THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

Cardi-OH and Remote Patient Monitoring

6/21/22

Shalina Nair, MD, MBA

Cardi-OH and Remote Patient Monitoring

- Overview of Cardi-OH
- Remote Patient Monitoring
  - Overview
  - Benefits
  - Process
  - Opportunities

About Cardi-OH

CARDI·OH

Ohio Cardiovascular and Diabetes Health Collaborative

Founded in 2017, the mission of Cardi-OH is to improve cardiovascular and diabetes health outcomes and eliminate disparities in Ohio's Medicaid population.

WHO WE ARE: An initiative of health care professionals across Ohio's seven medical schools.

WHAT WE DO: Identify, produce and disseminate evidence-based cardiovascular and diabetes best practices to primary care teams.

HOW WE DO IT: Utilize monthly newsletters and an online repository of resources at Cardi-OH.org, podcasts available on Cardi-OH Radio, and the Project ECHO® virtual training model. Informed by an annual needs assessment.

Learn more at Cardi-OH.org

School of Medicine Case Western Reserve University

In partnership with:

The Ohio State University College of Medicine

College of Medicine and Life Sciences The University of Toledo

Ohio University Heritage College of Osteopathic Medicine

Northeast Ohio Medical University

University of Cincinnati Family and Community Medicine

Boonshoft School of Medicine Wright State University

Ohio Colleges of Medicine Government Resource Center

Ohio Department of Medicaid

medtapp

Cardi-OH High-Level Success Metrics

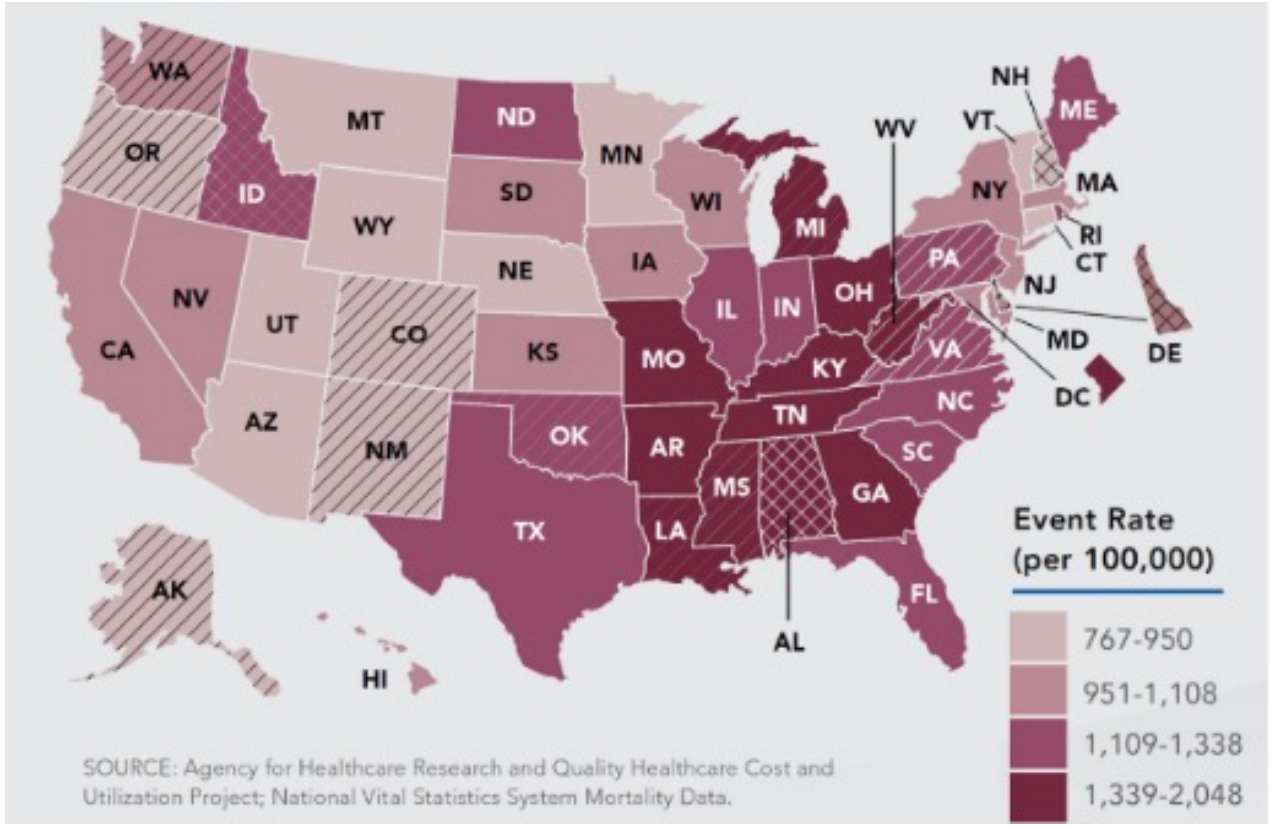
CARDI·OH
Ohio Cardiovascular and Diabetes Health Collaborative

1. Diverse group engaged with Cardi-OH
   - Number and type of health care professionals (and whether they are a Medicaid provider) in collaborative and at events
2. Success of educational events (e.g., reach of event, knowledge increase, uptake of best practices)
3. Cardiovascular health metrics (e.g., blood pressure control, diabetes care and control) for aligned QI projects

Background

- Cardiovascular disease (CVD) is the leading cause of death in Ohio
- Disparities exist with higher rates of uncontrolled hypertension and CVD events among Black populations compared with Whites

2016 CVD Event Rates per 100,000



A Statewide Collaborative Can Improve CVD Outcomes

CARDI·OH
Ohio Cardiovascular and Diabetes Health Collaborative

- Statewide efforts and Quality Improvement (QI) activities are often fragmented
- Coordinated primary care collaboratives can have a strong impact on CVD outcomes
  - Especially if engaged in organized QI projects

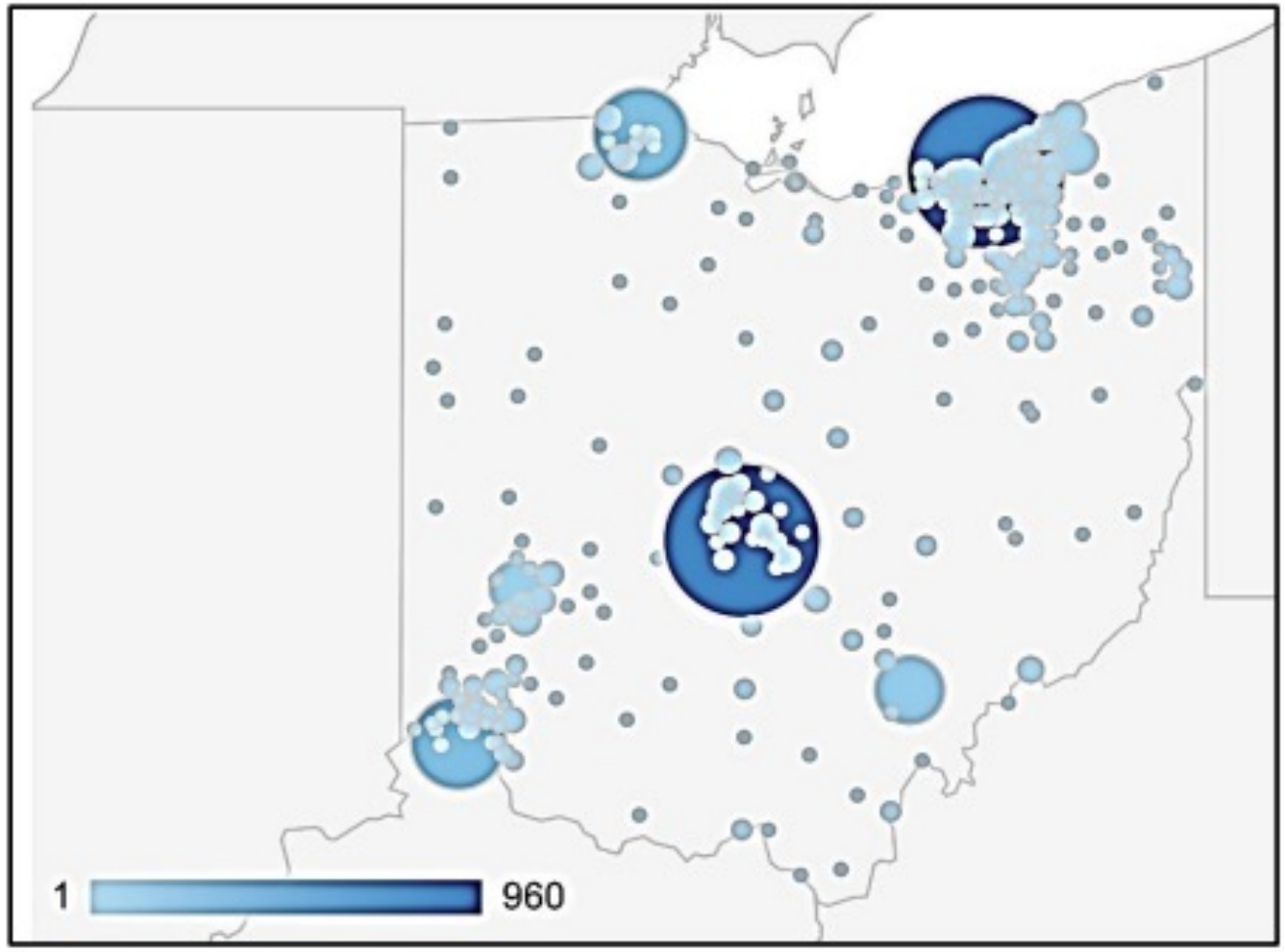
This Photo by Unknown Author is licensed under CC BY-SA

Cardi-OH Website Users by Location (through Dec. 2021)

CARDI·OH
Ohio Cardiovascular and Diabetes Health Collaborative

Lifetime

Top 5 Cities	Users
Columbus	960
Cleveland	923
Cincinnati	338
Toledo	327
Athens	194



Top Topics of Interest by Category (through Dec 2021)

CARDI·OH
Ohio Cardiovascular and Diabetes Health Collaborative

- **Website**:
  1. Recommendations for the Treatment of Confirmed HTN in People with Diabetes (n=626)
  2. Building a DASH Diet Plate (n=451)
- ***Capsules*** (brief 250-word summaries of evidence-based clinical tips):
  1. Five Pearls of Motivational Interviewing (n=861)
  2. Home Blood Pressure Monitoring (n=480)
- ***Currents*** (brief summary of a recently published article):
  1. Diabetes and COVID-19: Optimizing Care and Support for People with Diabetes During a Pandemic (n=120)
  2. Community Health Workers and Telehealth: Improving A1C Levels in Patients with Diabetes (n=105)
- ***Cardi-OH Radio* Podcasts**:
  1. Addressing the Quadruple Aim in Health Care (n=264)
  2. HTN Management in the Era of Telehealth (n=205)
  3. Disparities in CVD and Diabetes: Implications for Practice (n=186)
- **Project ECHO: TeleECHO Clinics** (virtual case-based 12-week learning series):
  1. Shared Decision Making in Hypertension Management (n=51)
  2. Communication: Opening the Door (n=48)

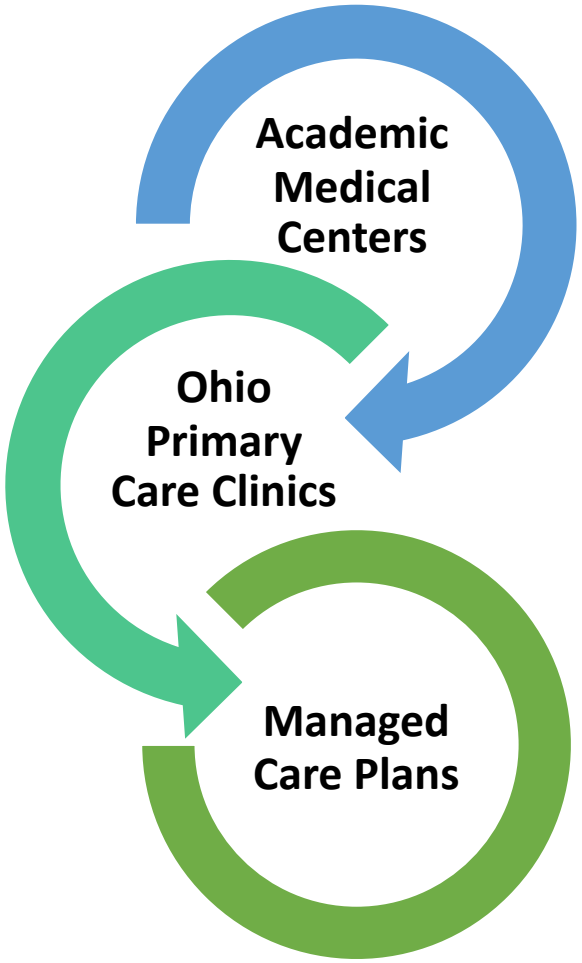
Hypertension Quality Improvement Project (QIP)

CARDI·OH
Ohio Cardiovascular and Diabetes Health Collaborative

Identification & Education of Best Practices and Processes

Testing, Modifying & Implementing Best Practices

Facilitating access to best practice, addressing non-clinical barriers



SMART Aims

- Increase HTN control 15%
- Increase HTN control among AA population 20%

Strategies

- IHI Model for Improvement
- Change Package
- Monthly Action Period Calls
- QI Coaching
- Leverage EHR data for improvement
- Partner with Medicaid Managed Care Plans to address barriers

Ohio Department of Medicaid

Summary

CARDI·OH
Ohio Cardiovascular and Diabetes Health Collaborative

- Cardi-OH has grown over the last 5 years
- Effective dissemination and engagement through online resources
- Improving hypertension control across diverse clinic settings
- Practice facilitation in the context of collaboratives can have a strong impact in improving clinical outcomes

Remote Patient Monitoring

- USPSTF 2015 (updated 2021):
  - Recommends screening for HTN in adults with office blood pressure measurement (OBPM)
  - Recommends BP measurements outside of OBPM to confirm prior to treatment
- AHA/ACC (2017)
  - Recommends out-of-office blood pressure readings to confirm a diagnosis and for management of blood pressure medications with telehealth or clinical interventions
  - Recommends at least 2 blood pressure readings taken at least 1 minute apart in the office setting
- CMS (2018) created new reimbursement opportunities for RPM
  - RPM is the measurement and transmission of physiological parameters from the patient to the provider

http://www.onlinejacc.org/content/accj/71/19/2199.full.pdf
https://www.uspreventiveservicestaskforce.org/uspstf/index.php/recommendation/hypertension-in-adults-screening

Remote Patient Monitoring Benefits

- HBPM good predictor of clinical outcomes
- White coat and masked hypertension
- Improved access
- Insurance reimbursement for BP monitor
- Population health
- Improved quality performance
- Value-based care

Remote Patient Monitoring Benefits

- Patient engagement
- Care team collaboration
- Data driven management decisions for more rapid BP control
  - Traditional approach: 4 interventions could take 6-12 months
  - RPM and care team utilization could reduce that to 12-16 weeks
- Improved follow up through telehealth

Remote Patient Monitoring – Address disparities

- Standardized office procedures
- Algorithms to prioritize lower cost medications
- Team-based care:
  - Address adherence
  - Care gap outreach
- Telehealth
- Resource considerations literacy

Remote Patient Monitoring – ABPM and HBPM

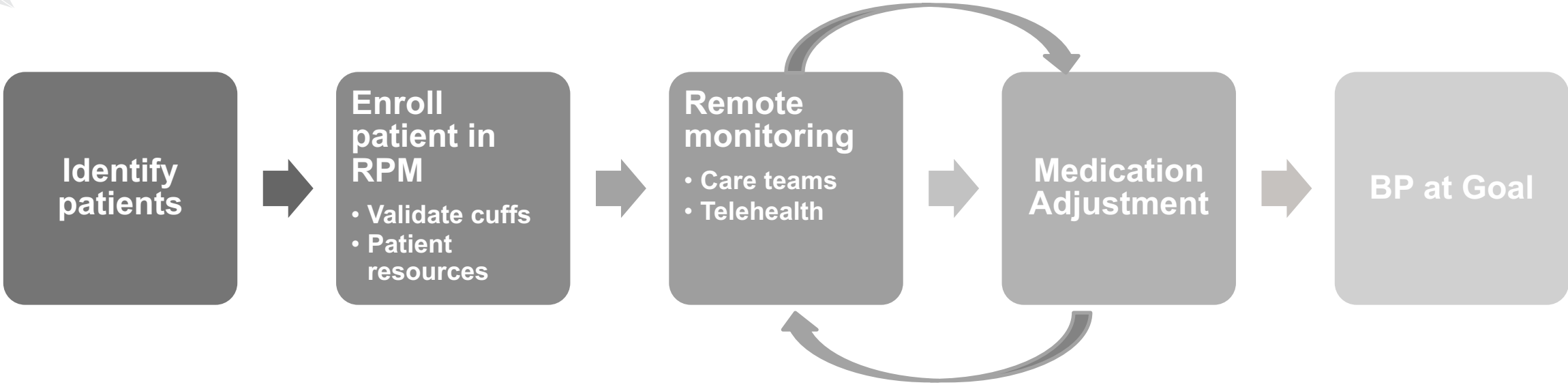
- Ambulatory blood pressure monitoring
- Home blood pressure monitoring

- Comparison table:

Clinic	HBPM	Daytime ABPM	Nighttime ABPM	24-Hour ABPM
120/80	120/80	120/80	100/65	115/75
130/80	130/80	130/80	110/65	125/75
140/90	135/85	135/85	120/70	130/80
160/100	145/90	145/90	140/85	145/90

http://www.onlinejacc.org/content/accj/71/19/2199.full.pdf

Remote Patient Monitoring Process



RBPM Billing

CPT code	Description
99473	SMBP using a device validated for clinical accuracy; patient education/training and device calibration
99474	separate self-measurements of two readings one minute apart, twice daily over a 30-day period (minimum of 12 readings), collection of data reported by the patient and/or caregiver to the physician or other qualified health care professional, with report of average systolic and diastolic pressures and subsequent communication of a treatment plan to the patient

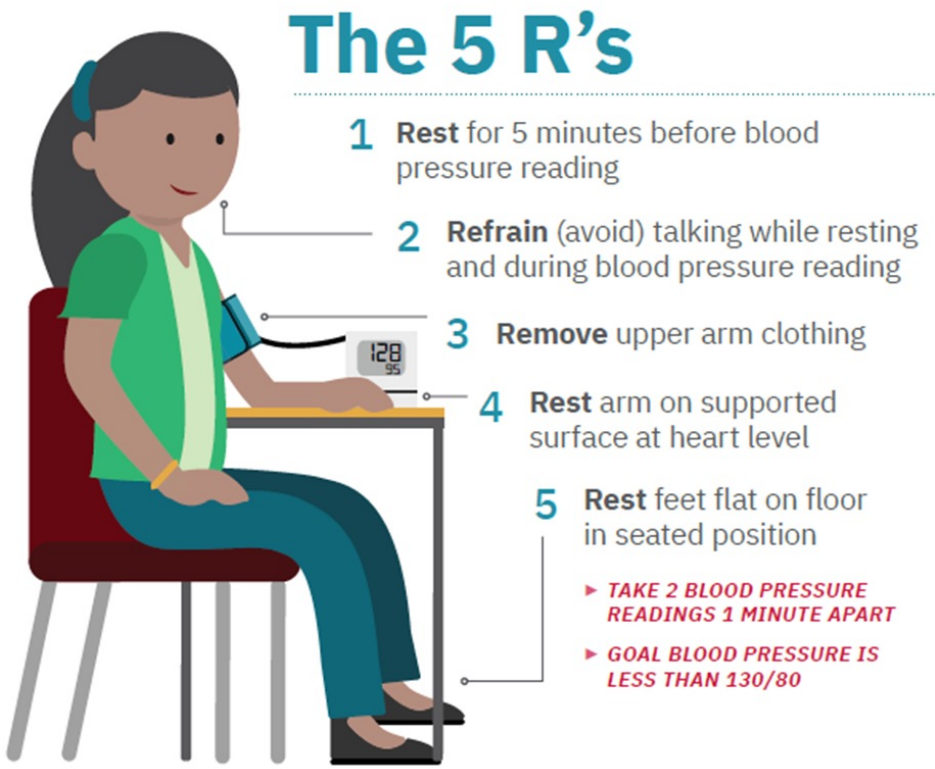
CPT code	Description
99453	Remote monitoring of physiologic parameter(s) (e.g., weight, blood pressure, pulse oximetry, respiratory flow rate), initial; set-up and patient education on use of equipment
99454	Device(s) supply with daily recording(s) or programmed alert(s) transmission, each 30 days
99457	Remote physiologic monitoring treatment management services, 20 minutes or more of clinical staff/physician/other qualified healthcare professional time in a calendar month requiring interactive communication with the patient/caregiver during the month
99458	Remote physiologic monitoring treatment management services, clinical staff/physician/other qualified health care professional time in a calendar month requiring interactive communication with the patient/caregiver during the month; additional 20 minutes
99091	Collection and interpretation of physiologic data (e.g. ECG, blood pressure, glucose monitoring) digitally stored and/or transmitted by the patient and/or caregiver to the physician or other qualified healthcare professional, qualified by education, training, licensure/regulation (when applicable) requiring a minimum of 30 minutes of time, each 30 days

SMBP CPT®Coding (ama-assn.org)

Remote Patient Monitoring

- Patient Training
  - Equipment
  - Interpretation
- Devices
  - Automation/Validation
  - Memory
- Instructions
  - 5 R's
  - 2 Readings 1 min apart
- Common Errors
  - Sitting incorrectly
  - Distractions

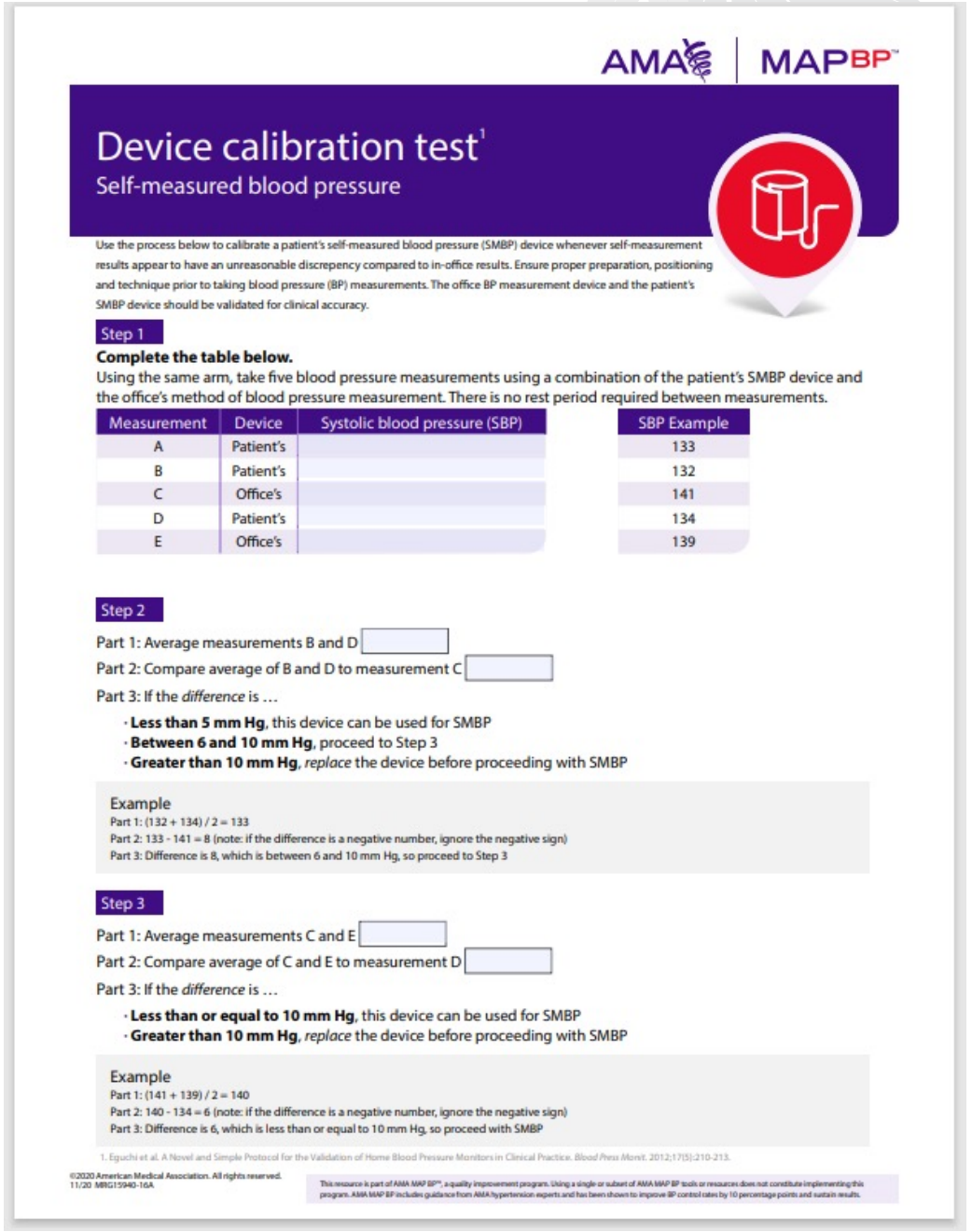
Accurate Blood Pressure Measurement for Patients



Arm Circumference	Usual Cuff Size
22-26 cm	Small adult
27-34 cm	Adult
35-44 cm	Large adult
45-52 cm	Adult thigh

Device Calibration

- **Lists of sites** with validated home monitors:
  - British Hypertension Society: https://bihsoc.org/bp-monitors/for-home-use/
  - Canadian Hypertension Society: https://hypertension.ca/hypertension-and-you/managinghypertension/measuring-blood-pressure/devices/
  - STRIDE BP: https://stridebp.org/bp-monitors
  - U.S. Blood Pressure Validated Device: https://www.validatebp.org/
- **Validation of home BP devices**



AMA | MAPBP

Device calibration test[1]

Self-measured blood pressure

Use the process below to calibrate a patient's self-measured blood pressure (SMBP) device whenever self-measurement results appear to have an unreasonable discrepency compared to in-office results. Ensure proper preparation, positioning and technique prior to taking blood pressure (BP) measurements. The office BP measurement device and the patient's SMBP device should be validated for clinical accuracy.

Step 1

Complete the table below.

Using the same arm, take five blood pressure measurements using a combination of the patient's SMBP device and the office's method of blood pressure measurement. There is no rest period required between measurements.

Measurement	Device	Systolic blood pressure (SBP)	SBP Example
A	Patient's		133
B	Patient's		132
C	Office's		141
D	Patient's		134
E	Office's		139

Step 2

Part 1: Average measurements B and D ☐

Part 2: Compare average of B and D to measurement C ☐

Part 3: If the *difference* is …

- **Less than 5 mm Hg**, this device can be used for SMBP
- **Between 6 and 10 mm Hg**, proceed to Step 3
- **Greater than 10 mm Hg**, *replace* the device before proceeding with SMBP

Example
Part 1: (132 + 134) / 2 = 133
Part 2: 133 - 141 = 8 (note: if the difference is a negative number, ignore the negative sign)
Part 3: Difference is 8, which is between 6 and 10 mm Hg, so proceed to Step 3

Step 3

Part 1: Average measurements C and E ☐

Part 2: Compare average of C and E to measurement D ☐

Part 3: If the *difference* is …

- **Less than or equal to 10 mm Hg**, this device can be used for SMBP
- **Greater than 10 mm Hg**, *replace* the device before proceeding with SMBP

Example
Part 1: (141 + 139) / 2 = 140
Part 2: 140 - 134 = 6 (note: if the difference is a negative number, ignore the negative sign)
Part 3: Difference is 6, which is less than or equal to 10 mm Hg, so proceed with SMBP

1. Eguchi et al. A Novel and Simple Protocol for the Validation of Home Blood Pressure Monitors in Clinical Practice. *Blood Press Monit.* 2012;17(5):210-213.

©2020 American Medical Association. All rights reserved.
11/20 MRG15940-16A

This resource is part of AMA MAP BP™, a quality improvement program. Using a single or subset of AMA MAP BP tools or resources does not constitute implementing this program. AMA MAP BP includes guidance from AMA hypertension experts and has been shown to improve BP control rates by 10 percentage points and sustain results.

Patient Resources

Home Blood Pressure Guide: Arm Cuff

Your doctor would like to know how your blood pressure is when you are at home. You can do that with different kinds of home equipment. This book is to help you know more about your blood pressure and how to watch it at home.

How is blood pressure measured?

Blood pressure measures the pressure of the blood in the arteries. Arteries are tubes that carry blood from your heart to the rest of your body. The arteries can automatically contract (get smaller) or expand (get bigger). When arteries contract, the pressure inside becomes higher. When arteries expand, the pressure inside becomes lower. If arteries remain contracted or become clogged, the disease hypertension (high blood pressure) occurs.

- **Systolic (SYS) -** The top number is the pressure in the arteries each time the blood is pushed out of the heart.
- **Diastolic (DIA)** - The bottom number is the resting pressure when the heart relaxes between beats. The harder it is for blood to flow through the arteries, the higher the blood pressure numbers will be.
- **Pulse Rate (PUL)** - The rate at which your heart beats. Your pulse is usually called your heart rate, which is the number of times your heart beats each minute (bpm).

Blood Pressure Numbers

Blood pressure is measured in millimetres of mercury (mmHg). For example, if your blood pressure is "140 over 90" or 140/90mmHg, it means you have a systolic pressure of 140mmHg and a diastolic pressure of 90mmHg.

- **Normal blood pressure:** systolic less than 120, and diastolic less than 80.
- **Elevated blood pressure:** systolic 120 to 129, and diastolic less than 80.
- **High blood pressure (hypertension) stage 1:** systolic 130 to 139, or diastolic 80 to 89.
- **High blood pressure (hypertension) stage 2:** systolic 140 or higher, or diastolic 90 or higher.
- **Hypertensive crisis (consult your doctor right away):** systolic higher than 180 and/or diastolic higher than 120.

My Blood Pressure Action Plan

My goal blood pressure range is: ≤140/90

My caution blood pressure is ≥ 140/90 but <180/110

My danger blood pressure is: ≥ 180/110

I am doing well **BP is ≤140/90**	**Action:** • Keep up the good work! • Follow provider recommendations for nutrition, physical activity, and medications (if prescribed)
My blood pressure is outside of my range and is ≥ 140/90 but <180/110	**Action:** • Caution needed • Make changes that can improve BP control including eating healthy, exercising, losing weight, quitting smoking, cutting down on alcohol, and take medications as prescribed • Monitor BP closely and contact provider to notify of changes
My blood pressure is significantly higher than my range and is ≥ 180/110	**Action:** I am at risk and need help **Get help! Call my provider today and get recommendations**

I will call 911 if I am in the **red zone** and have **any** of the following problems:

- trouble seeing or vision changes
- sudden, severe headache
- feeling confused
- trouble speaking or understanding others
- numbness or weakness in your face, arms, or legs
- sudden loss of balance or any dizziness
- chest pain or tightness without or without shortness of breath, sweats, or nausea

Remote Patient Monitoring Opportunities

- Technology
- Disparities – digital divide
- User barriers
- Labor intensive time and billing

Remote Patient Monitoring

- OSU PCI Award
- Care team collaboration across primary care (FCM + GIM)
- Targets: Enroll up to 2200 patients over 3 years
- Measures:
  - Patients enrolled, % with BP at goal <140/90
- Goals:
  - Improve blood pressure control in aggregate
  - Improve control within 6 months for 80% patients enrolled

Closing Thoughts

- Summarized Cardi-OH work
- Updated on RPM
- Gaps in healthcare
- Innovative ways to provide care

Questions?

MetroHealth

How Health Care Will Be Delivered in the Future: Virtual and In-Home Health Care Delivery Strategies

Michael Dalton, Vice President, Virtual Care

June 21, 2022

Disclosures

I have no relevant financial relationships to disclose

Objectives

1. Detail the disruption that is happening in the marketplace and what it means for how we will deliver care in the future.
2. Provide an overview of the core characteristics that will be the focus in delivering care virtually and in the home.
3. Discuss the principles and capabilities providers will need to master and be cognizant of to be successful in new care models.

The Care Delivery Landscape Has Forever Changed

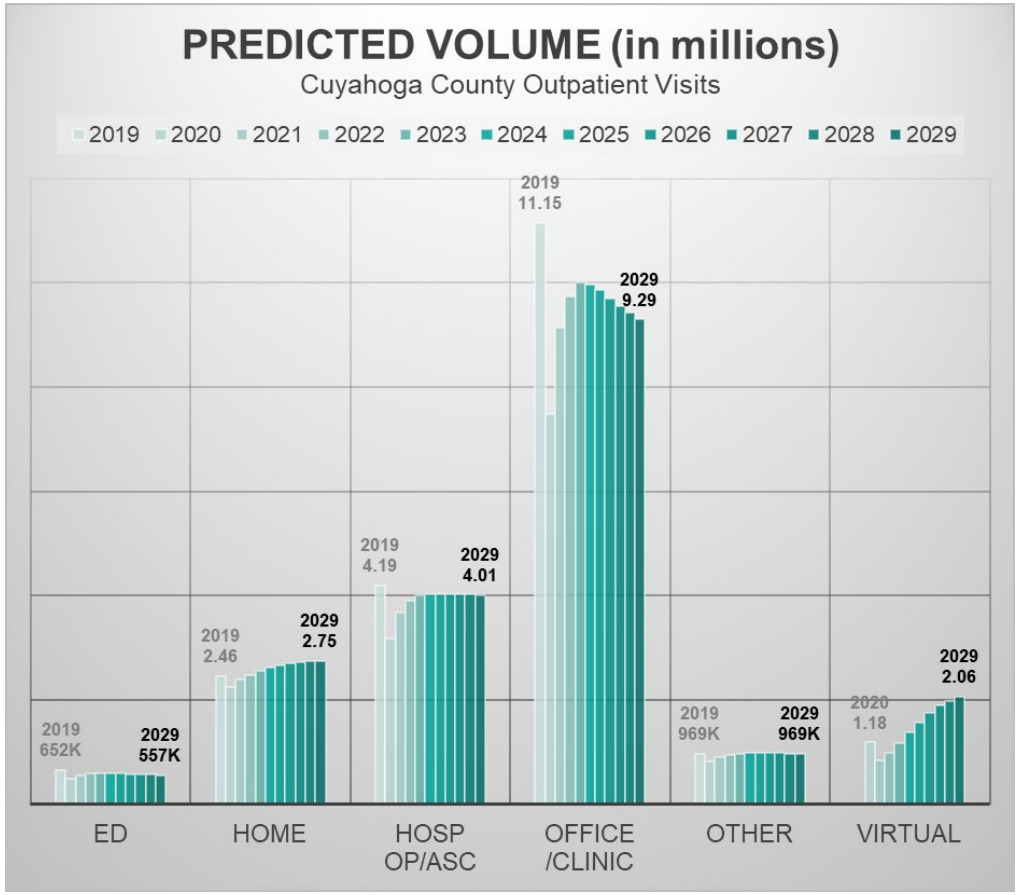
No shortage of services with the potential to shift to home

Dynamics during shutdown may not reflect long-run outcomes

Short- and long-term impact of Covid-19 on home-based care landscape

	Pre-acute		*Acute*				*Post-acute*	
	Virtual care	**House calls**	**Hospital at home**	**Home infusion**	**Home dialysis**	**Home birth**	**Home health**	**SNF at home**
Shift during pandemic								
Post-pandemic outlook								
Explanation	Volumes declining from Covid-19 peak	Fears of infection limit growth	Pandemic growth likely sustained	Covid-19 accelerated existing trend	Covid-19 accelerated existing trend	Regulatory restrictions limit growth	Fears of infection limit growth	Practical constraints inhibit growth

Download the full *Home Based Care Market Scan* at **advisory.com**



Care is quickly shifting to the home and investors see the value it can create

INSURANCE

STAT+

UnitedHealth's deal with LHC highlights broader interest in home health industry

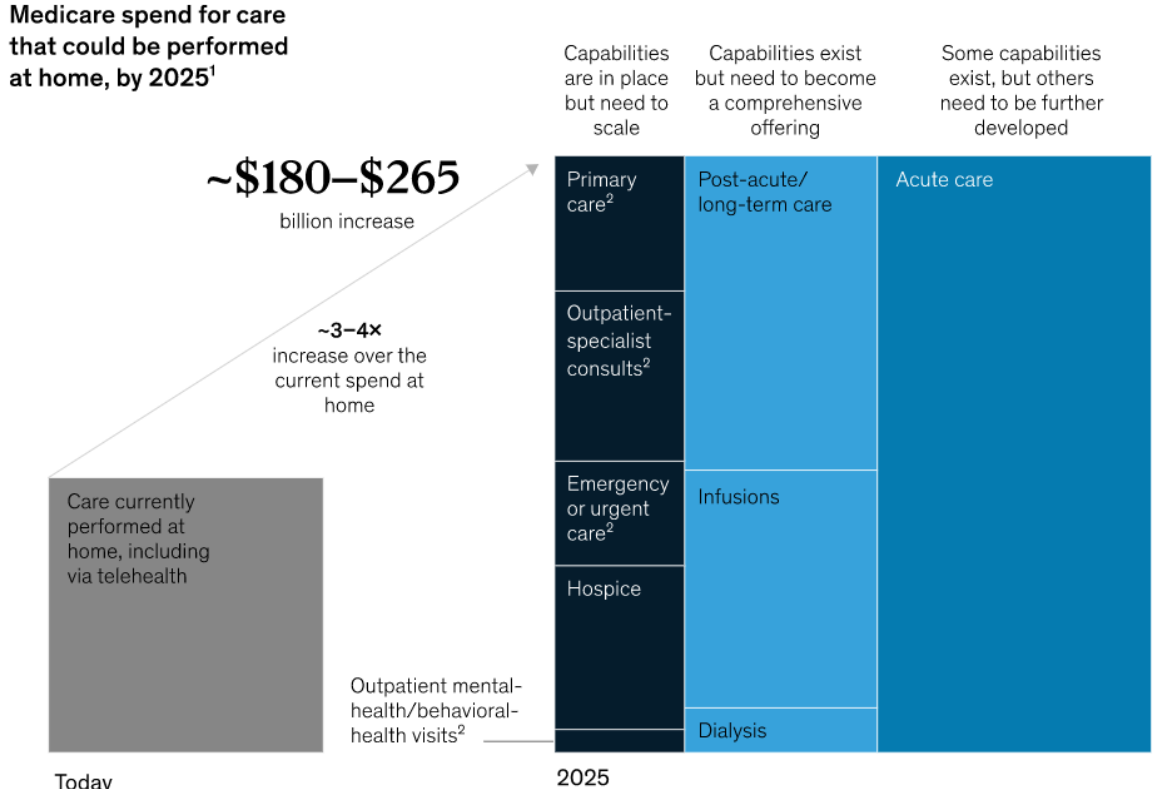
By Bob Herman and Tara Bannow March 29, 2022

Reprints

Apr 28, 2021
1 min read

Humana Announces It Will Acquire Kindred At Home At An EV Of $8.1B

Up to $265 billion worth of care services currently being delivered in clinics, facilities, and physicians' offices could shift to the home by 2025.



Source: McKinsey & Company

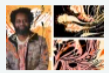
Investments and M & A in Virtual Care Delivery Has Rapidly Accelerated

2 min

Reading:

Amazon Care now available nationwide as demand continues to grow

STORIES WE THINK YOU'LL LIKE



Amazon celebrates the depth and diversity of the Black community

In-person care services are expanding to more than 20 new cities in 2022, bringing even more care options to Amazon Care's growing customer base.

Amazon Care launched in September 2019 to bring the most patient-centric health care to customers when and where they need it. Amazon Care combines the best of virtual care and in-person services, and as more and more organizations look for convenient, comprehensive, high-quality health care solutions, we're seeing growing demand and excitement for Amazon Care's unique hybrid care offering.

Amazon Care's virtual health services are now available nationwide—and in-person services will be rolled out in more than 20 new cities this year. The expansion comes as we continue to invest in growing our clinical care

PAYERS

Cigna's Evernorth completes acquisition of virtual care provider MDLive

By **Paige Minemyer** • Apr 19, 2021 04:20pm

Global digital health funding skyrockets to $57.2B with record cash for mental health, telehealth

By **Heather Landi** • Jan 21, 2022 10:49am

What Does This Mean For Our Industry and Our Patients?

DISRUPTION

The Future of Healthcare Will Be...

- Consumer-Centric
- Fragmented...but Integrated
- On-Demand
- Increasingly Asynchronous
- Remote and In The Home
- Automated and Enabled

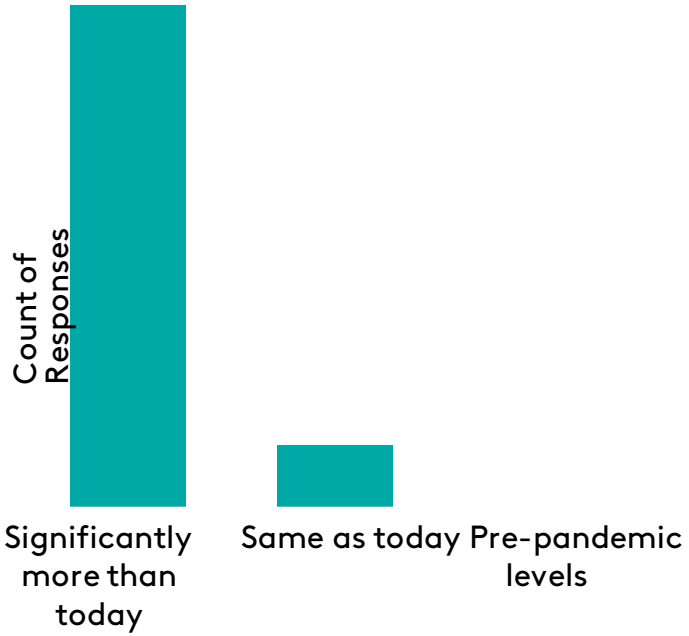
Consumer-Centric

Source: Visual Capitalist and Publicis Health

MetroHealth

Consumer expectations will drive growth in virtual and in-home care regardless of the role that health systems and providers play

At what rate do you believe virtual care will be utilized 5 years from now?



Consumer expectations have created a <u>competitive environment for virtual care</u>

- "Every patient population became more comfortable with virtual care during the pandemic."
- "Employers are telling payers that virtual services are a must-have."

<u>Technology advancements</u> have <u>opened the door</u> for new virtual care solutions

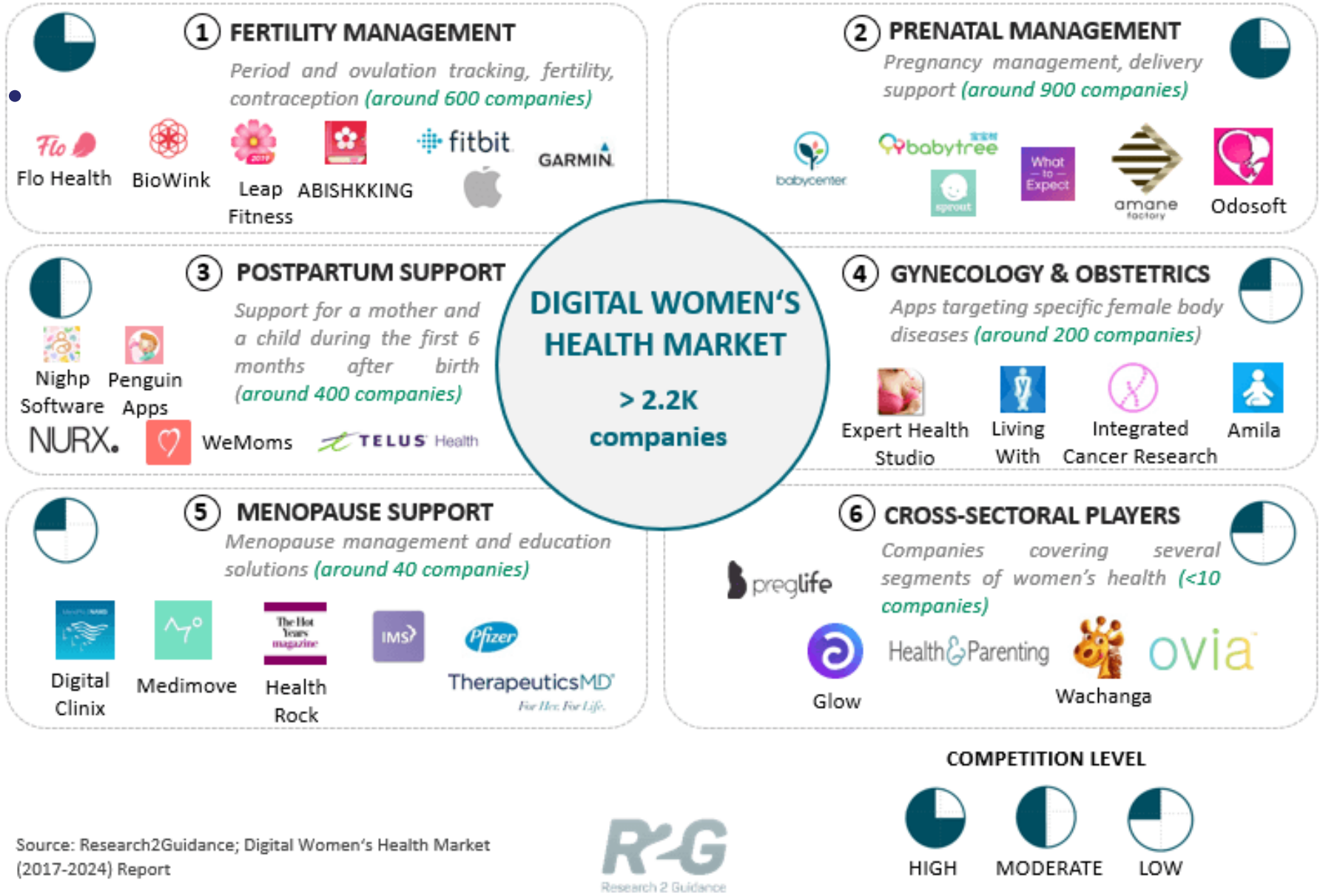
- "Advancements in clinical technology enable physicians to do much more remotely."
- "Patients and providers learned that they can safely receive care from home during the pandemic."

<u>Comprehensive virtual and in home care delivery models will be positioned</u> to deliver affordable, accessible, quality care to patients

- "Organizations struggle with virtual care when they approach it as a 'bolt-on' service"
- "Direct-to-consumer platforms are now scalable, although I believe that health systems are best positioned to provide a comprehensive care solution"

MetroHealth

Fragmented...



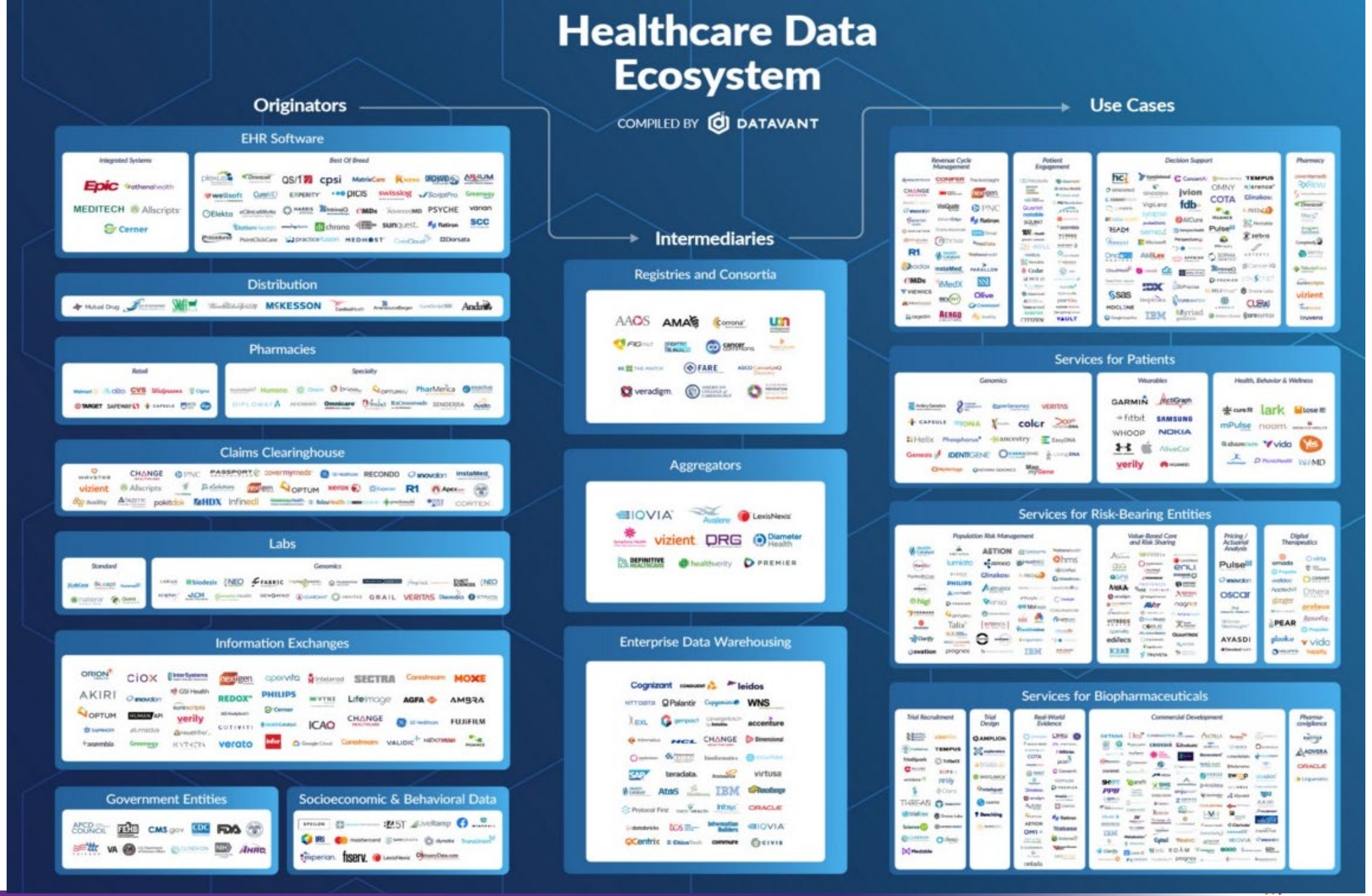
COMPETITION LEVEL

HIGH MODERATE LOW

Source: Research2Guidance; Digital Women's Health Market (2017-2024) Report

R2G Research 2 Guidance

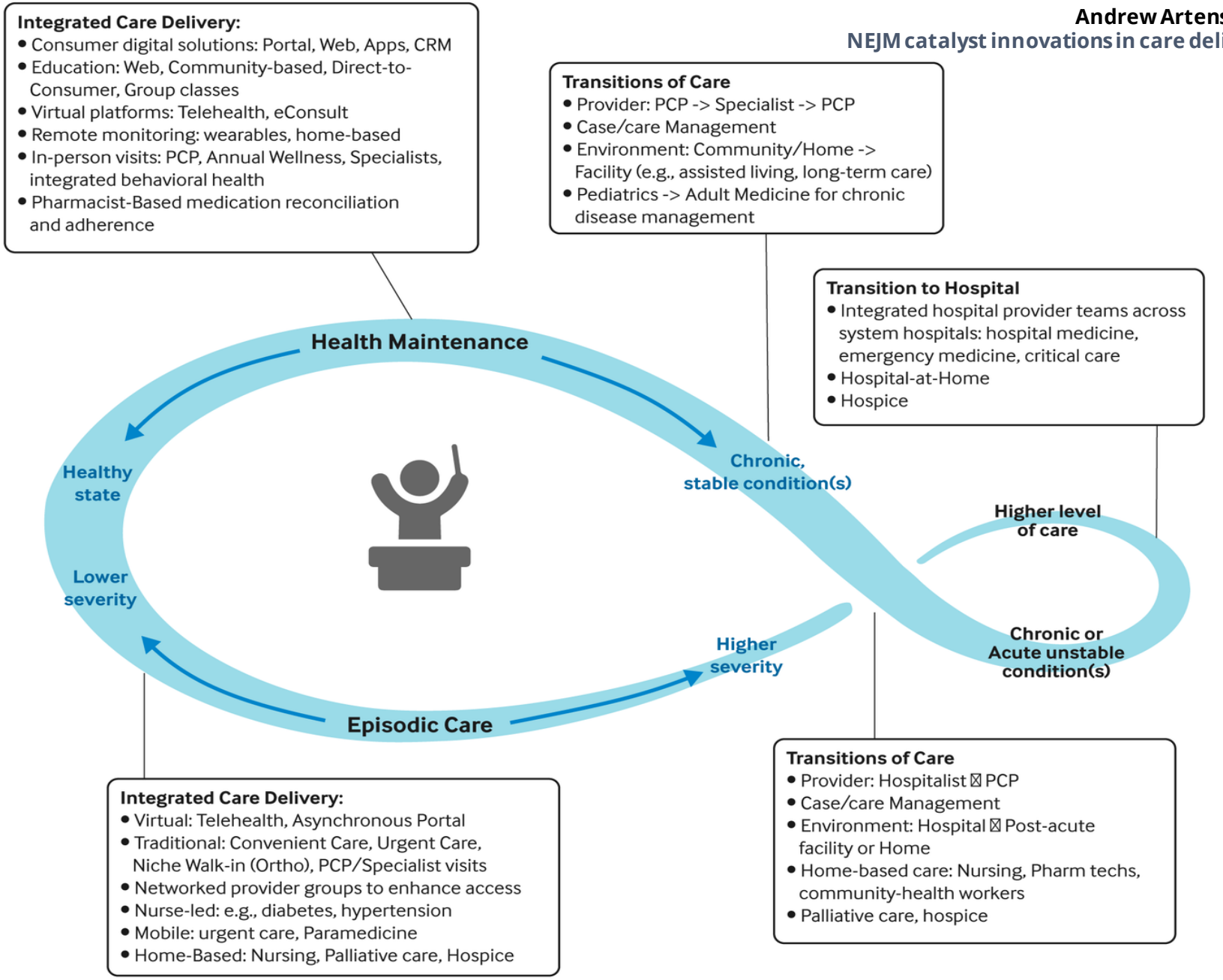
MetroHealth



MetroHealth

… But Integrated

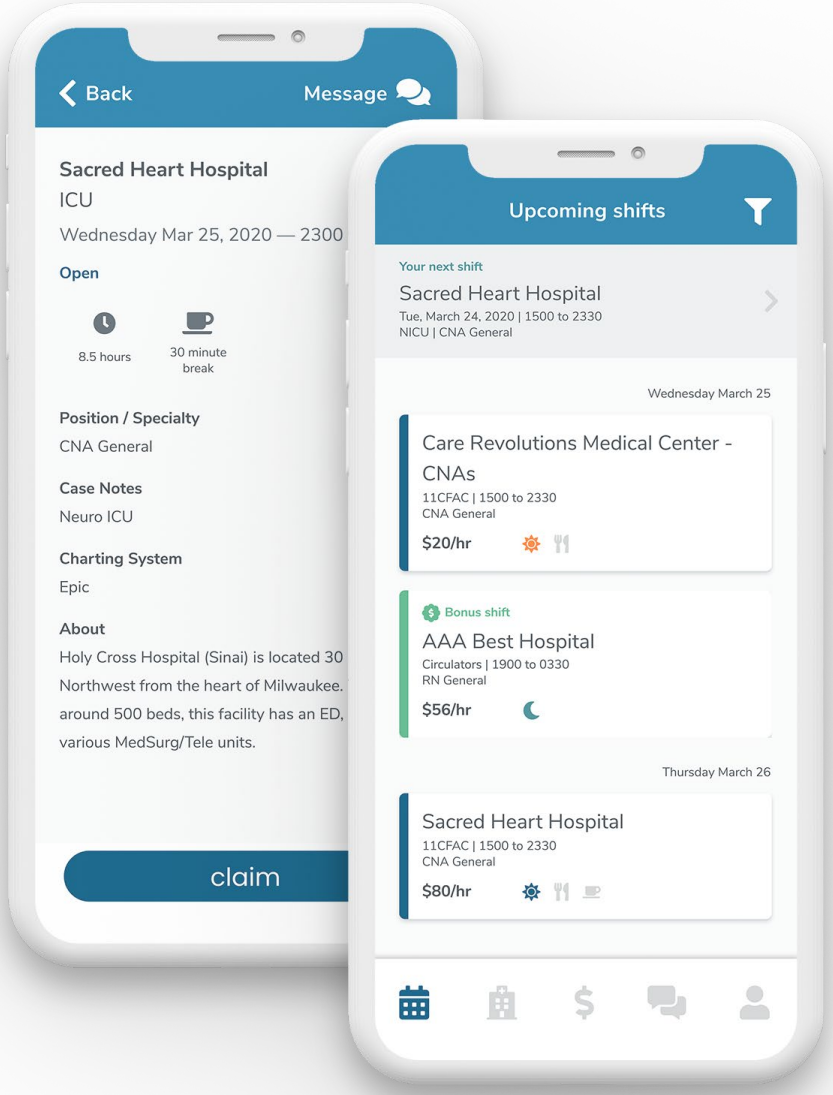
Text Bar



MetroHealth

On-Demand

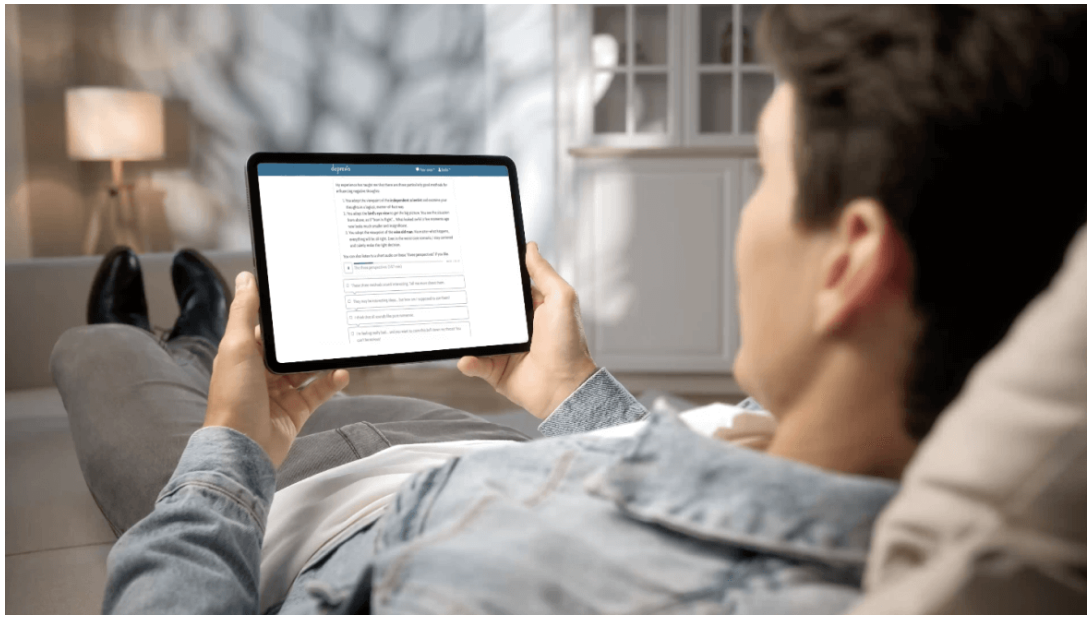
Text Bar

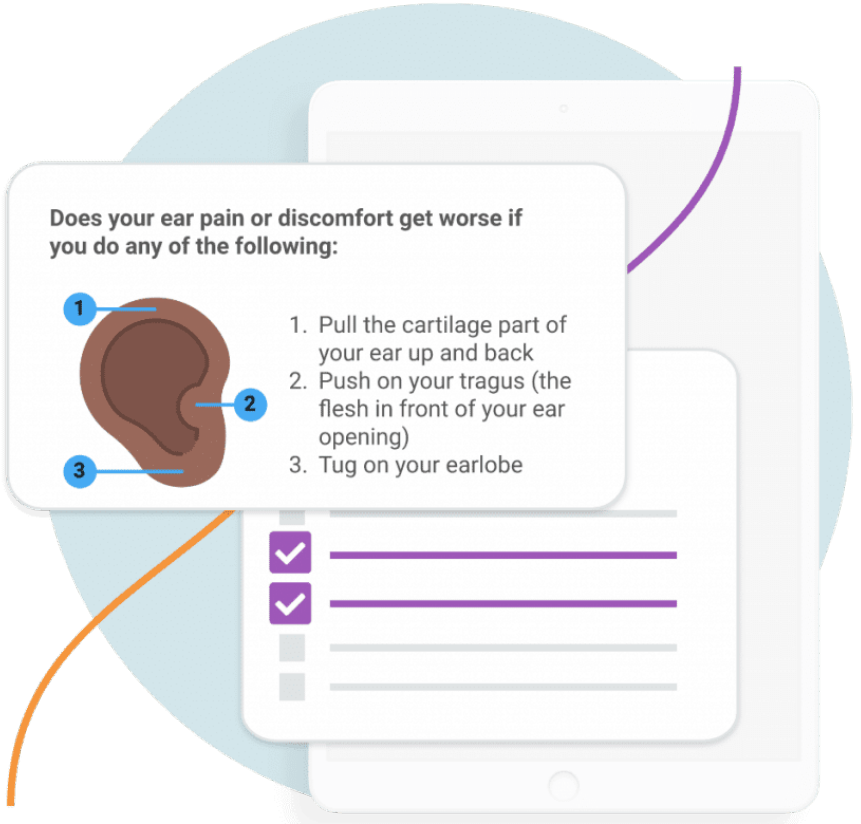


MetroHealth

Increasingly Asynchronous

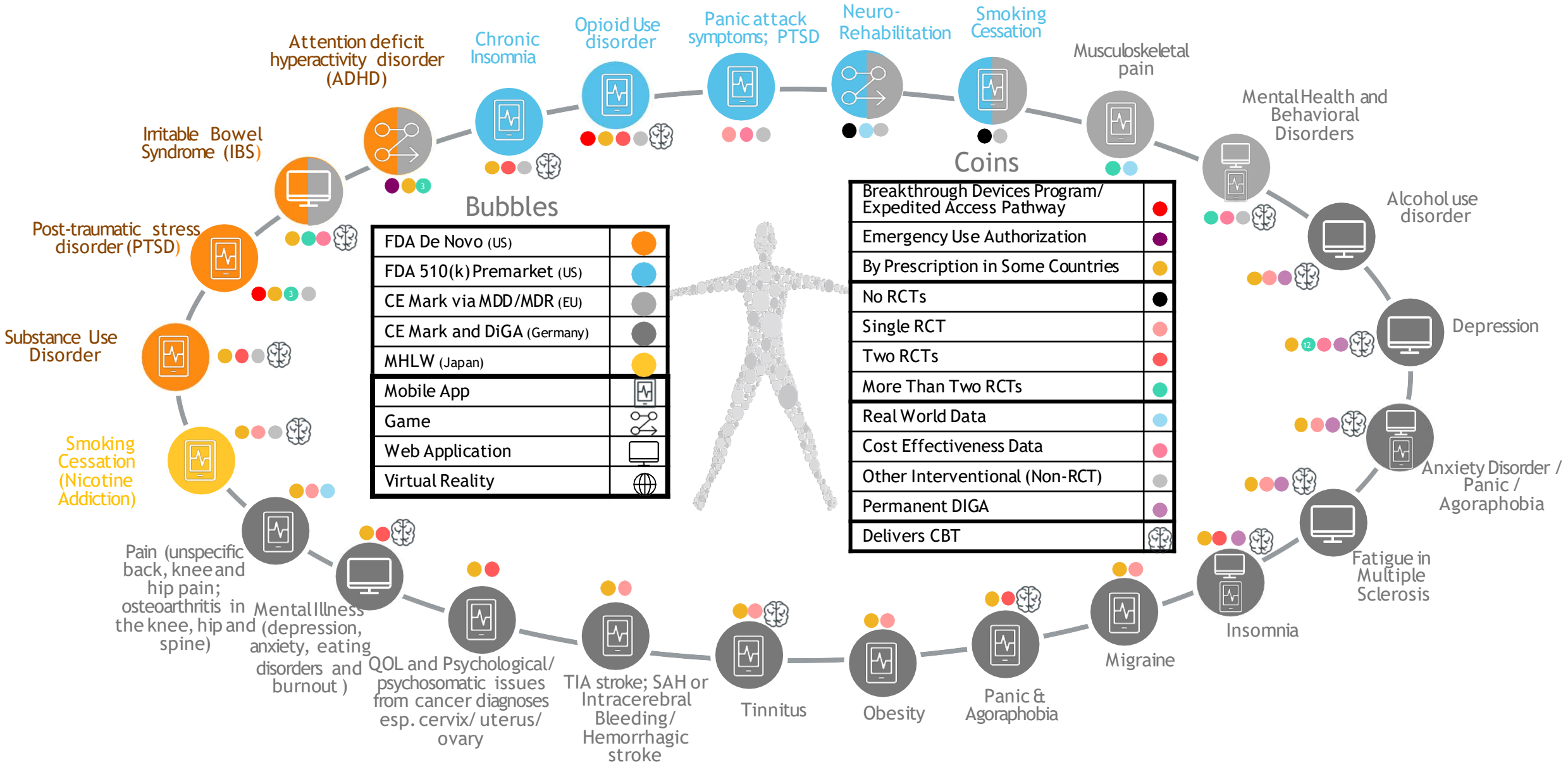
Text Box



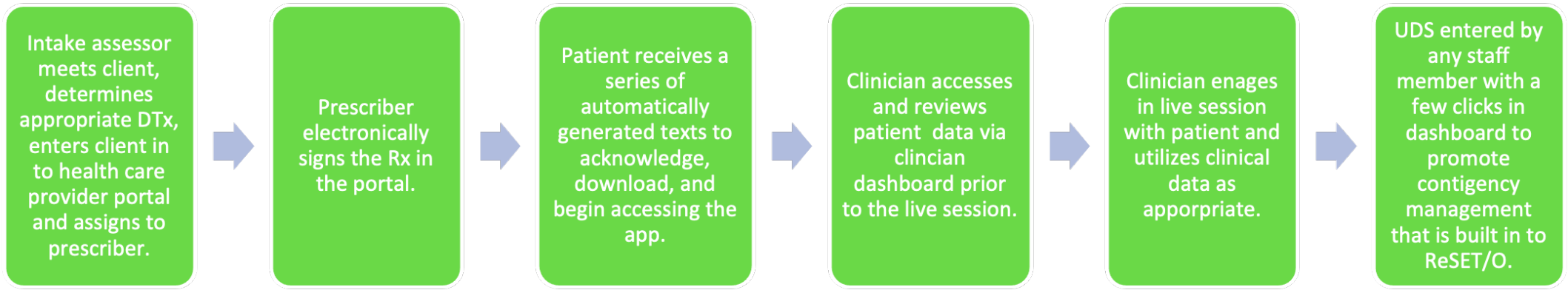


MetroHealth

Digital Therapeutics

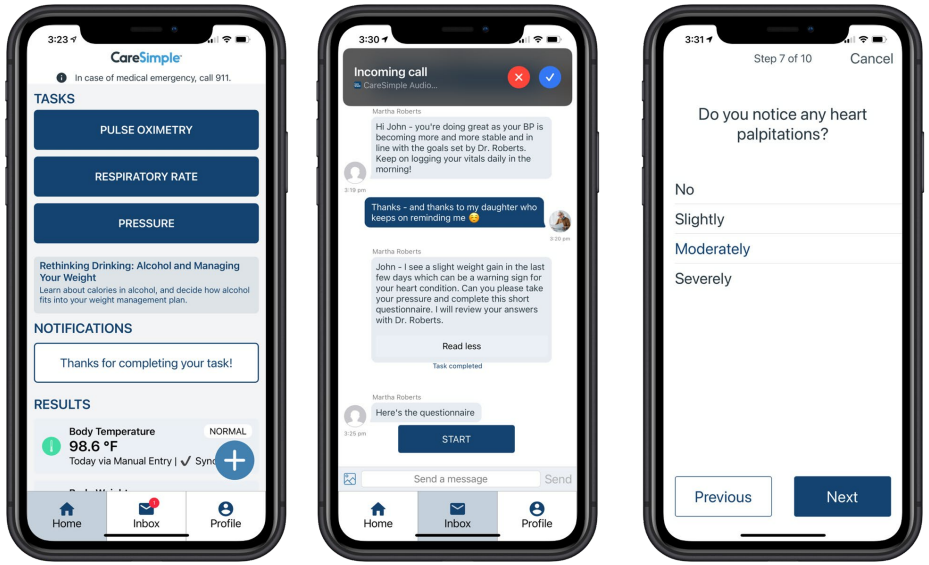


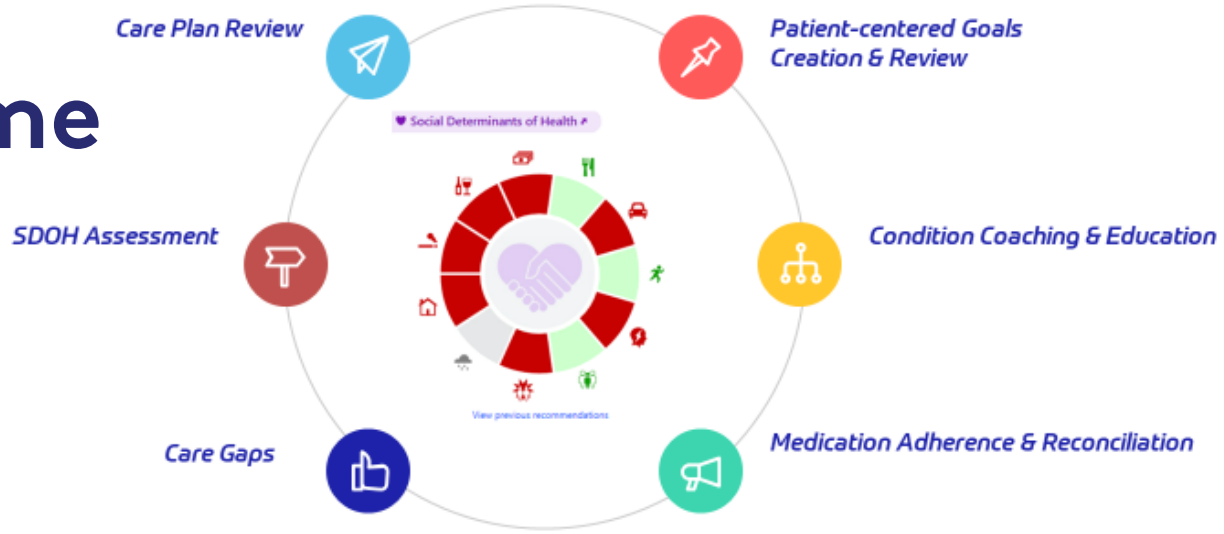
How Does It Work?
The Clinical Journey



Virtual AND In The Home

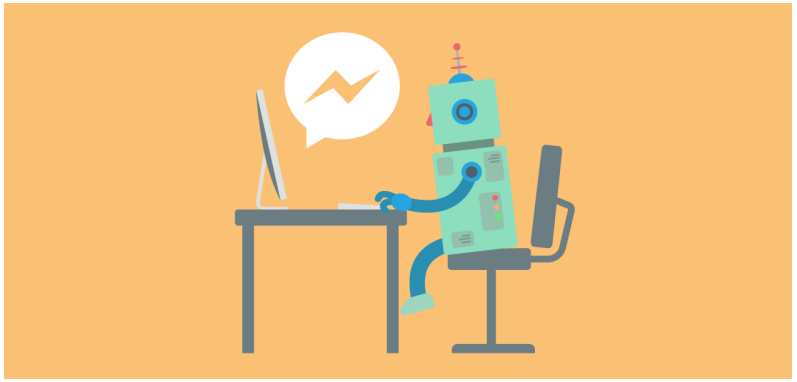
Text Bar

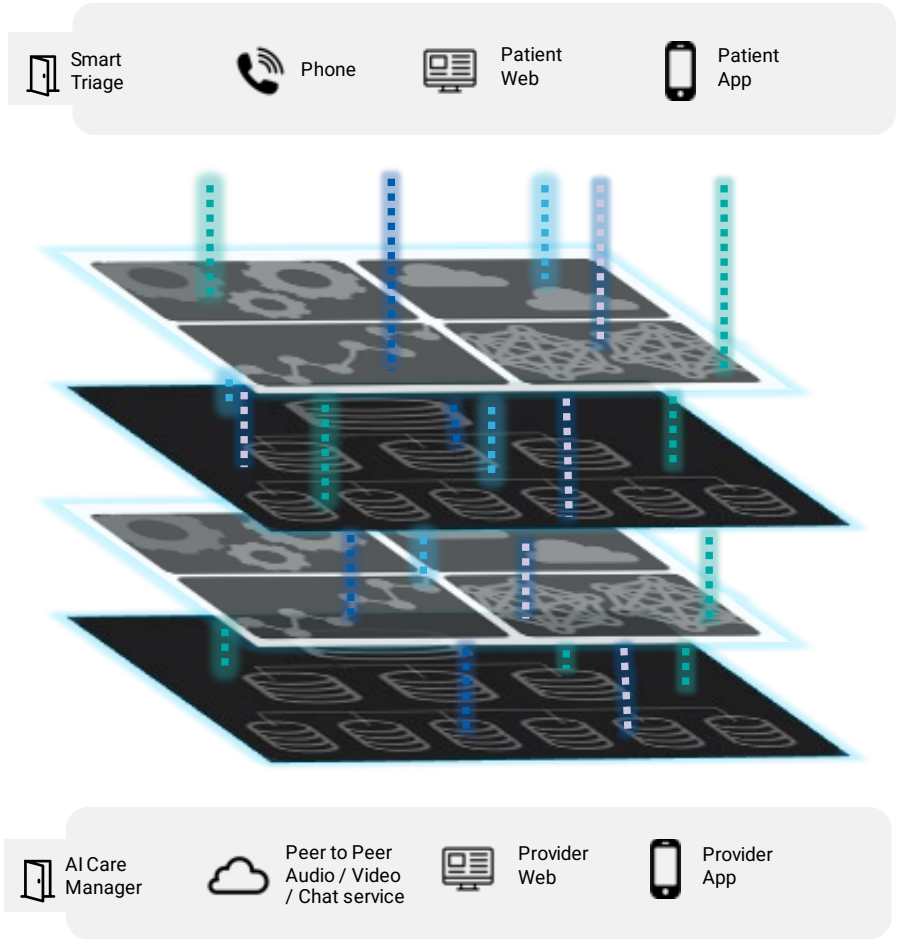




MetroHealth

Automated and Enabled





MetroHealth

How Do We Succeed?

Our Guiding Principles

- Capturing and Amplifying The Consumer, Patient and Caregiver Voices Are Paramount
- Understanding The Impact Of Social Determinants Of Health Will Be Table Stakes
- Data Literacy Is Critical
- Check Our Egos: Virtual and In-Home Care Are The Great Equalizers
- Partnering Is Not An Option – It's a Necessity
- Care and Benefits Navigation Have Never Been More Important
- Automate Not To Replace, But To Emphasize The Human Elements of Care
- These New Care Delivery Models Will Not "Just Happen"

We Can Only Move At...

Text Box

The Speed Of Trust

Lunch

12:00PM-1:00PM

Looking Ahead:

Where is Health Care Delivered in the Future?

How is Health Care Delivered in the Future?

How is Health Care Paid for in the Future?

What Does the Health Care Workforce of the Future Look Like?

THE HEALTH COLLABORATIVE
Technology Powered by HealthBridge

Better Health Partnership

Health Impact Ohio
Equity. Access. Quality.