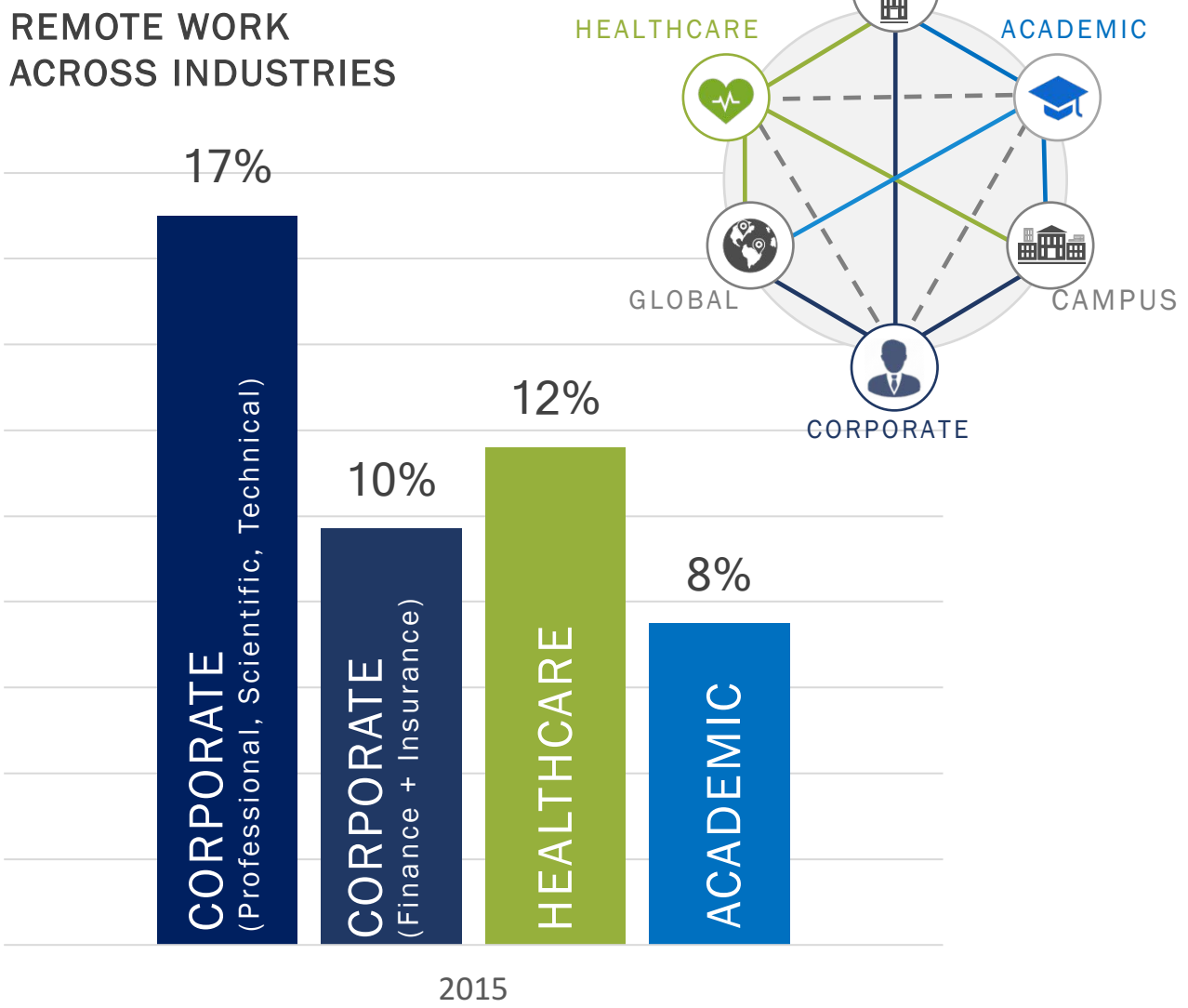
Remote Workers Represent 43% of Employed Americans; 66M People

Gallop 2016 Survey 15,000 Adults[2]

"There Will Be 1 Billion Nomads By 2035"

Peter Levels, "The future of digital nomads"[1]

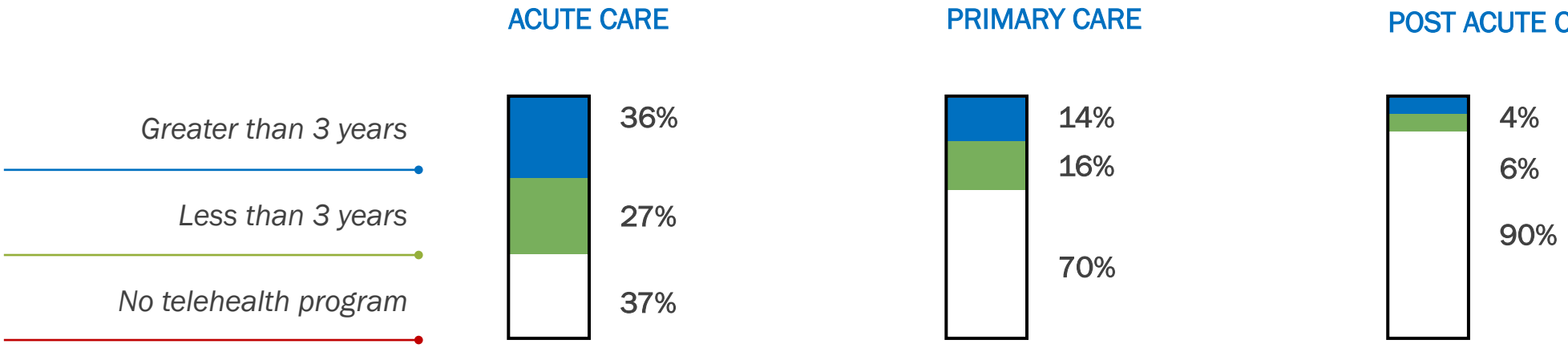
Workplace is an occasional anchor point rather than a daily travel destination



1. Source: Peter Levels, "The future of digital nomads: How remote work will transform the world in the next 20 years", 2015, https://levels.io/future-of-digital-nomads/
2. Source: "State of the American Workplace", 2017, Gallup, Inc
3. Source: Special analysis of U.S. Census data conducted for FlexJobs by Global Workplace Analytics

TELEMEDICINE ADOPTION

TELEHEALTH PROGRAM MATURITY, BY CARE SETTING



TOP SPECIALTY APPLICATIONS

Stroke | Psychiatry | Neurology | Radiology | Pediatrics

Source: "2017 U.S. Telemedicine Industry Benchmark Survey," REACH Health, April 2017, available at: http://reachhealth.com/wp-content/uploads/2017-US-Telemedicine-Industry-Benchmark-Survey-REACH-Health.pdf; Service Line Strategy Advisor research and analysis

WHAT IS TELEMEDICINE?

WORLD HEALTH ORGANIZATION FINDINGS

Telemedicine **overcomes geographical barriers** and increases access to health care services

Telemedicine has to potential to provide ***accessible, cost-effective, high-quality health care*** services in both developed and developing countries

Approximately **30%** of responding countries have a national **agency for the promotion and development of telemedicine**

Developing countries are as likely as developed countries to have such an agency

World Health Organization

Source: World Health Organization, "Telemedicine Opportunities and developments in Member States, Global Observatory for eHealth series – Volume 2", 2010

NEW ADVANCES IN TELEMEDICINE

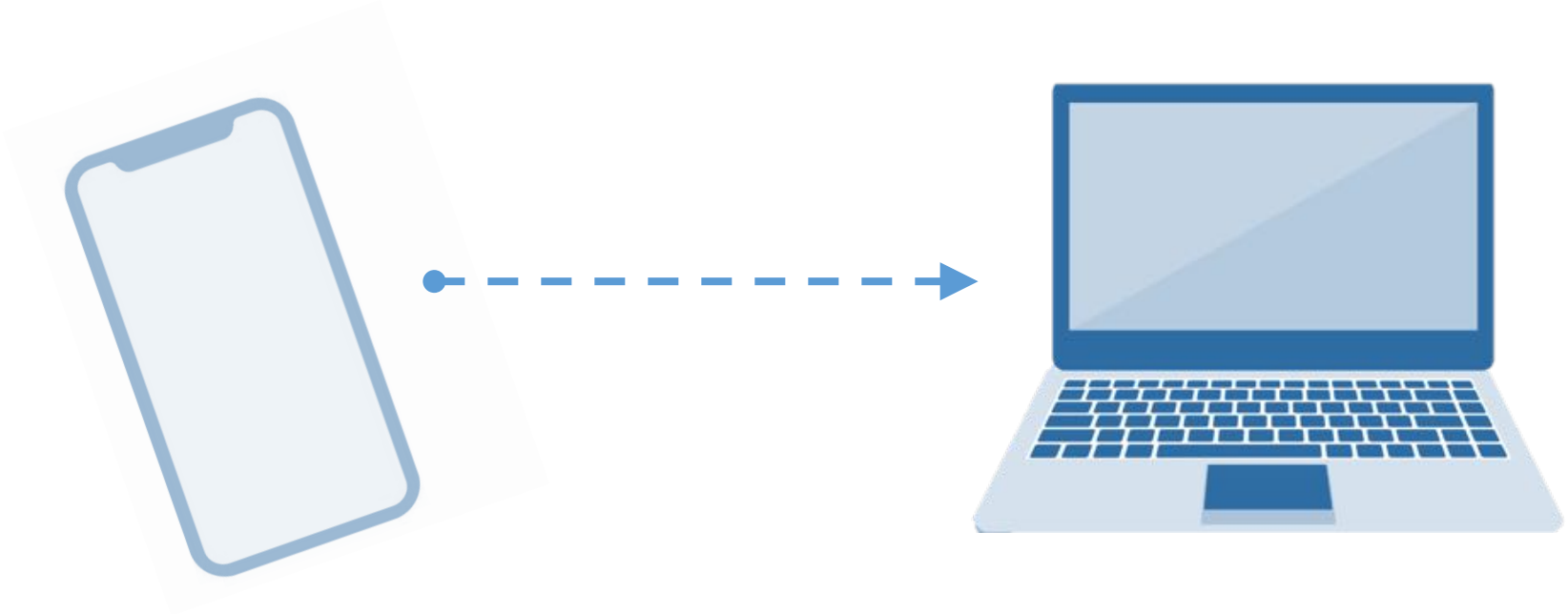
Patient-to-Provider

- E-visits
- Wearables
- Secure messaging

Provider-to-Provider

- E-consults
- Implantables
- Second opinion consults

PATIENT-TO-PROVIDER



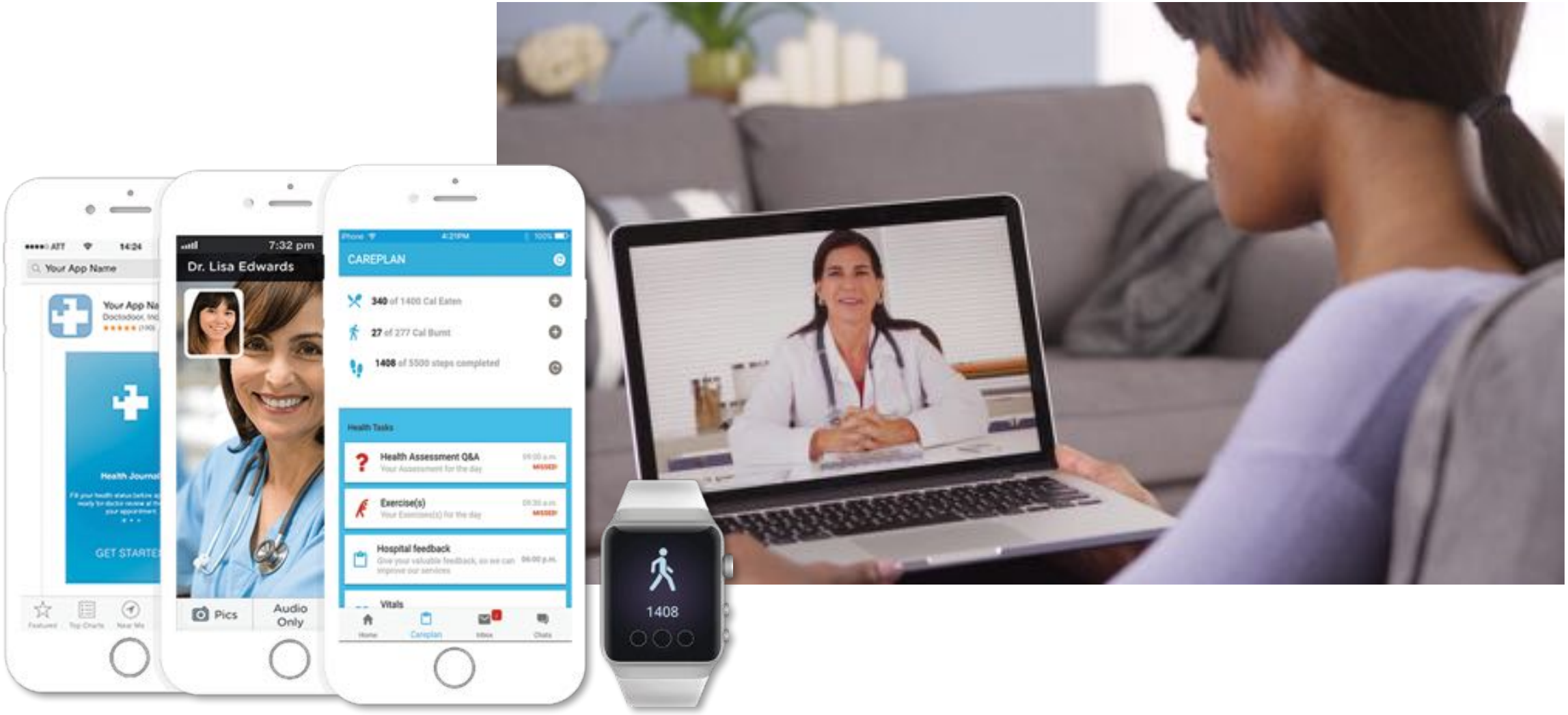
DOCTOR onDEMAND

amazon

amwell

LiveHealth® ONLINE

VIRTUAL VISIT



Who Has Used Virtual Visits Before?

EARLY ADOPTERS ARE YOUNG, URBAN, WEALTHIER, AND PRIVATELY INSURED

WHO HAS USED A VIRTUAL VISIT BEFORE?

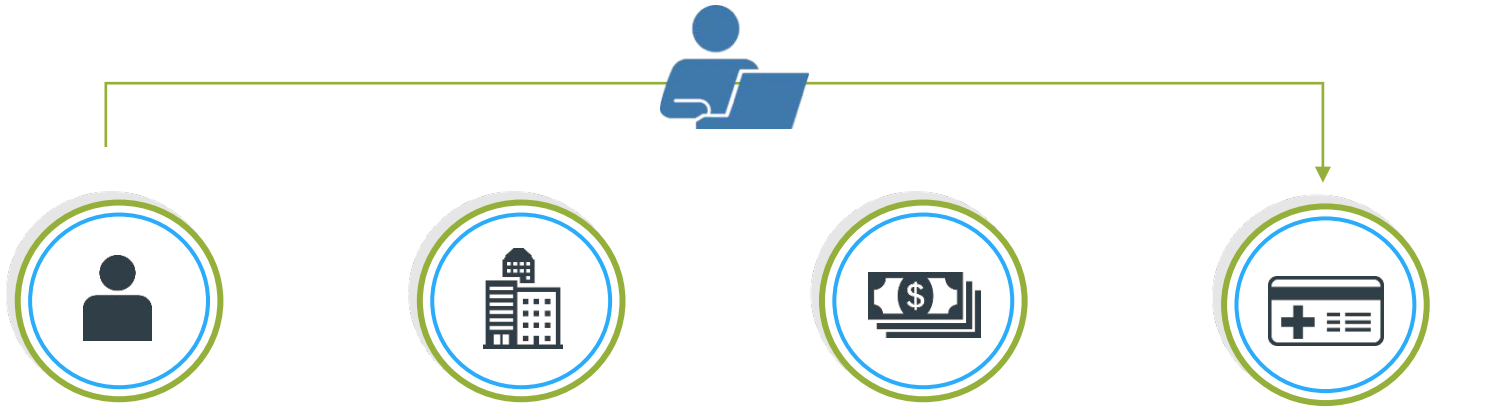
19%

Of respondents reported having used at least one virtual visit before

39%

Of parents reported having used a virtual visit for their child

VIRTUAL VISIT USER CHARACTERISTICS



YOUNG

34%

Of respondents ages 30-49 have used a virtual visit at least once.

URBAN

63%

Of urban respondents have used a virtual visit for their child.

HIGHER INCOME

52%

Of respondents with annual incomes greater than $71,000 have used a virtual visit.

PRIVATELY INSURED

14-18%

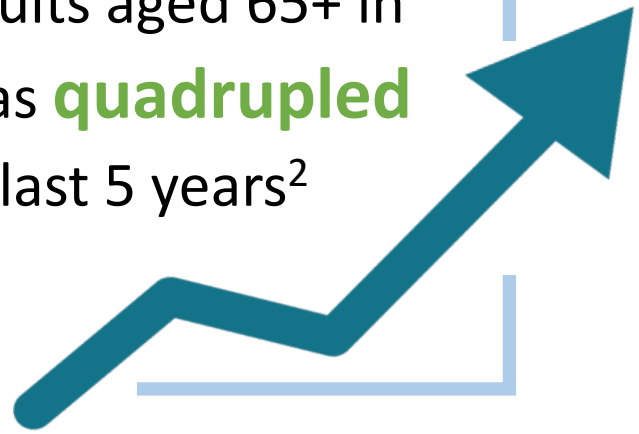
Of privately insured respondents have used a virtual visit, while less than 4% of publicly and uninsured have.

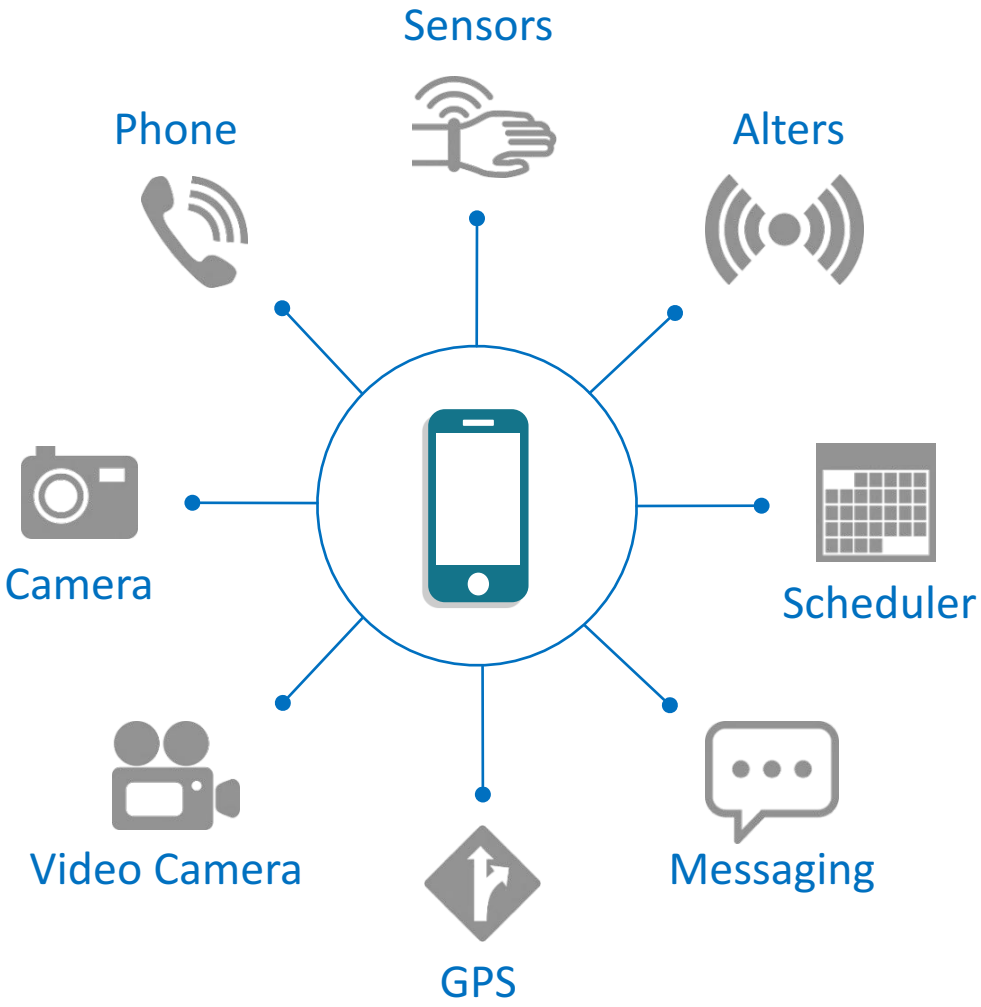
Source: Market Innovation Center Virtual Visit Consumer Choice Survey 2016.

Bring Your Own Device

Powerful Health Tools that Most Patients Already Own

Smartphone adoption among adults aged 65+ in the U.S. has **quadrupled** in the last 5 years[2]





Source: Sources: Anderson, M, Perrin, A, "Tech Adoption Climbs Among Older Adults," PEW Research Center, http://www.pewinternet.org/2017/05/17/tech-adoption-climbs-among-older-adults/; Pew Research Center, "Mobile Fact Sheet," http://www.pewinternet.org/fact-sheet/mobile/; Service Line Strategy Advisor research and analysis.

CHRONIC CARE MANAGEMENT

Better managing chronic care results in improved quality of life for patients

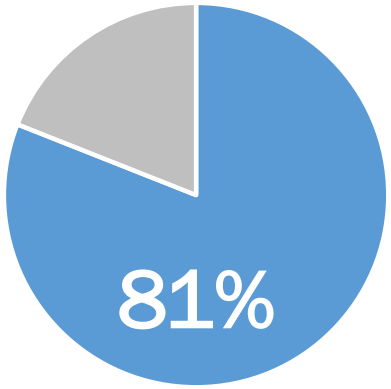
"Pillbox sensors" that track compliance and communicate providers may improve chronic care management

Poor medication adherence is estimated to cause as much as

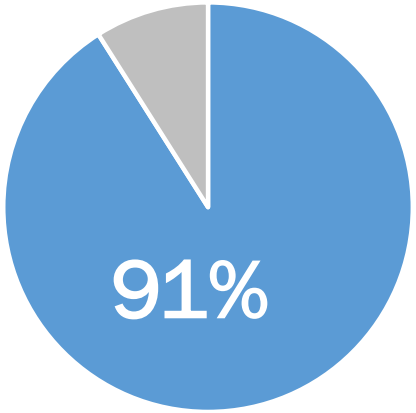
$290 billion

a year in higher US medical costs

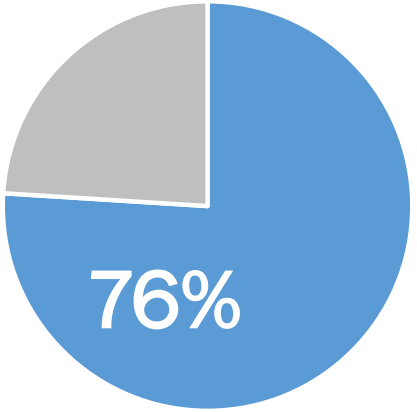
PEOPLE WITH CHRONIC CONDITIONS ACCOUNT FOR:



of hospital admissions

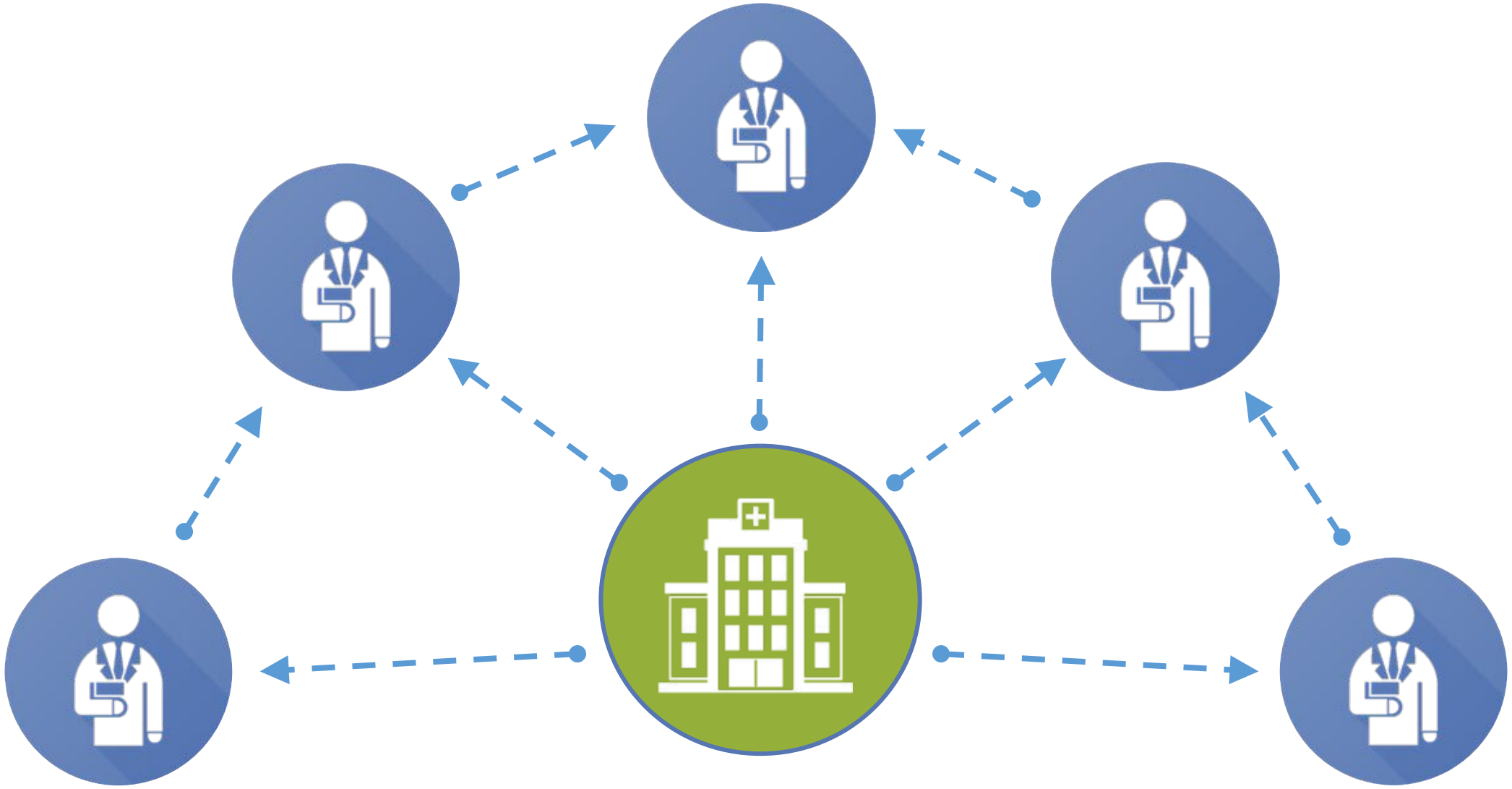


of all prescriptions filled



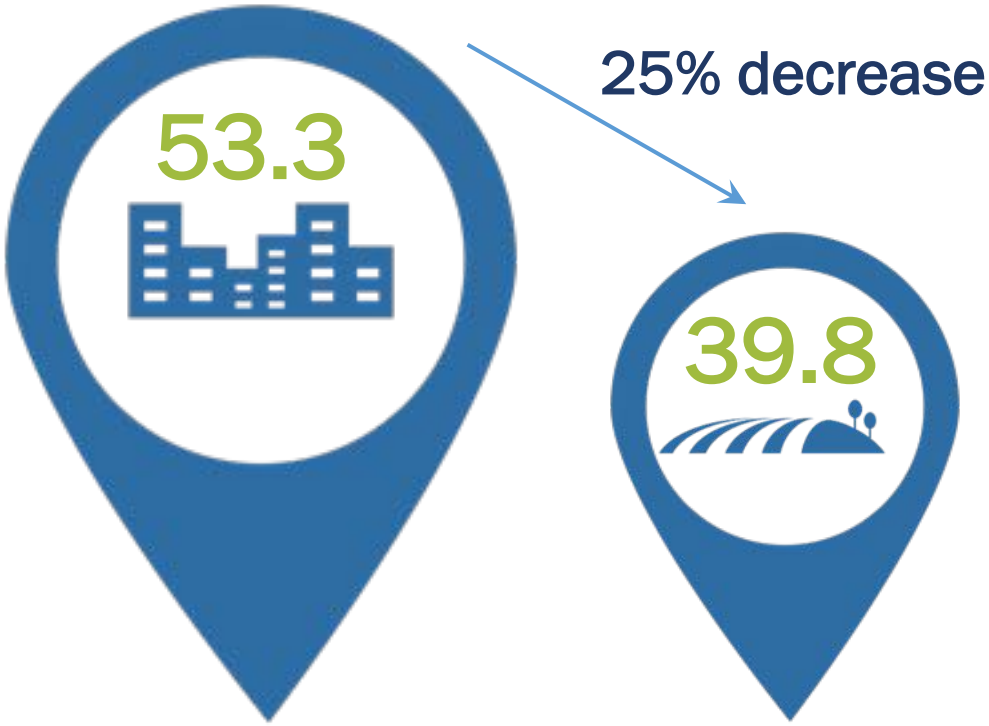
of all physician visits

PROVIDER-TO-PROVIDER



ACCESS TO SPECIALISTS

THE PATIENT-TO-PRIMARY CARE PHYSICIAN RATIO, PER 100,000 PHYSICIANS IS:



Between 2005 and 2016,
118 rural US hospitals closed permanently

"Access to providers, even family physicians, is a problem. If you want to go to an OB/GYN, depending on where you live in the country, you may have to go 200 miles."

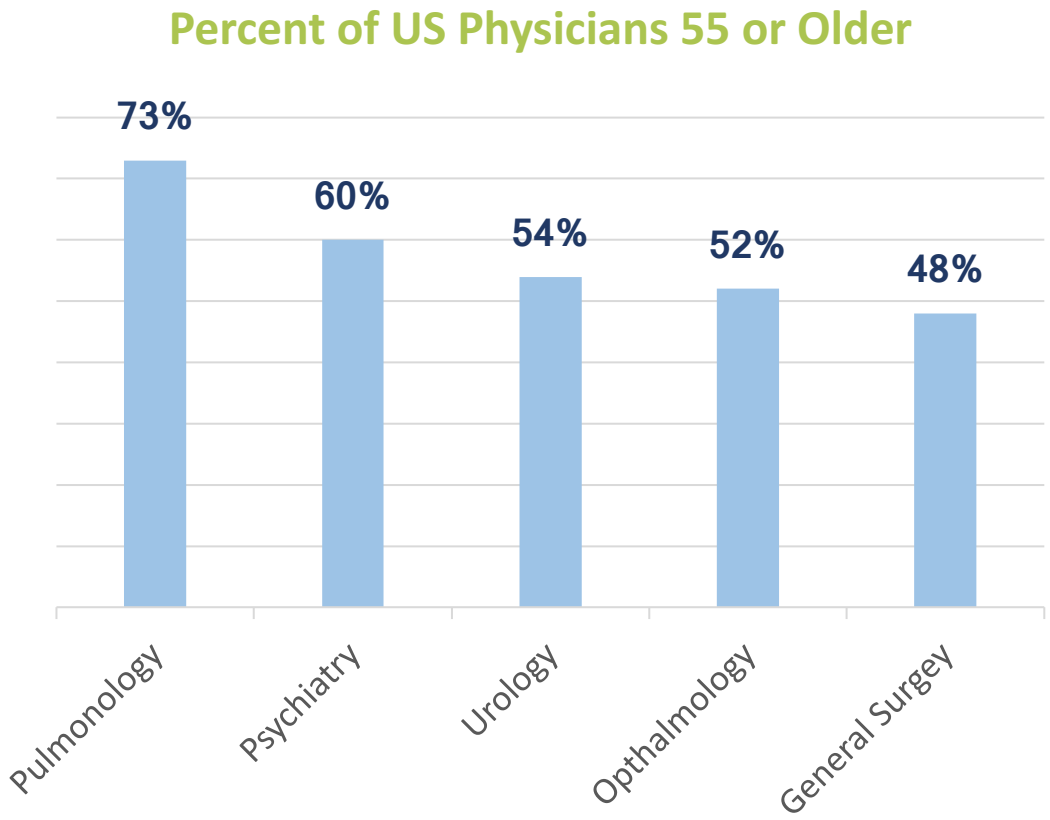
Gary Hart, PhD
University of North Dakota School of Medicine and Health Sciences

OPPORTUNITIES FOR CLINICIAN ENGAGEMENT

The reduced physical demands of telehealth work might prolong the careers of knowledgeable physicians who might otherwise retire.

43%

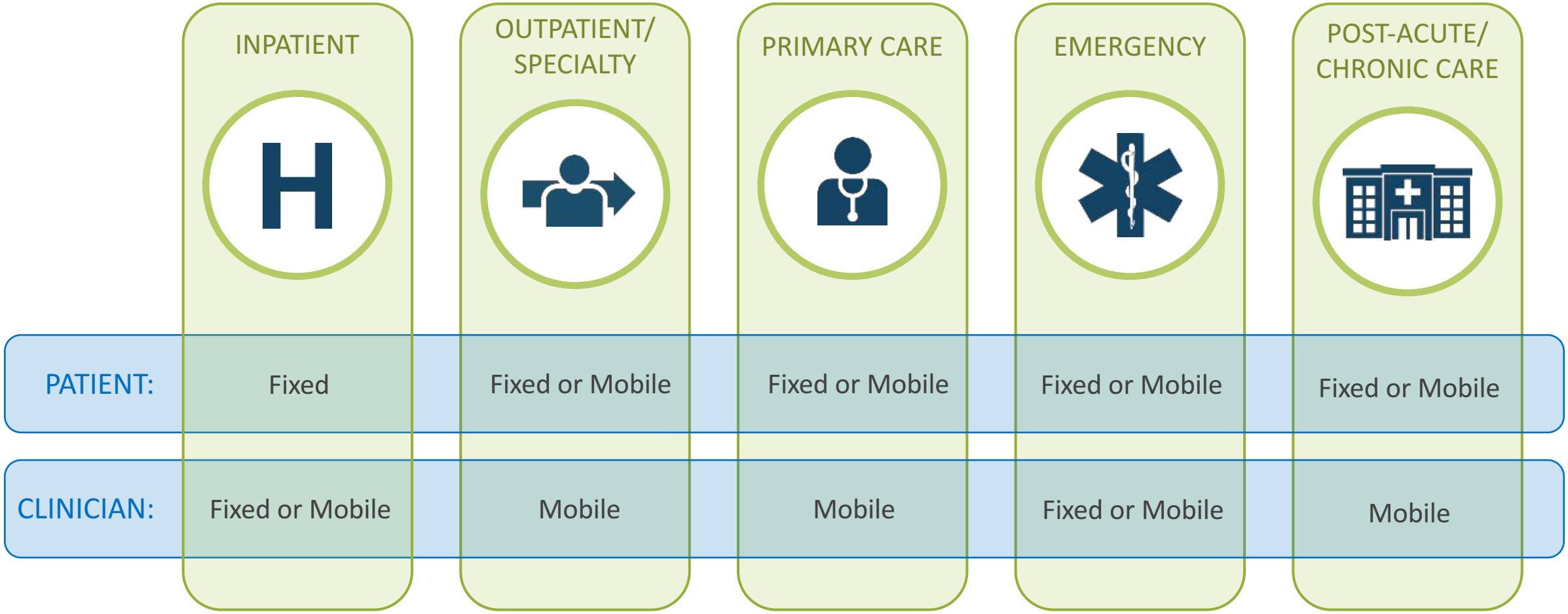
OF US PHYSICIANS ARE 55 YEARS OLD OR OLDER



1. Source: Merritt Hawkins, “Examining topics affecting the recruitment and retention of physicians and advanced practice professionals”, 2017

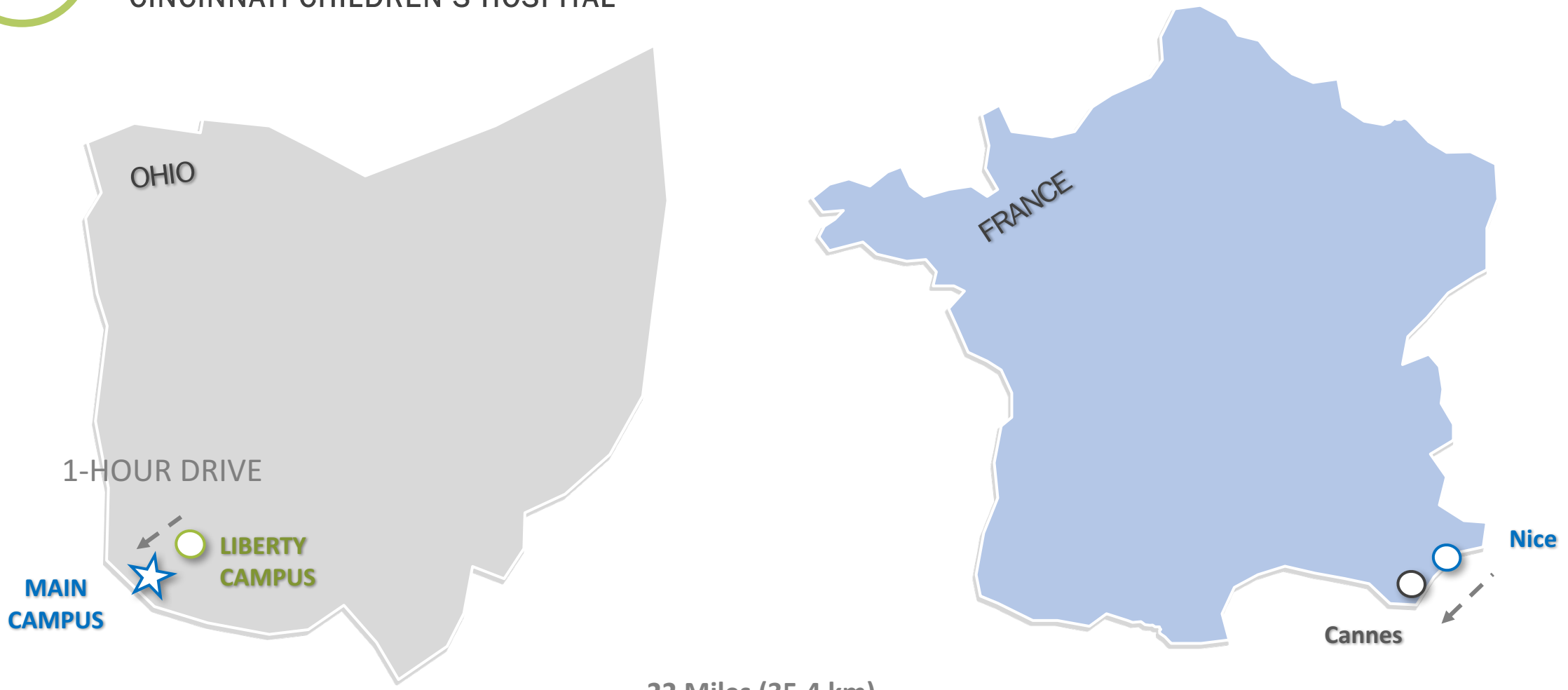
WHERE IS TELEMEDICINE?

TELEMEDICINE EXAMPLES



INPATIENT

CINCINNATI CHILDREN'S HOSPITAL



22 Miles (35.4 km)

SAME DISTANCE AS NICE TO CANNES, FRANCE

INPATIENT

CINCINNATI CHILDREN'S HOSPITAL

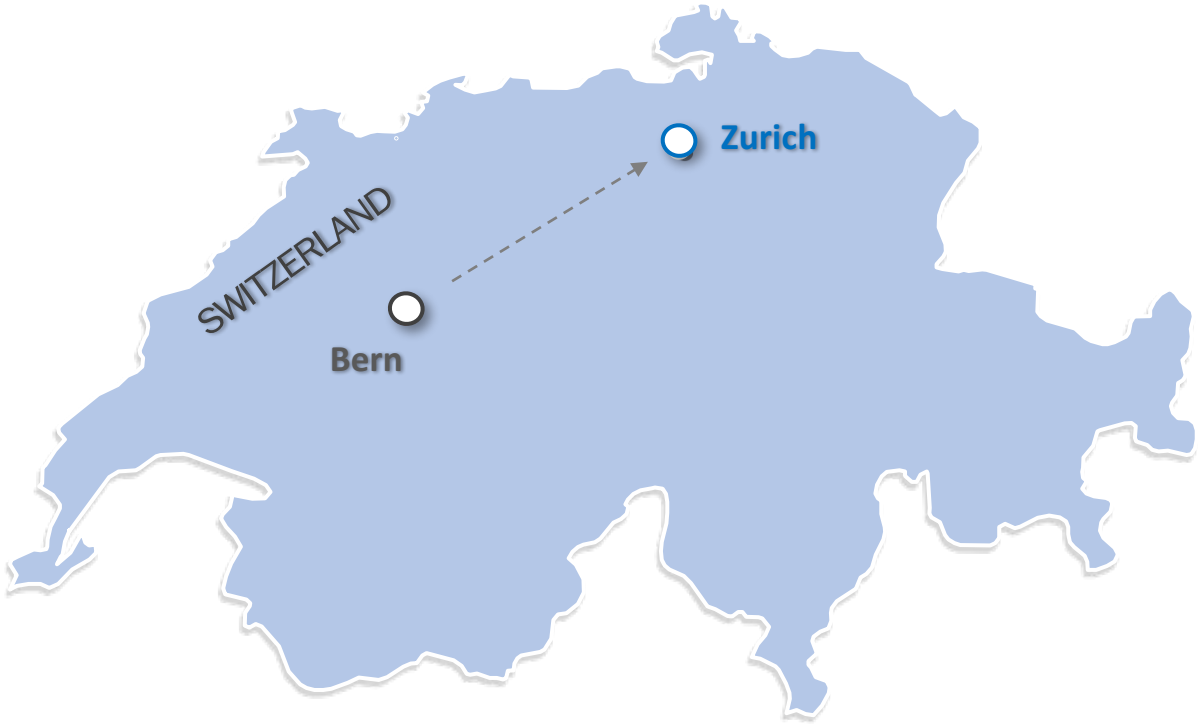
100% of patient rooms at the Liberty Campus are telemedicine capable

Cincinnati Children's Telehealth Network
lends expertise to providers around the world

Source: https://www.cincinnatichildrens.org/service/c/telehealth/liberty-services
Source: https://www.cincinnatichildrens.org/service/c/telehealth/network

OUTPATIENT / SPECIALTY

ANN B. BARSHINGER CANCER INSTITUTE



80 Miles (128.7 km)

SAME DISTANCE AS ZÜRICH TO BERN SWITZERLAND

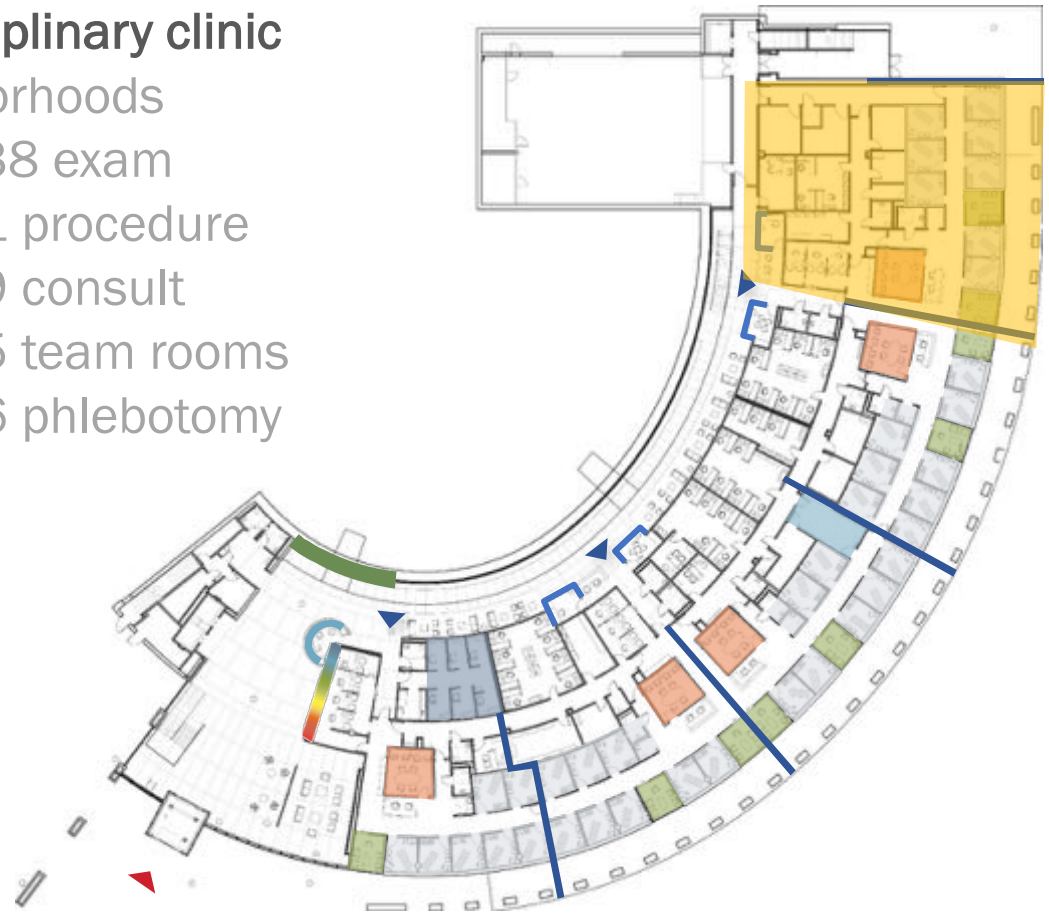
OUTPATIENT / SPECIALTY

ANN B. BARSHINGER CANCER INSTITUTE

Multidisciplinary clinic

5 neighborhoods

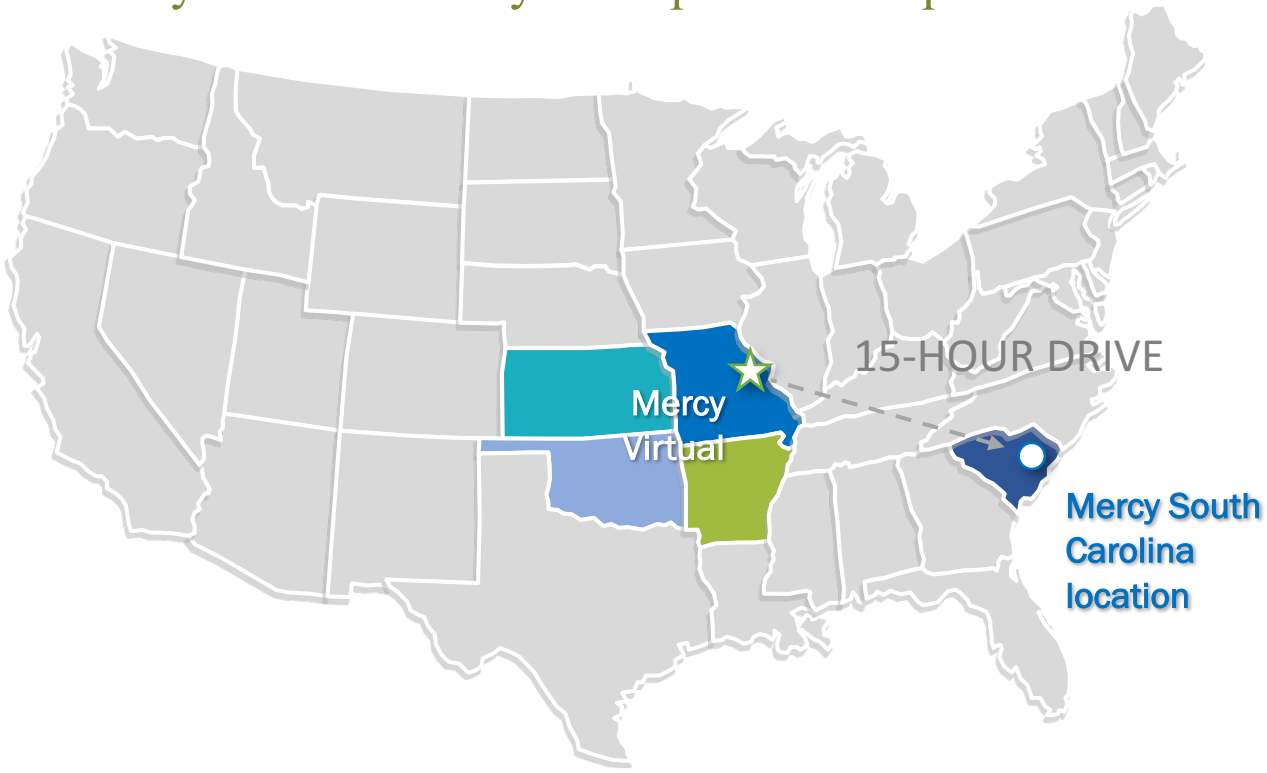
- 38 exam
- 1 procedure
- 9 consult
- 5 team rooms
- 6 phlebotomy



PRIMARY CARE +

MERCY VIRTUAL

Mercy Health Care System spans 44 hospitals across 5 states



843 Miles (1,356.7 km)

SAME DISTANCE AS AMSTERDAM, THE NETHERLANDS TO FLORENCE, ITALY

PRIMARY CARE +

MERCY VIRTUAL

In the United States, only **1** out of **10** U.S. doctors practice in rural areas,

while nearly **1** in **4** Americans live in these areas

SERVICES:

- Mercy SafeWatch (ICU)
- Home Monitoring
- Nurse-On-Call
- Telestroke

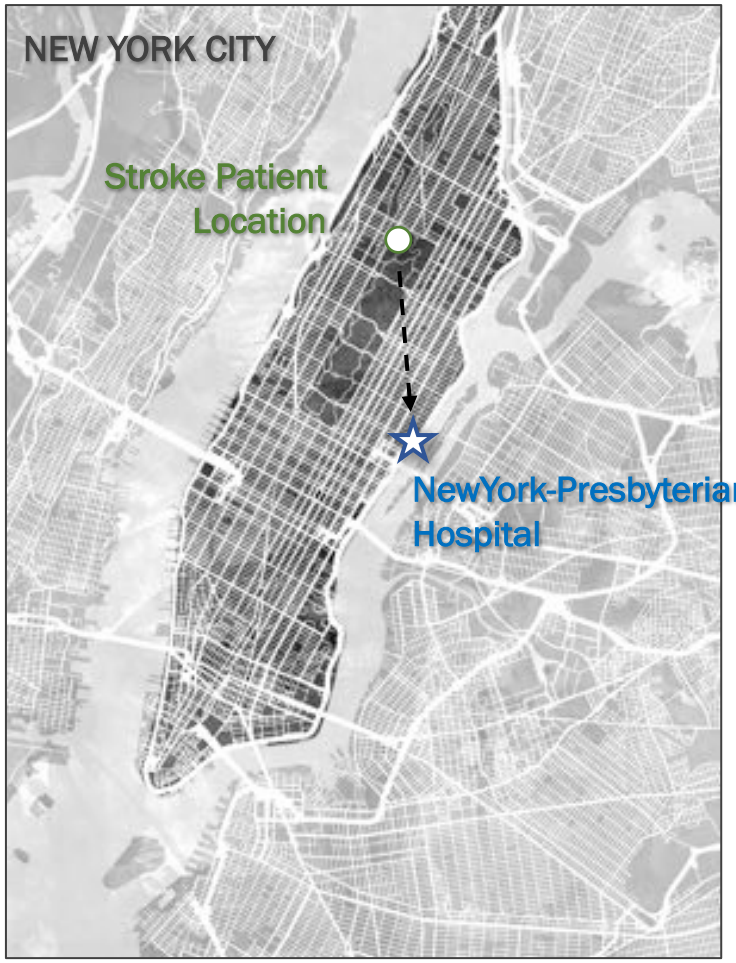
330 specialized medical professionals available 24/7/365

WORLD'S FIRST FACILITY DEDICATED TO TELEHEALTH

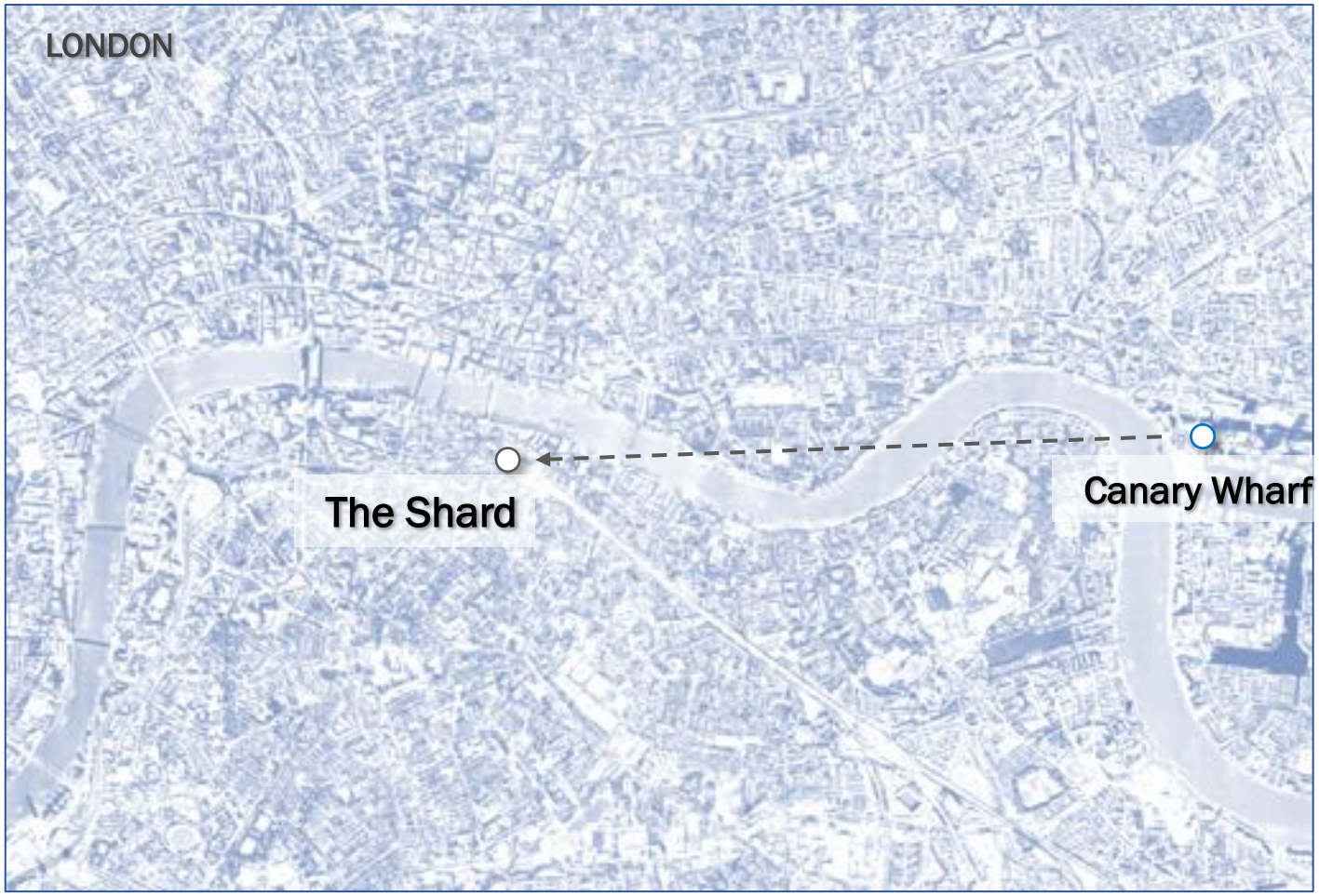
Source: Mercy Virtual Fact Sheet, https://www.mercyvirtual.net/wp-content/uploads/MRC_31302_MV_FactSheet_FLR_digital.pdf
Source: Mercy Virtual, "Is Telemedicine the Future of Care?", http://www.mercyvirtual.net/telemedicine-future-care/ , 2018

EMERGENCY

NEWYORK-PRESBYTERIAN HOSPITAL



30-MINUTE DRIVE



3.5 Miles (5.6 km)

SAME DISTANCE AS CANARY WHARF TO THE SHARD

EMERGENCY

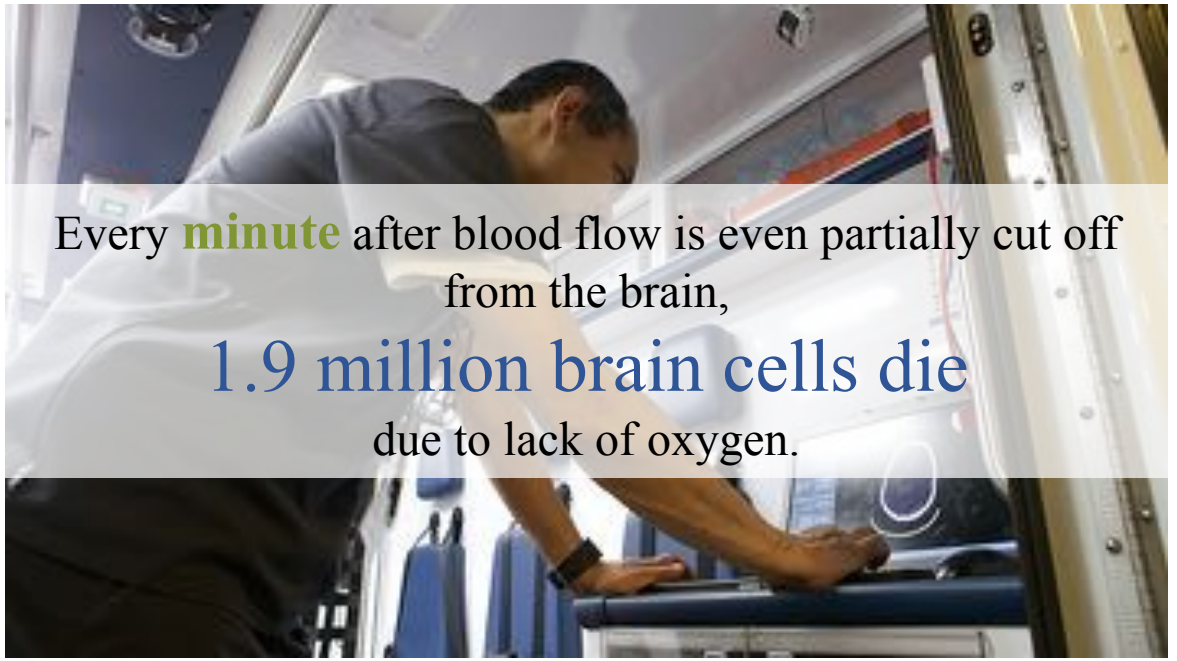
NEWYORK-PRESBYTERIAN HOSPITAL

The Mobile Stroke Treatment Unit allows **1 neurologist** to oversee care on **multiple ambulances**

Microphone and speakers for audio transmission between ambulance and neurologist

Adjustable camera with high-def imaging for neurologist to view patient

	Traditional Ambulance	Mobile Stroke Treatment Ambulance
Access to Neurologist	X	✓
Confirmed Diagnosis of Stroke	X	✓
Advanced Stroke Care Medications	X	✓



Source: : Healthcare IT News, “NewYork-Presbyterian adds more telemedicine-equipped mobile stroke care vehicles”, http://www.healthcareitnews.com/news/newyork-presbyterian-adds-more-telemedicine-equipped-mobile-stroke-care-vehicles, 2018

POST-ACUTE / CHRONIC CARE

UNIVERSITY OF MISSISSIPPI MEDICAL CENTER, CENTER FOR TELEHEALTH

65% counties in Mississippi, are *more than 40 minutes* away from specialty care.

2.5-HOUR DRIVE

125 Miles (201 km)

SAME DISTANCE AS LONDON TO BIRMINGHAM

UNIVERSITY OF MISSISSIPPI MEDICAL CENTER

DIABETES CARE CENTER

Mississippi had the ***highest %*** of adults diagnosed with diabetes in 2010

In 2012, Mississippi spent **$2.74 billion** on diabetes-related medical expenses

100

Study Participants with Diabetes Across Mississippi

Source: https://www.ruralhealthinfo.org/project-examples/245
Source: https://medcitynews.com/2016/09/mississippi-telehealth-remote-monitoring/

POST-ACUTE / CHRONIC CARE

UNIVERSITY OF MISSISSIPPI MEDICAL CENTER, CENTER FOR TELEHEALTH

RESULTS:

0 participants *were hospitalized or visited an emergency room*, saving payers **$339,184**

Participant medication compliance reached **96%**

Participants saved **9,454 *miles*** of driving to specialists

Health session participation reached **83%**

Participant mean hemoglobin A1c levels decreased by **1.7%**

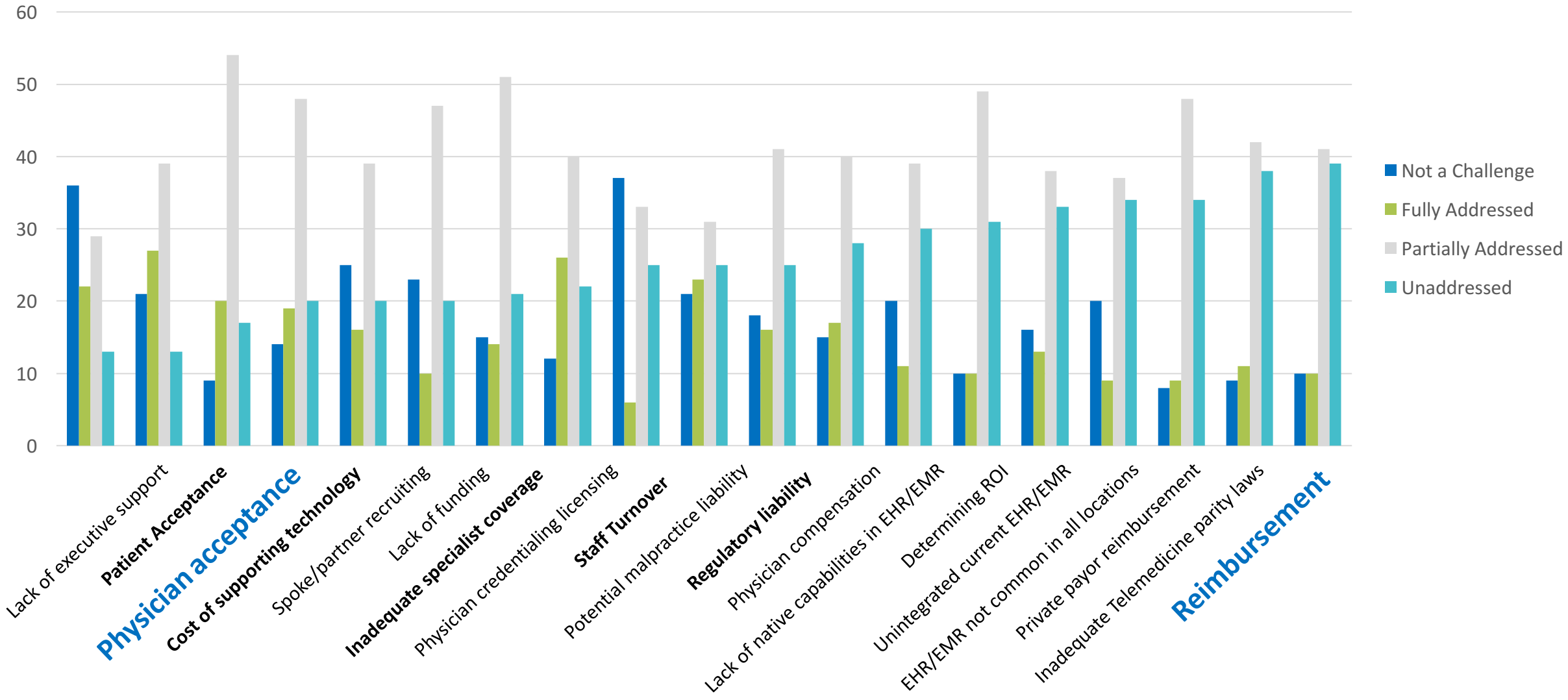
Mississippi is estimated to save approximately ***$189 million/year***

Reimbursement for remote monitoring is set at **$16/day** or $480 monthly

Source: https://www.ruralhealthinfo.org/project-examples/245
Source: https://medcitynews.com/2016/09/mississippi-telehealth-remote-monitoring/

CHALLENGES

TELEMEDICINE PROGRAM CHALLENGES



Source: 2017 REACH Health, Inc., "2017 U.S. Telemedicine Industry Survey

PRIVACY LAWS

General Data Protection Regulation (GDPR)

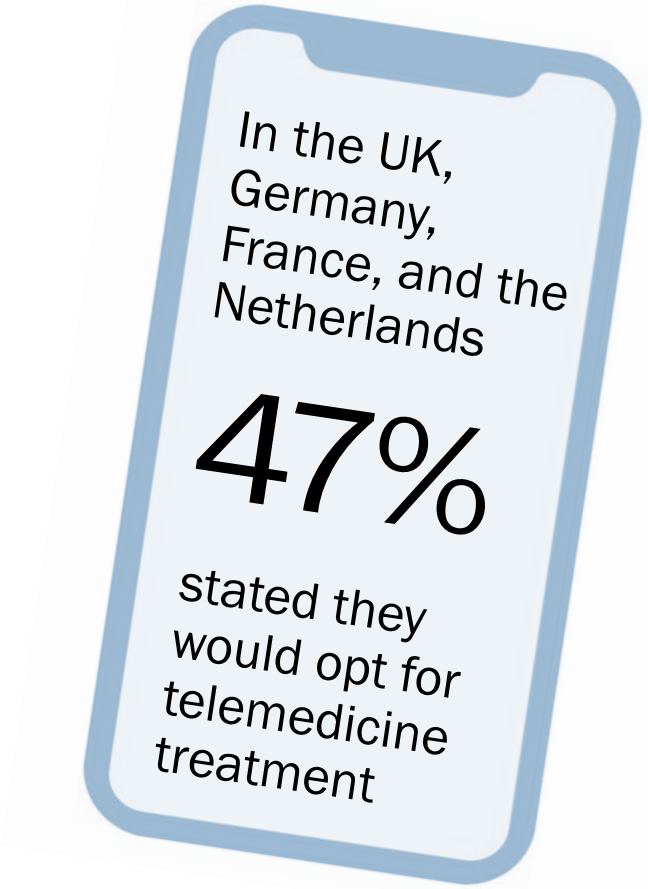
Legal framework for the collection and processing of personal information of individuals within the EU. It sets out the principles for data management and the rights of the individual.

Health Insurance Portability and Accountability Act (HIPPA)

US law designed to provide privacy standards to protect patients' medical records and other health information provided to health plans, doctors, hospitals and other health care providers

Source: https://www.medicinenet.com/script/main/art.asp?articlekey=31785
Source: https://www.investopedia.com/terms/g/general-data-protection-regulation-gdpr.asp

PATIENT PREFERENCES



According to healthcare futurist Nicholas Webb, 50% of clinical visits are moving to the digital realm because only 10-15% of exams need physical exams

Source: https://www.medicinenet.com/script/main/art.asp?articlekey=31785
Source: https://www.raadrvs.nl/uploads/docs/The_preferences_of_healthcare_customers_in_Europe.pdf

ACCESS TO TECHNOLOGY

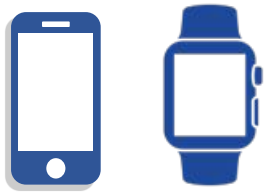
53%

OF RURAL AMERICANS LACK
HIGH-SPEED INTERNET ACCESS

THE US STATE OF MISSISSIPI'S SOLUTION WAS TO PROVIDE FREE BROADBAND INTERNET FROM CSPIRE

Source: Federal Communications Commission. (2015, February 4). 2015 Broadband Progress Report

HUMANIZING TELEMEDICINE



SMARTPHONE + WEARABLE SENORS

AI+ MACHINE LEARNING

INGESTIBLE SENSORS

VR + AUGMENTED REALITY

EMERGING

"Ultimately healthcare comes down to **human-to-human interaction**. So if you are going to go into **artificial intelligence, machine learning**, etc., it's got to be able to **re-humanize**, as opposed to de-humanize care."

Dr. Stephan Cowin
CEO, New York Presbyterian

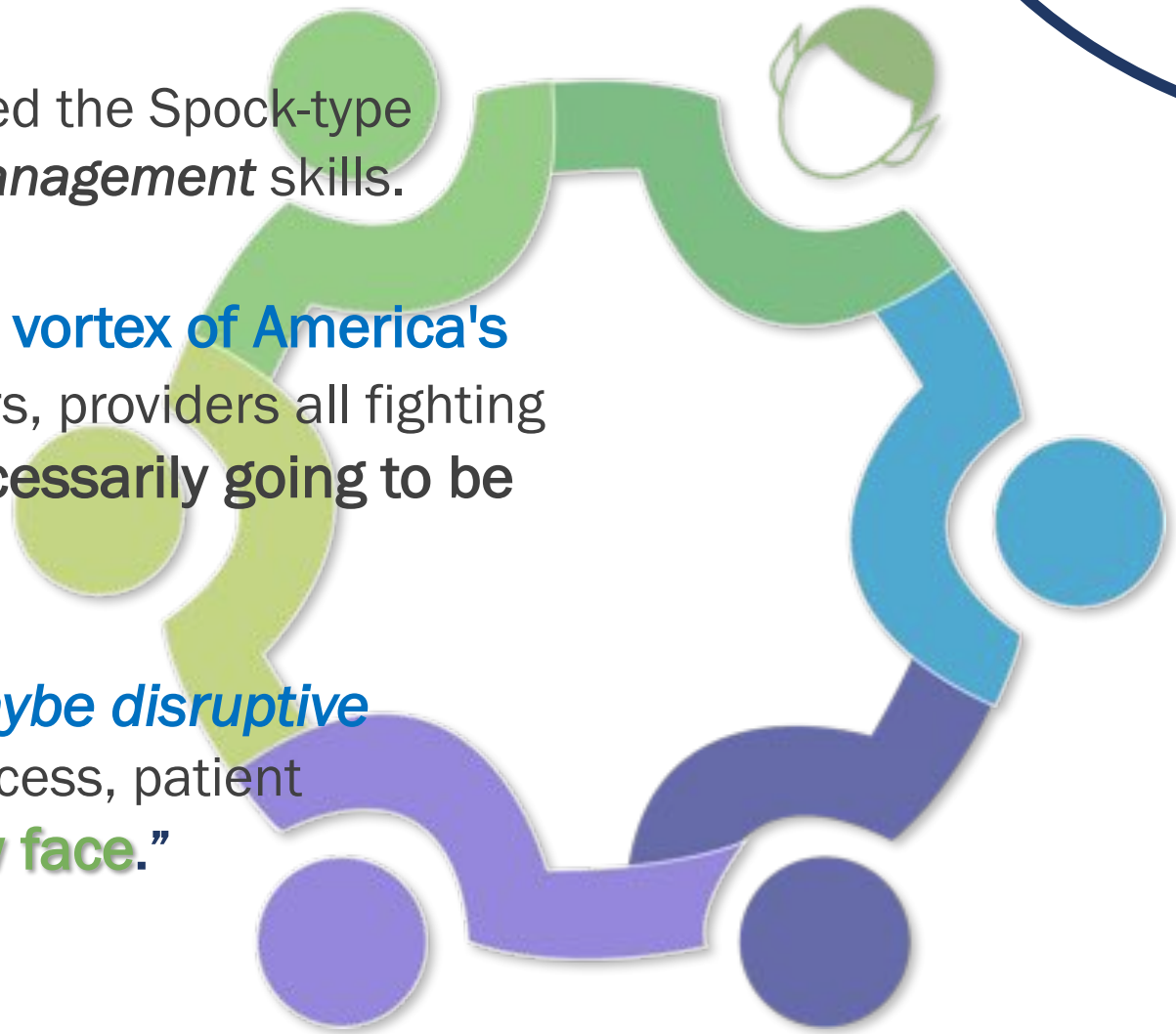
Source: Advisory Board, "2018 Telehealth Industry Trends", 2018

HOPE FOR HEALTHCARE

"Yes, we need the ***science***. Yes, we need the Spock-type ***intelligence***. And yes we need great ***management*** skills.

But **what will allow us to escape the vortex of America's distributive model** of pharma, insurers, providers all fighting with each other over money, is **not necessarily going to be logic**.

It's going to be ***bold, creative and maybe disruptive*** approaches to figuring out the cost, access, patient experience and quality **issues we now face**."



Stephen Klasko
President and CEO, Thomas Jefferson University

THANK YOU