Implementation of a Centralized Pharmacist- Led Remote Patient Monitoring Program

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NAACOS Fall Conference Fall 2022

Mount Sinai Health System

43,000+
Employees

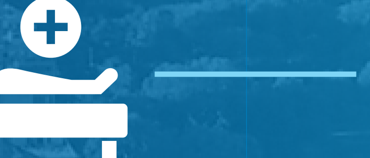
7,000+
Physicians

8 Hospitals

3,808 Beds

1
Leading Medical School
Icahn School of Medicine at Mount Sinai

2,000+
Residents and Fellows



4.2M
Patient Visits Annually

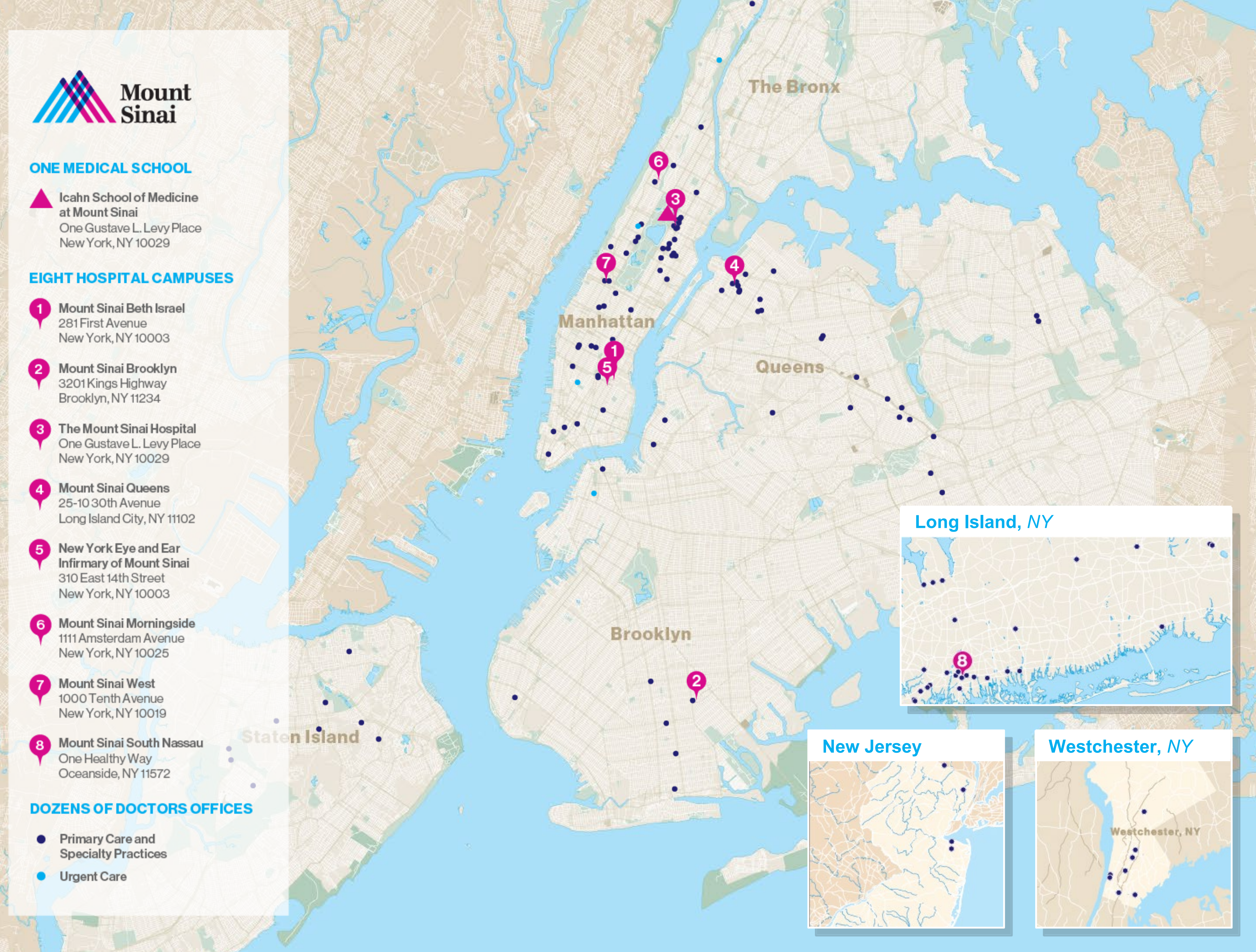
$9.3B
Revenue Annually

410+
Network Outpatient Practices

Our Reach

Mount Sinai Health System

at a Glance

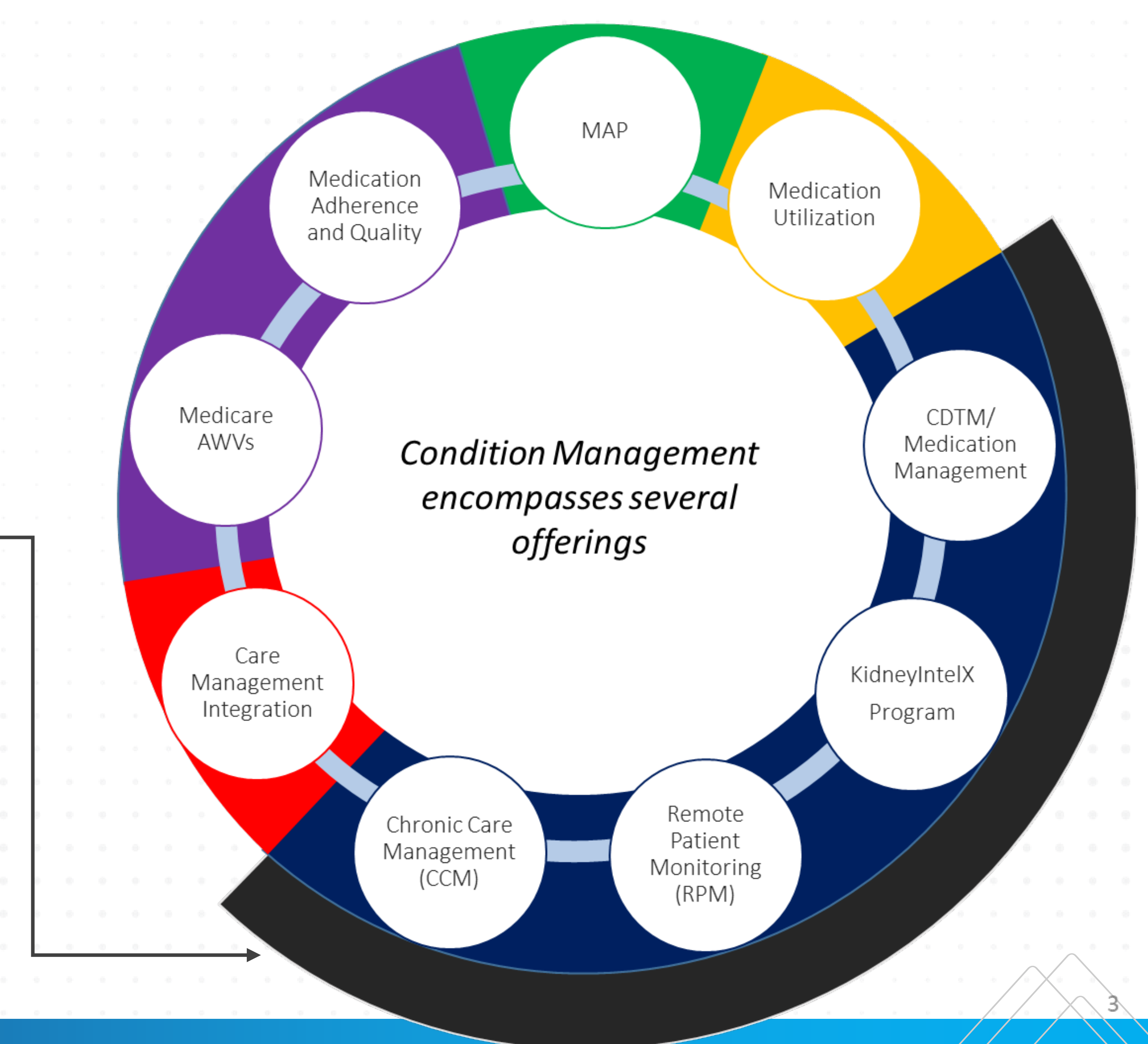


MSHP Ambulatory Clinical Pharmacy

Provide patient-centered clinical and population health services that optimize outcomes through an alignment of clinical practice, innovation, and leadership

Five programs of the ambulatory pharmacy department:

1. **Condition Management Program**
    - Disease state management: *HTN, HF, DM (DKD), COPD, Asthma*
    - Remote patient monitoring (RPM)
    - Populations served: VBC, high-risk obstetrics
    - Embedded in clinics and centralized for telehealth
2. HEDIS Medication Adherence and Quality
3. Medication Access Program (MAP)
4. Medication Utilization
5. Care management referrals



Remote Patient Monitoring (RPM) Overview

Ad-Hoc | Intermittent | Continuous

Ad-Hoc Patient Self Monitoring

- Pre-visit disease management
- Prevention & education

Active Patient Self Monitoring

- Rising risk chronic disease management
- Post-discharge admission avoidance

Continuous Monitoring

- Early discharge programs / continued inpatient care
- Pre/post transplant
- Clinical trials research

Low Acuity | Rising Acuity | High Acuity

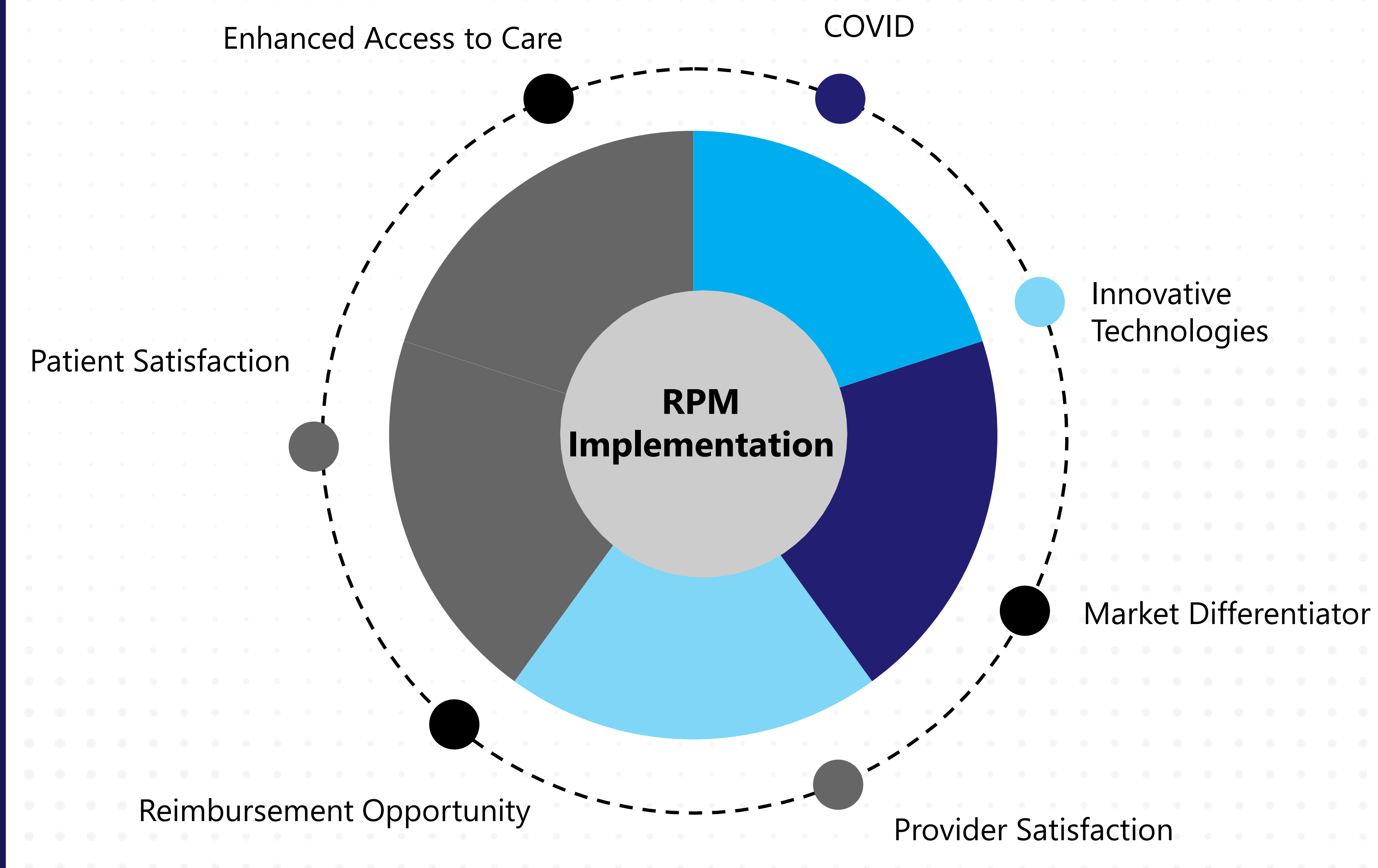
RPM Billing

RPM CPT codes are reimbursable by Medicare, Medicare Advantage and some commercial plans. Codes can be billed incident to by clinical staff.

CPT Codes	Description	Average reimbursement (CMS)	wRVU
99453	Intro, ordering of device, and patient education on use of equipment. Minimum 16 days of monitoring.	$23.18	
99454	Transmission of data from device. Minimum 16 days of monitoring in 30-day time period.	$67.31	
99457	20 minutes of management conducted by clinical staff, physician, or other qualified healthcare professional. Interactive communication required- phone, video	$58.41	.61
99458	20 additional minutes of monitoring, requiring interactive communication	$47.17	.61

RPM Program Implementation

Drivers for Implementation



RPM Program Development

Identify a condition which can be better optimized with RPM, and if possible, resources that are already supporting the work

- Ambulatory Clinical Pharmacists are Well-Suited to Provide RPM Services
  - Within scope of practice, enhancement to services already provided as physician extenders
  - Ability to provide proactive, frequent follow-up for patients
  - Ability to bill incident-to

Define your staffing model

- High-touch vs low-touch
- Centralized vs department-led

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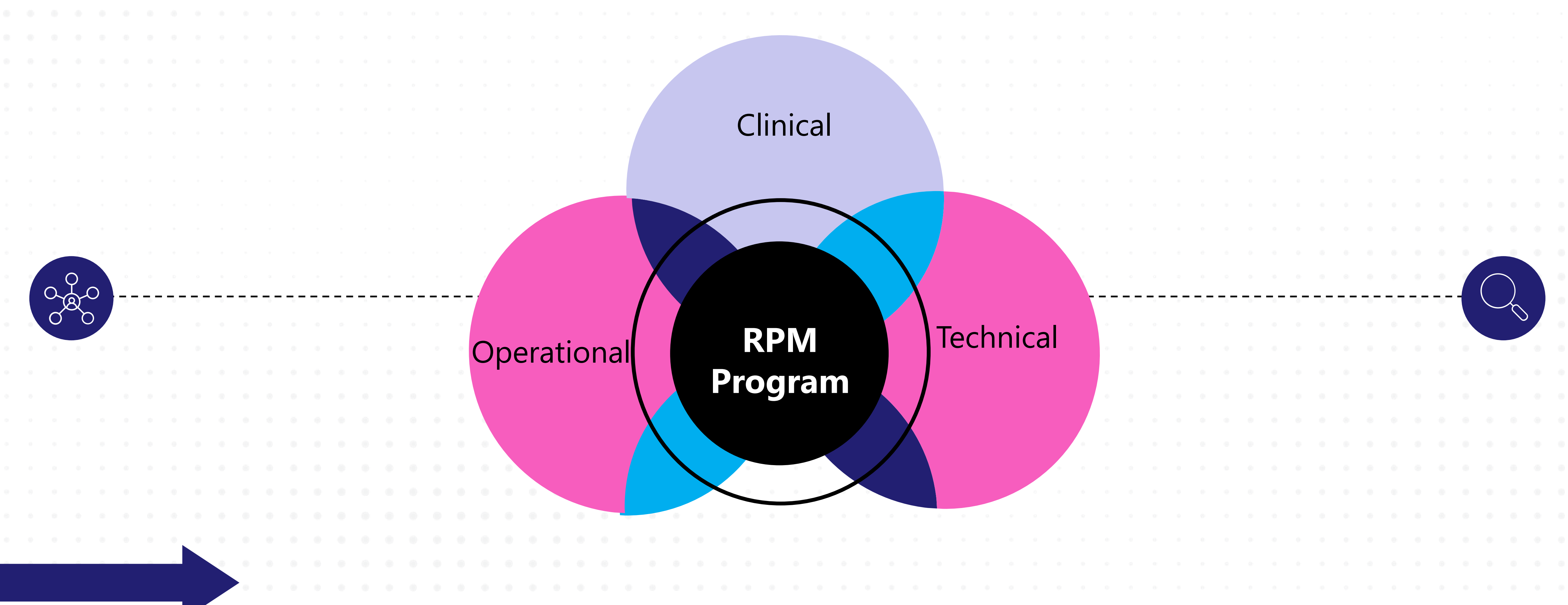
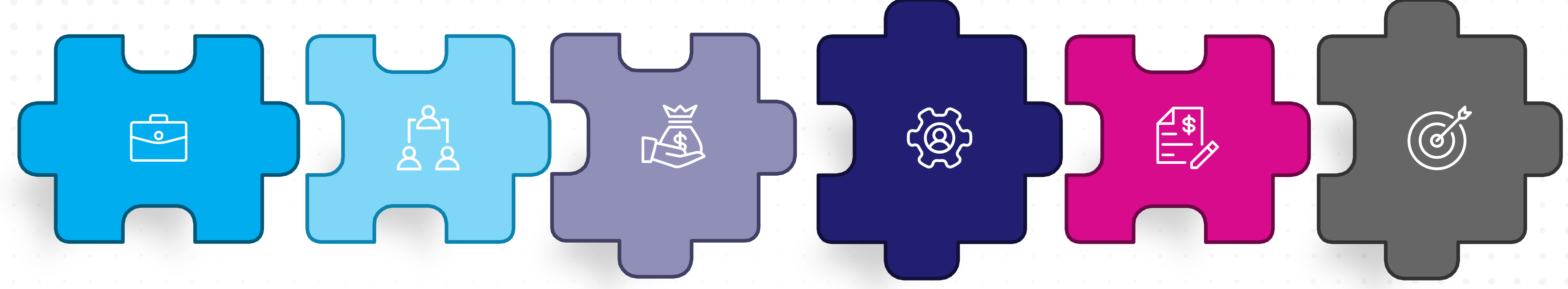
An Ecosystem is Required to Deliver RPM



Implementation Process

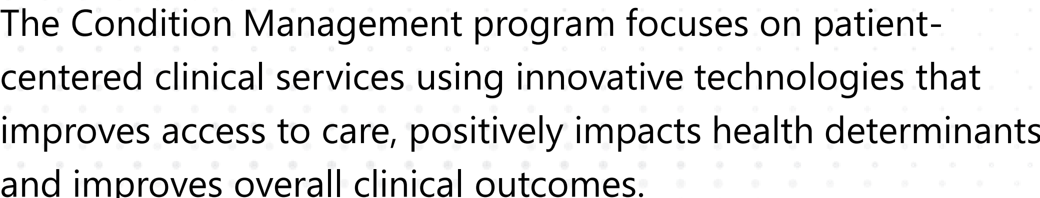


Vendor Contracting	Clinical Program Design	Billing and Financial Model	Technical Design	Vendor Workflows	Marketing
Structured vendor assessment and contracting	Conduct market research Clinical stakeholders to design clinical algorithms, documentation, staffing ratios	Create pro forma to support justification of program, align with legal and compliance on regulations	IT and clinical pharmacy team design encounters, dashboards, analytics, reporting and visualization of RPM data	Logistics workflows and aligning on patient experience	Patient and provider communication (FAQs, education materials)

Condition Management Program

Condition Management Program

Mission



The Condition Management program focuses on patient-centered clinical services using innovative technologies that improves access to care, positively impacts health determinants, and improves overall clinical outcomes.

Through services such as remote patient monitoring, therapeutic optimization and clinical coaching, we strive to help patients monitor, manage, and maintain their conditions.

Currently serving **1100 patients** for hypertension, heart failure or COVID management. In 2022, will expand to diabetes, pulmonology and maternity.

Dedicated care team consisting of a clinical pharmacist, dietician and patient coordinator

Devices are **easy to use** – no additional Wifi or technology required from patients

Strong focus on health equity and **reducing health disparities**

Condition Management Care Team

Clinical Pharmacist

- Medication optimization via standardized protocols
- Medication reconciliation
- Lab ordering and interpretation
- Medication education

Dietician

- Nutrition and lifestyle clinical coaching
- Develop personalized dietary and lifestyle care plans

Patient Coordinator

- Concierge level coordination services
- Medication adherence management
- Barrier identification and support
- Device education and troubleshooting

Supervising Physician

- Clinical supervision
- Monthly billing and attestation

Patient Journey

Patient Referral

Physician places a 'Referral to Condition Management' in Epic

After physician referral, the patient is aligned with a **patient coordinator, dietician** and **clinical pharmacist** who completes enrollment and consent

01

Program Enrollment Phase

Within 2 weeks, patients receive and are setup with their devices, their care team, receive training and scheduled for their first clinical visit with the clinical pharmacist

02

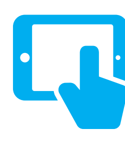
Clinical Management Phase

The Condition Management team facilitates care path changes with patients through collaboration with **referring physicians.**

Care team will also be notified on out-of-range notifications

03

Clinical Maintenance Phase



Once patients have reached individual clinical goals, patients **remains enrolled** with communication conducted by the care team on a **monthly basis**
After 1 year, patients will be assessed for graduation or surveillance

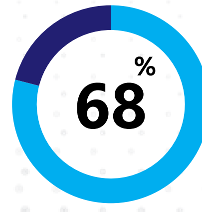
04

Program Metrics
Health Equity, Clinical Outcomes, Utilization

Metrics

Health Equity	Clinical Outcomes	Utilization Outcomes

- **40.6% of patients do not have Wifi at enrollment**
- **52% of patients have a median household income of <50k**
- **73% of participants are Black or Hispanic**



Value Based Care patients had a blood pressure of <140/90 at three months

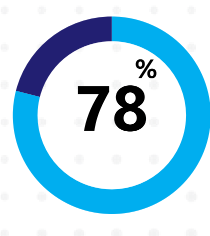
On average, 7 point reduction in SBP at three months

76.1 % reduction in the odds of an inpatient admission compared to usual care cohort matched on age, race, sex and prior utilization

Program Metrics

Metrics

Patient Engagement	Patient Experience



- **Sustained use of blood pressure machine** – 78% of patients using daily for > ½ of the month
- **Successful care coordination** – 75% of patients engaging with their RPM Condition Management team for > 20 mins per month

- **High patient enrollment rate**, 72%
- **Minimal program disenrollment –** low disenrollment rate of 2% per month

Program Successes

- Easier to use technology solution results in an engaged population
- Centralized model has allowed us to scale resources effectively
- System infrastructure and financial investment
- Effective collaboration across disciplines, including pharmacist – patient coordinator- dietitian – physician model
- Proactive model ultimately results in enhanced access to care

Program Barriers

- Providing patients broadband internet increases program costs, limits scale
- Vendor operations require close oversight, frequent trouble-shooting
- Requires analytics support to develop views on program operations, metrics, patient identification, etc
- Vendor device contract pricing

Expenses

- Commercial and state Medicaid health plans are generally not reimbursing
- CMS RPM reimbursement decreased in 2022, fee-for-service (FFS) reimbursement is low, not enough to break-even with staff and device costs
- Investment to offset hardware, clinical devices and other infrastructure expenses is beneficial
- Decrease in avoidable healthcare utilization may help justify financial spend

Thank You!

Lessons learned from Value-Based Programs: Remote BP Monitoring

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NAACOS

September 9, 2022

BY THE NUMBERS

27 HOSPITALS

500+ SITES OF CARE

Top 12

NOT-FOR-PROFIT HEALTH SYSTEM

Top 10

IN QUALITY AMONG NATIONAL HEALTH SYSTEMS

75K

TEAM MEMBERS

22K

NURSES

10K

PHYSICIANS

10K

VOLUNTEERS

3M UNIQUE PATIENTS

1.3M VALUE-BASED LIVES

53

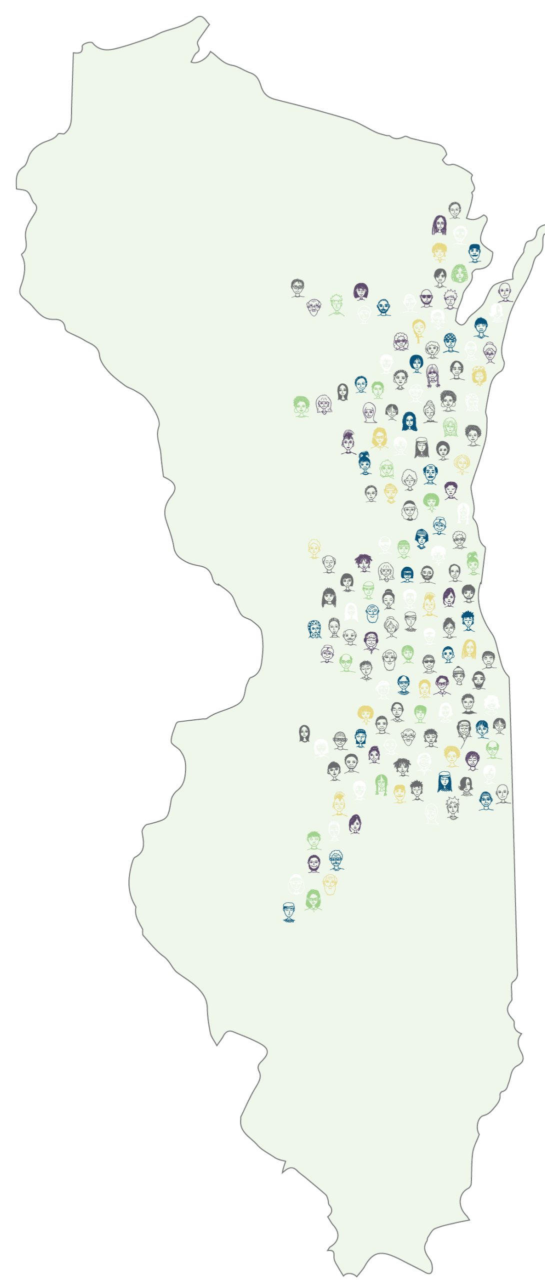
INTEGRATED HEALTH & SAFETY MEASURES TRACKED

$2.5B+

COMMUNITY BENEFITS IN 2020

1.2M+

LIVEWELL APP DOWNLOADS



Advocate Aurora Health

MSSP Participation for 2022

Wisconsin:

- **Enhanced**
  - 67,956 Beneficiaries[1]
  - 11 TINs
  - 5,000+ clinicians
  - Downside risk
  - Advanced Alternative Payment Model (AAPM)
  - Start date: 2017

Illinois:

- **Basic Level E**
  - 103,370 Beneficiaries[1]
  - 401 TINs
  - 6,000+ clinicians
  - Downside risk
  - Advanced Alternative Payment Model (AAPM)
  - Start date: 2012

$414 million in generated savings since joining program in 2012

1. *Based on 2022 Initial Assignment List*

AdvocateAuroraHealth®

Problem Statement

Hypertension is the leading preventable risk factor for cardiovascular disease. Hypertension also increases the risk of heart attack, stroke, kidney disease, and heart failure. The accurate measurement of Blood Pressure is essential for the diagnosis and management of hypertension.

[1]https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6159400

Proposed Solution:
Remote Patient Monitoring – Home Blood Pressure

Technological advancements are shifting traditional care delivery models from the point of care to the patient's home or Remote Patient Monitoring. Home Blood Pressure Monitoring (HBPM) has emerged as an effective and convenient means of screening for hypertension, as well as being cost-effective. It has stronger prognostic value in terms of CV risk when compared with clinic BP measurement.

[1]Padfield PL, The case for home monitoring in hypertension, *BMC Med* 2010;**8**:55.

HTN Remote Patient Monitoring(RPM) Workflow

- Initial Patient Outreach
    - Care Managers outreach to patient
    - Assess if patients will participate in HBP Pilot or follow with HTN program
- Enrolling Patient in Pilot
    - Care Managers determine what equipment the patient needs (BP cuff alone or BP cuff with Wi-Fi enabled tablet)
- Patient Follow-up
    - Onboarding
- Dashboard Monitoring
    - Assess alerts and connect patient with PCP or Specialist, as applicable

Process Metrics

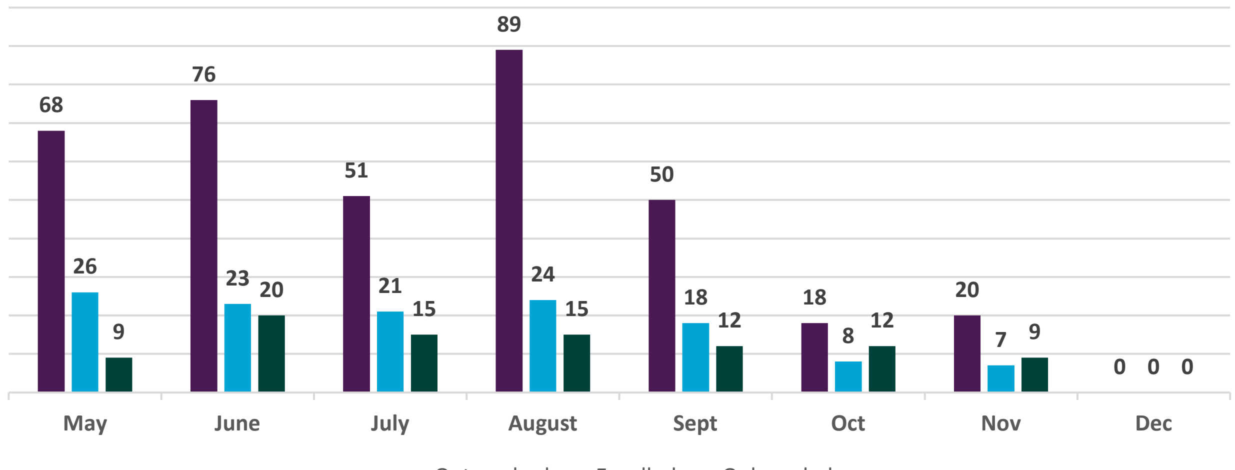
Remote patient monitoring will help patients establish a relationship with their PCP and put them on a path of controlling their BP within 90 days.

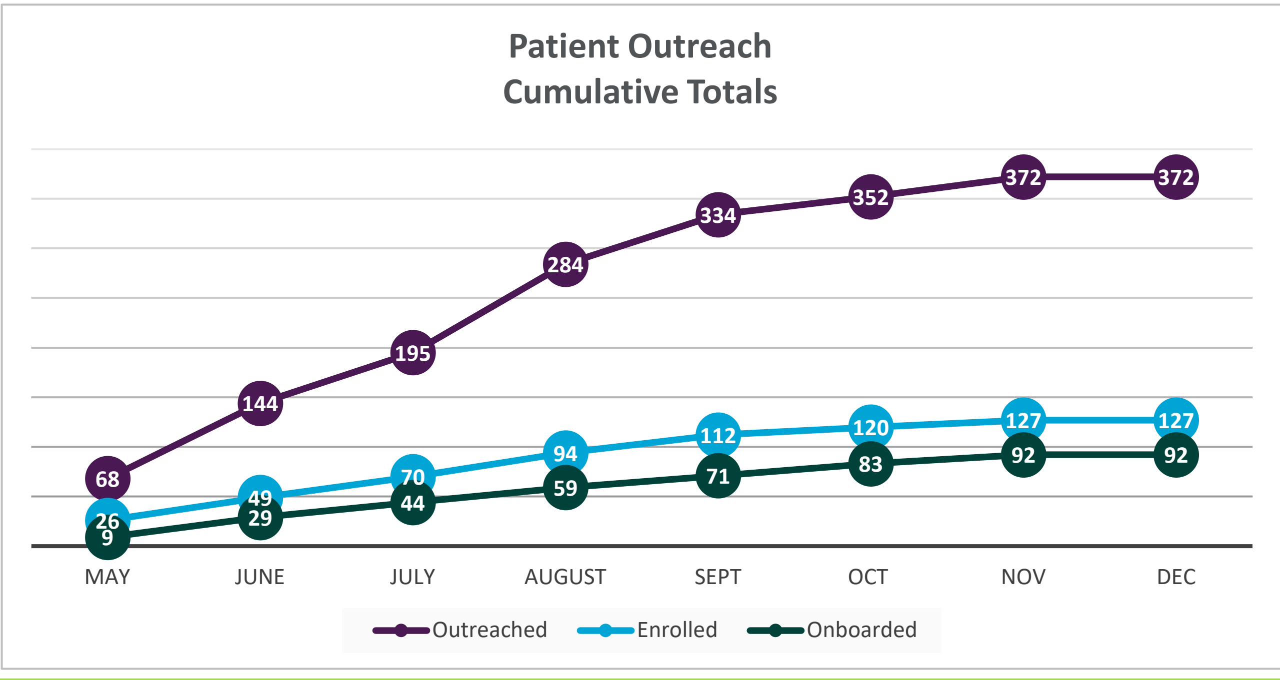
Main Inclusion Criteria:

- Full-risk patients not enrolled in Care Management with uncontrolled BP $\geq$140/90 in the hypertension registry.
- Patients within designated HEC area codes (African American & Hispanic).

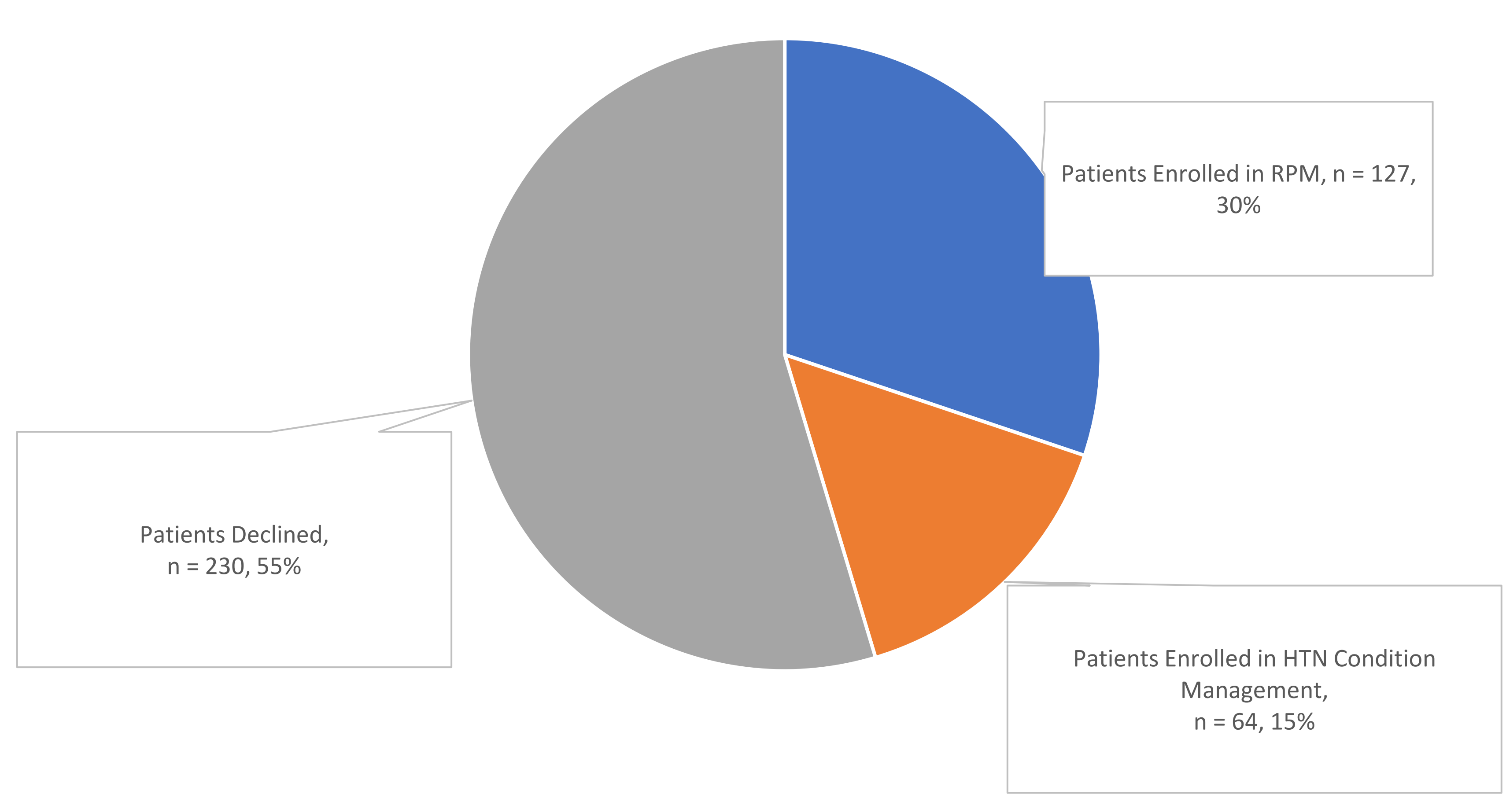
Secondary Inclusion Criteria:

- Tier 1: Hypertensive Patients
  - -Patients with no PCP visit the last 6 months
- Tier 2: Diabetic patients, w/hypertension
  - -Patients with no PCP visit in the last 6 months
  - -Patients with an A1c<9%





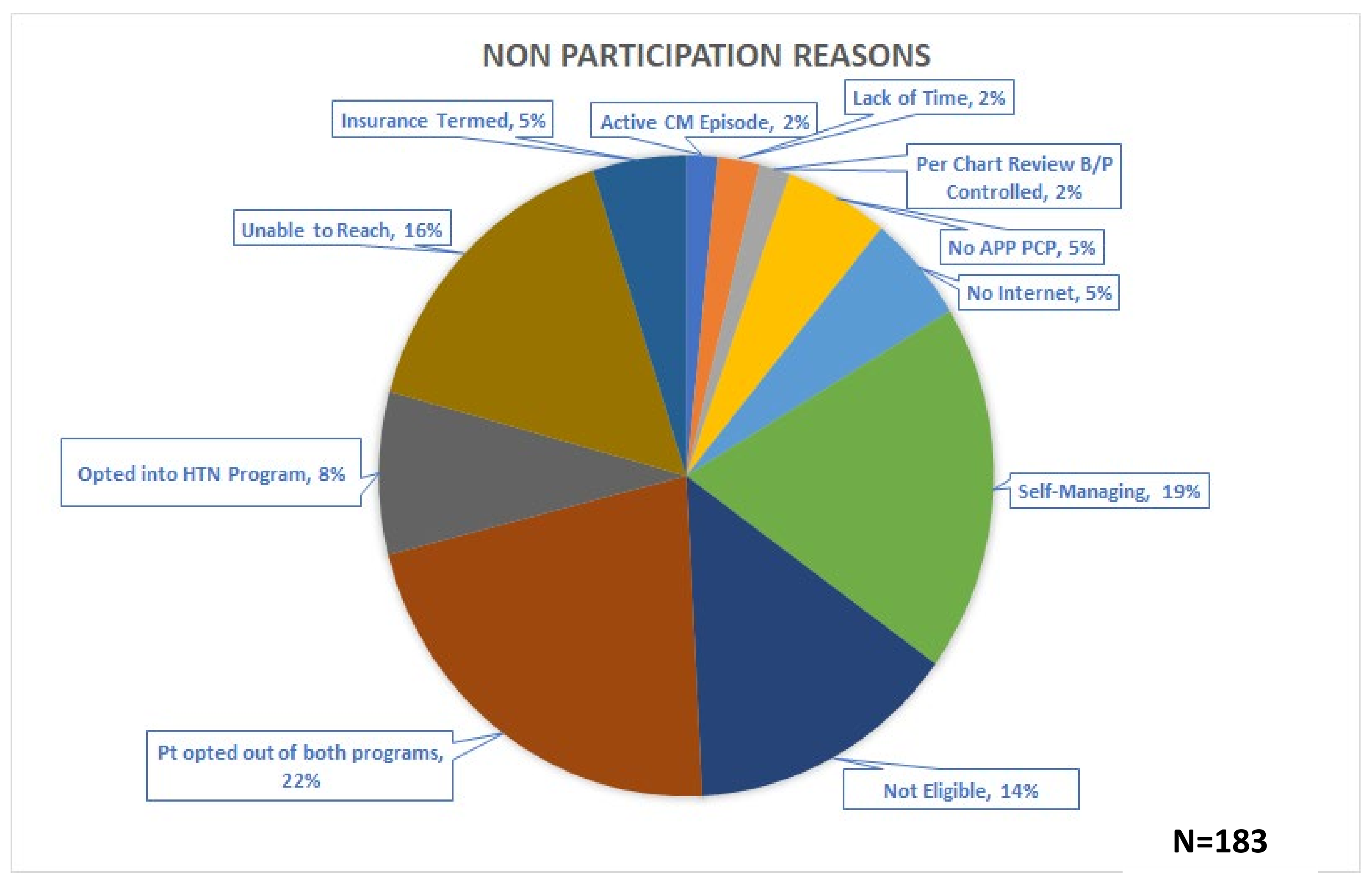
Remote Patient BP Monitoring Patient Participation



Patients Not Enrolled

Not Enrolled reason	#Patients
Pt opted out of both programs	40
Self-Managing	34
Unable to Reach	29
Not Eligible	26
Opted into HTN Program	15
No APP PCP	10
No Internet	10
Insurance Termed	9
Lack of Time	4
Active CM Episode	3
Per Chart Review B/P Controlled	3
Total Patients	183

Patient Attrition: 29 patients



HTN RPM May-Nov 2021
RPM Pilot Goals:

- 60% Patient Engagement Rate
- 75% of enrolled patients with In-person or virtual visit with Primary care
- 50% of participants have BP control (<140/90) at 90 days
- 50% of enrolled pts with Medication adherence at 90 days
- 75% of enrolled pts with + SDOH screenings given resources

RPM HTN Pilot Phase 1 Results

Count of Patient Primary MRN (PHI) - ENC		DaysEnrolled					
BP_In_Compliance2	BP_In_Compliance	<90 or (blank)	90-119	120-149	150-180	>180	Grand Total
Group1	Yes	4	29	17	10	6	66
	No	2	8	8	1	4	23
Group1 Total		**6**	**37**	**25**	**11**	**10**	**89**
Grand Total		**6**	**37**	**25**	**11**	**10**	**89**

*Of 67% (60) patients in pilot who had BP Control within 180 days:

- 55% (33) patients had BP Control within 120 days
- 83% (50) patients had BP Control within 150 days

Average Days Enrolled = 131

Non-RPM HTN Phase 1 Results

Count of Patient Primary MRN (PHI) - ENC		DaysEnrolled					
BP_In_Compliance2	BP_In_Compliance	<90	90-119	120-149	150-180	>180	Grand Total
Group1	Yes	20	10	1	1	3	35
	No	16	3	1	1		21
Group1 Total		**36**	**13**	**2**	**2**	**3**	**56**
Grand Total		**36**	**13**	**2**	**2**	**3**	**56**

*Of 57% (32) patients in pilot who had BP Control within 180 days:

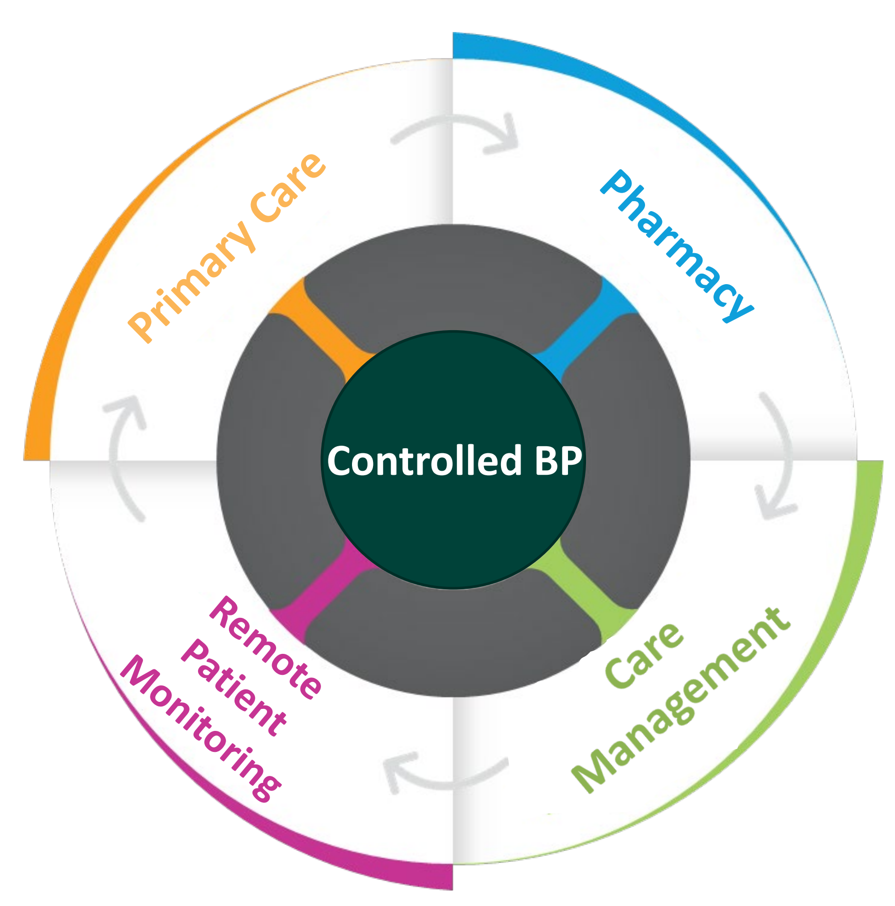
- 94% (30) patients had BP Control within 120 days
- 97% (31) patients had BP Control within 150 days

Average Days Enrolled = 78

Pilot Barriers Identified:

- 55% Patient Engagement rate due to working population
  - ✓ Difficult to engage patients telephonically
  - ✓ Long ramp to get caseloads up with outreach methodology
- Recognized need to meet patients where they are at(i.e. how often they can check BP)
- BP control took longer than initially anticipated
  - ✓ SDOH issues in play
- Bluetooth Blood pressure results do not automatically interface with EMR therefore manual data entry necessary and analytic reporting needs not met
- Physician engagement and collaboration
  - ✓ PCP not aware of pilot resulting in delayed response for medication titration/symptom assessment
- Access to appointments varied depending on clinician office

Recommendation: Multidisciplinary Approach



YEAR TO DATE @180days

Non-RPM Program Outcomes 2021 thru YTD:

Non-RPM Program	BP_In_Compliance	Number of Patients
Group1	Yes	66
	No	31
Group1 Total		97
Enrolled then UTR/Patient Non-Adherent	N/A	59
Enrolled then UTR/Patient Non-Adherent Total		59
Grand Total		156

RPM Program Outcomes 2021 thru YTD:

RPM Program	BP_In_Compliance	Number of Patients
Group1	Yes	77
	No	37
Group1 Total		114
Enrolled then UTR/Patient Non-Adherent	N/A	43
Enrolled then UTR/Patient Non-Adherent Total		43
Grand Total		157

301 Total Pts in Both Programs

2022 RPM re-launch at AMG Evergreen: June 1st

Patient Comments on RPM

Joan was available to answer any questions I had and provided suggestions on how to lower my blood pressure.
Nurse Care Manager, prompted me to be more accountable for my health. She was easy to talk with, knowledgeable as resourceful.
It was such a pleasure working with Joan she was very helpful and attentive to my health needs wonderful personality as well thanks Joan you are the best only thing I wish the program and monitoring lasted longer she really help me stay on track
Your program helped me focus on my overall health enabling me to eat and live healthier. Your program helped me identify specific food that lower my blood pressure and foods that cause my blood pressure to rise. The advocate Nurse was also helpful, knowledgeable, helping to eat healthier and encouraging me the entire 3 month trial. Thank you Advocate for allowing me to participate in this program. I take my blood pressure at least 6 times a week. Thank you.
I was so appreciative of being apart of this problem! I had the best Nurse Care Manager! With her care and concern, I was able to remain focused with my dietary and exercise regimen to help reduce my blood pressure!
My Nurse Care Manager was extremely helpful

Wins

Established relationship with PCP after 1 year #1	Patient restarted her medication #2
43-year-old male with a history of HTN who has not seen his PCP in a year and has not taken his BP medication for months because he was out of refills. Pt is out of state, work-related. With the help of our Medical Director, we were able to schedule him for a tele-health appointment and we were able to get his BP medication refilled.	*54-year-old female with a history of HTN was non-adherent in taking her BP medication because she believed that her BP was stable. Since enrolling in the HTN RPM pilot, she found out that her BP is unstable SBP ranging from 170s to 180s, DBP 90 to 101. After educating her on BP she start taking her BP medication and measuring her BP. Her BP improved and at the time of this report it was reading 137/89.*

Modified diet after entering RPM Pilot #3	Modified diet after entering RPM Pilot #4
53-year-old female with a history of HTN. Since enrollment with the HTN RPM pilot, she found out that her DBP was elevated ranging from 90 to 107. She decided to modify her diet to a plant-based diet to help control her BP. Since changing her diet, her DBP improved, ranging from 75 to 85.	*54-year-old female with a history of HTN. Since enrollment with the HTN RPM pilot, she discovered her BP had been elevated > 140/90. She decided to modify her diet to a pescatarian diet to help control her BP. Since changing her diet, she was able to control her BP.*

RPM WIN

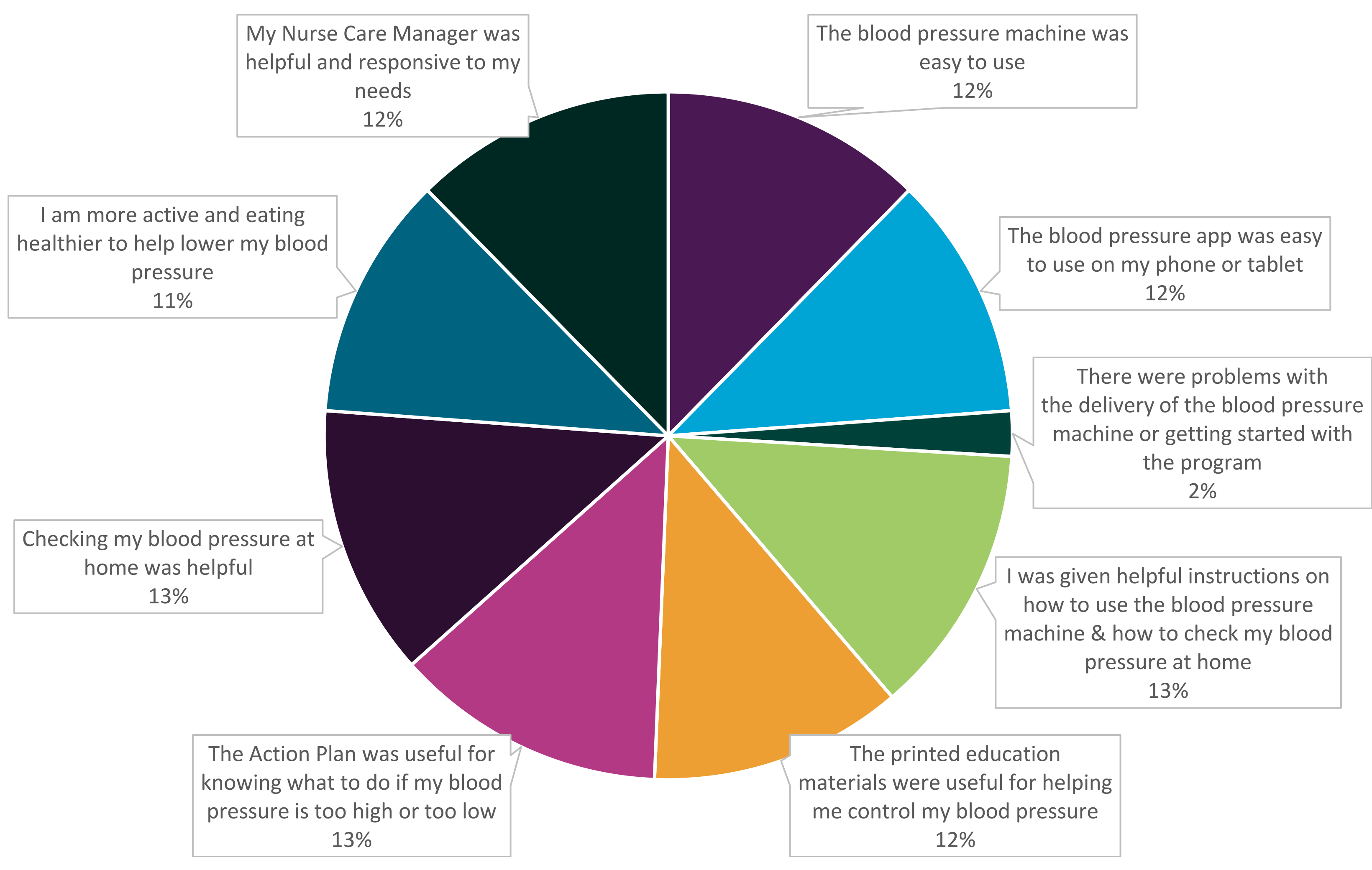
80 year-old African American male identified for HTN RPM program. Patient has a history of macular degeneration and was struggling to maneuver the cuff and other machinery, along with connecting to the LiveWell app. The CM referred the patient to the EPH Community Health Worker (CHW) who went to the patient's home to assist with the setup, and was able to be present while the CM was on the phone with the patient to reinforce instructions for participating in the RPM program.

The patient was very grateful to the CM and the CHW and felt that his care had finally been prioritized by someone. This helped him gain confidence not only in the program but in his physician and the care team in the practice as well.

QUESTIONS????????

APPENDIX

Patient Surveys



Patient Surveys