RPM for Oncology: Bringing the Hospital Home to Improve Lives

Session 120, April 19, 2023

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Ankit Prasad	Veris Health - Director of System Integration and Customer Support

HIMSS 23 | Veris Health | Sutter Health | BASS CANCER CENTER

Meet Our Speakers

Dr. James Mitchell

Chief Medical Officer of Veris Health

Practicing Oncologist at Bass Cancer Center

Dr. Matthias Kochmann

Physician and Clinical Informationist at Sutter Health

Ankit Prasad

Director of System Integration and Customer Support at Veris Health

Conflict of Interest Slide

Dr. James Mitchell was co-founder of Oncodisc, Inc. which was acquired by Veris Health, and owns equity in Veris Health.

Dr. Matthias Kochmann and Ankit Prasad have no real or apparent conflicts of interest to report.

Agenda

- Remote Patient Monitoring (RPM) and Oncology
- Literature Review
  - Clinical Outcomes
  - Patient Satisfaction
  - Cost Reduction & Reimbursement
  - Technology
- Future
- Structuring Your Program

Learning Objectives

1. Develop a strong value proposition for your health system's remote patient monitoring strategy

2. Recognize key metrics for oncology remote patient monitoring patients and tools needed to successfully monitor them

3. Assess costs, reimbursements, and challenges to implementing an oncology remote patient monitoring program

Oncology Facts

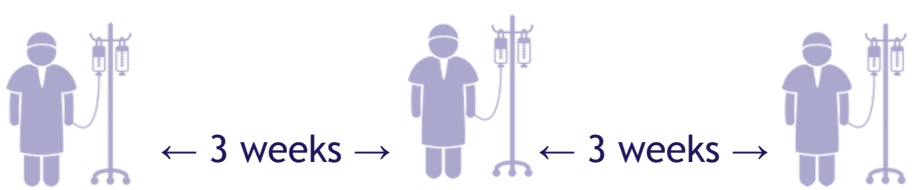
1 in 3 Americans will be diagnosed with cancer in their life[1]

1.8 million new cancer diagnosis per year in US[1]

80% Oncology care is in community outpatient[2]

1. www.cancer.gov/about-cancer/understanding/statistics
2. https://www.jhconline.com/cancer-care-migrates-to-outpatient-setting-2.html#:~:text=In%20either%20case%2C%20you%20might,of%20Texas%20Oncology%20in%20Dallas.

Current Cancer Patient Journey



← 3 weeks → ← 3 weeks →

Diagnosis & Evaluation

RISK
Cancer symptoms
Pain, Bleeding, etc.

Baseline not measured

Cycle 1

RISK
Dehydration,
Infection,
Failure to Thrive,
etc.

Cycle 2

RISK
Dehydration,
Infection,
Failure to Thrive,
etc.

Cycle 3

RISK
Dehydration,
Infection,
Failure to Thrive,
etc.

Cycle 10

RISK
Subjective
performance
Status assessment

RISK
Subjective
performance
Status assessment

RISK
Subjective
performance
Status assessment

RISK
Subjective
performance
Status assessment

Can you reduce risk along the patient's journey?

RPM for Oncology: Hypothesis

Early Detection & Treatment of Complications

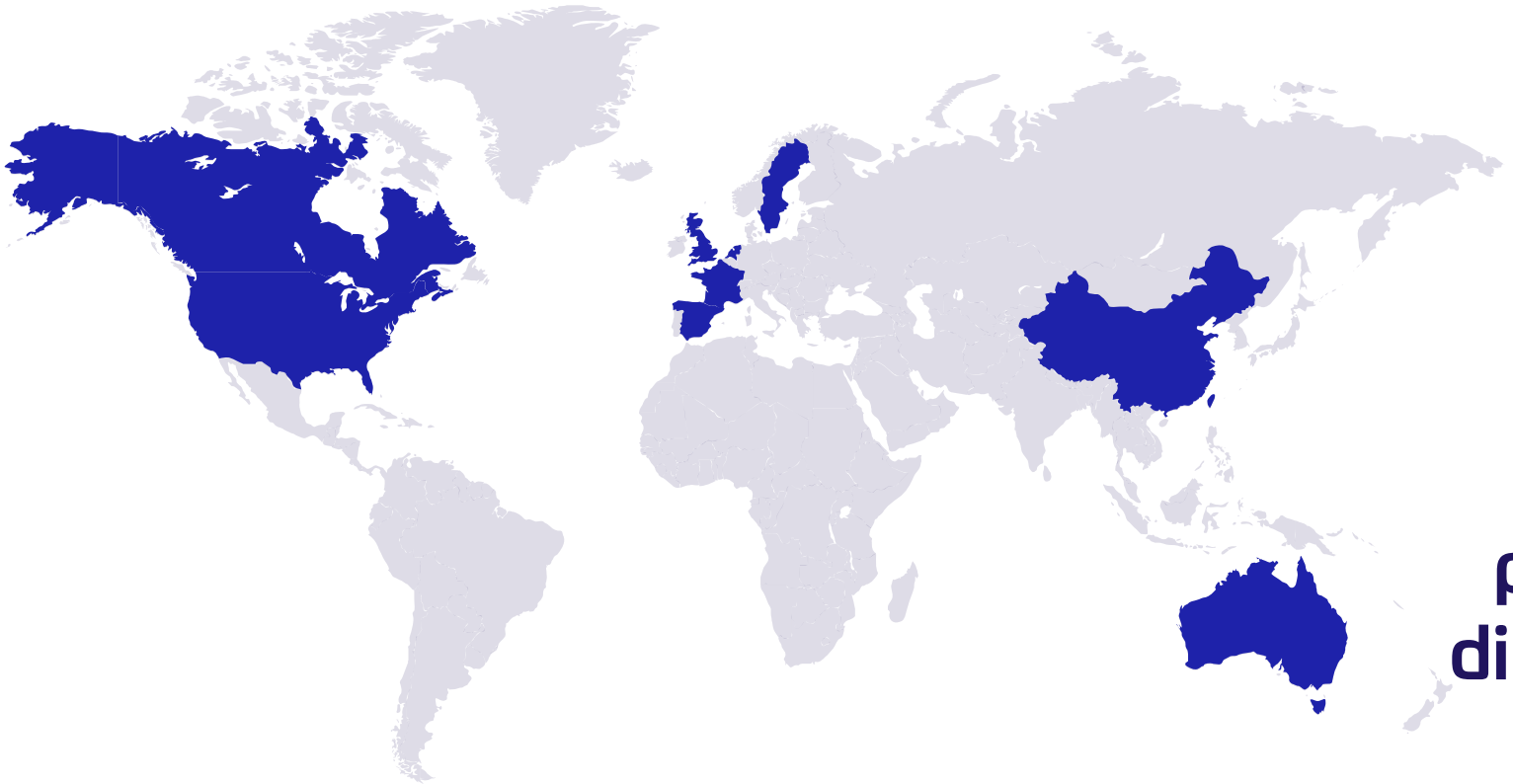
Improve Clinical Outcome

Increased Patient Satisfaction

Cost-effective

Let see what the literature says…

Oncology RPM Studies



Pub Med Literature Review 2000 - 2023:

Keywords: Oncology, RPM, ePROM, Clinical Trial, clinical study, Systematic Review

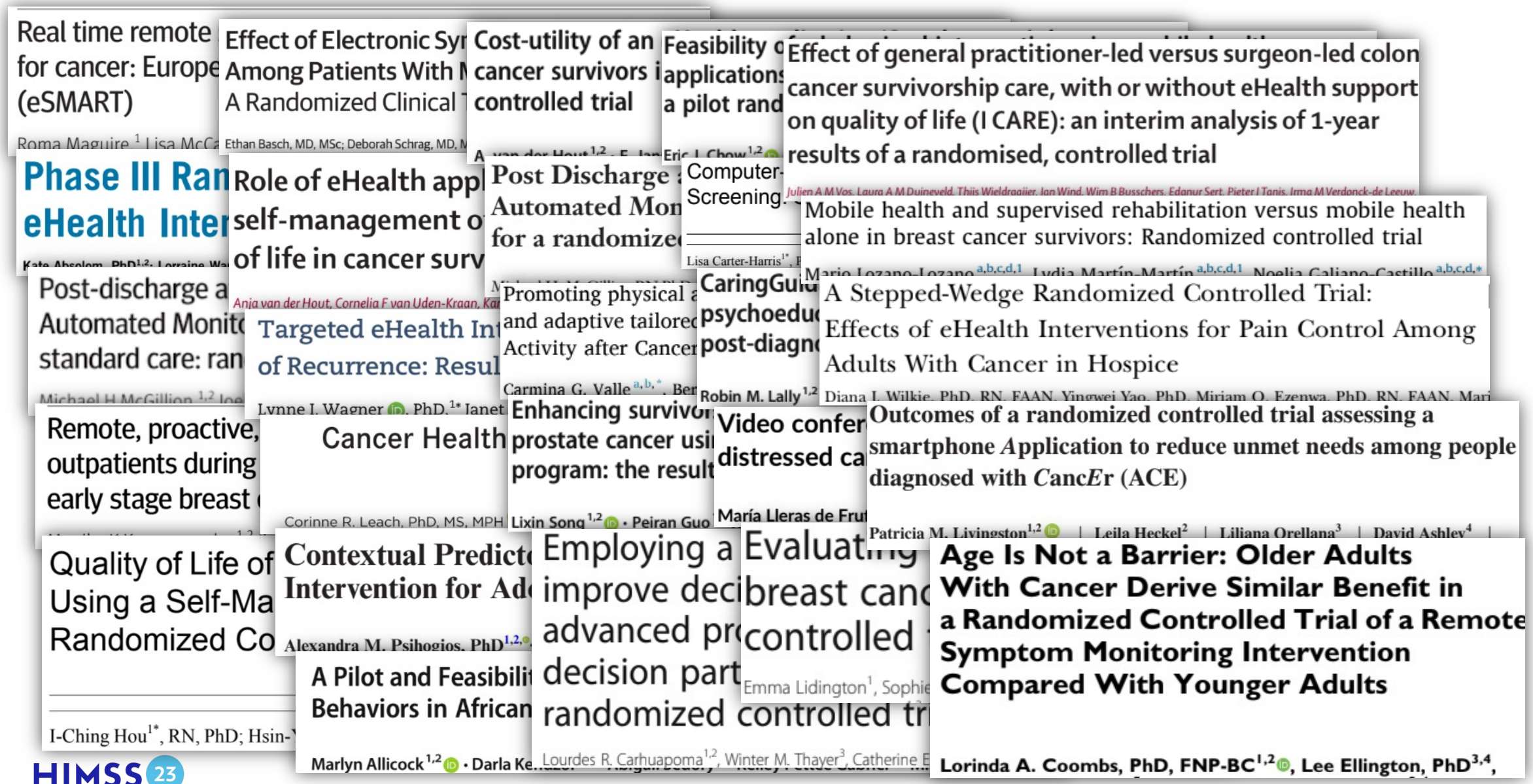
↓

100+ Results

↓

30+ peer-reviewed publications from 10 different countries and 4 continents

Oncology RPM Studies



Industry Buzz

MEDTECHDIVE MENU

DIVE BRIEF

Remote patient monitoring increasingly popular, even as pandemic eases, analysis of insurance claims shows

Publis

mHealthIntelligence

REMOTE MONITORING NEWS

Remote Patient Monitoring Use Skyrockets 1,300%

New data shows th
and 2022, with hig
practice providers

ESMO > Oncology News

Remote Monitoring of Patients Treated with Oral Anticancer Drugs Improves Patient Care Experience and Optimises Healthcare Resources

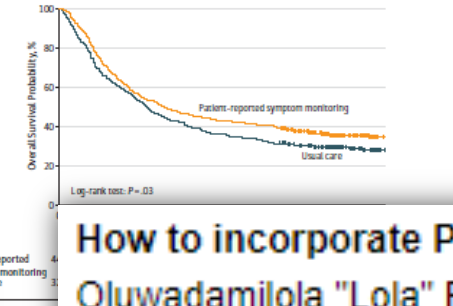
Findings from a randomised phase III CAPRI study

Date: 11 May 2022
Topics: Anticancer agents & Biologic therapy

Chemotherapy Care Companion: An Oncology Remote Patient Monitoring Program

July 21, 2022

Figure. Overall Survival Among Patients With Metastatic Cancer Assigned to Electronic Patient-Reported Symptom Monitoring During Routine Chemotherapy vs Usual Care



How to incorporate PROs into clinical care

Oluwadamilola "Lola" Fayanju, MD, MA, MPHS, FACS
Perelman School of Medicine at the University of Pennsylvania
Philadelphia,

IMPACT Improving the Management of symPtoms during And following Cancer Treatment

Home About

Research Projects
NU IMPACT
E2C2
SIMPRO

NU IMPACT

Principal Investigator: David Cella, PhD

Northwestern University's NU IMPACT builds upon an integrated cancer symptom monitoring and management system (NMPRO), currently deployed by their health care delivery system. They will test the effectiveness of a system-wide symptom management intervention when implemented across the Northwestern Memorial HealthCare Corporation (NMHC) outpatient oncology clinics. Using a clinic-level randomized roll-out implementation trial design, they will further test, using an embedded patient-level randomized controlled clinical trial, the effectiveness of an enhanced care (EC) approach aimed to engage participants actively, and to increase self-efficacy, in the monitoring and managing of their symptoms. The existing NMPRO will constitute usual care (UC), and added patient engagement and activation features will comprise the EC condition. This innovative hybrid trial design allows for a within- and between-site evaluation of implementation along with a sufficiently powered group-based comparison to demonstrate effectiveness on individual patient outcomes. Fatigue, pain, anxiety, and depression will be assessed using PROMIS® computerized adaptive tests (CATs). In addition, NU IMPACT will assess patient clinical outcomes, including healthcare utilization, and cancer treatment delivery outcomes.

Remote Patient Monitoring (RPM) for Oncology

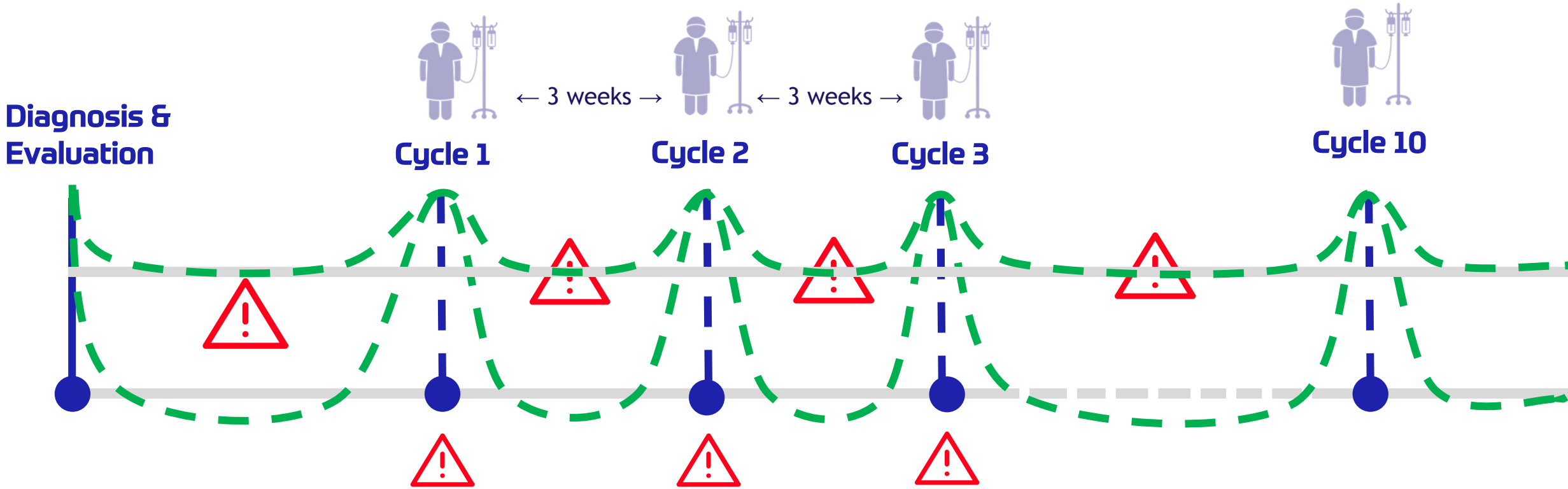
Clinical Outcome

Landmark Studies

	Basch et al.	Kolodziej et al.	Denis et al.
Health Related Quality of Life	↑ 16%		
ER Visits	↓ 6%	↓ 26%	
Hospital Admissions		↓ 13%	
Chemotherapy Adherence	+ 1.9 month		
Survival	+ 5 month		+ 9 month

Current Cancer Patient Journey

The current level of care is episodic and, as a result, fluctuates



RPM Oncology elevates the baseline of level of care, via closer monitoring – leading to earlier symptoms detection and resolution

Remote Patient Monitoring (RPM) for Oncology

Patient Satisfaction

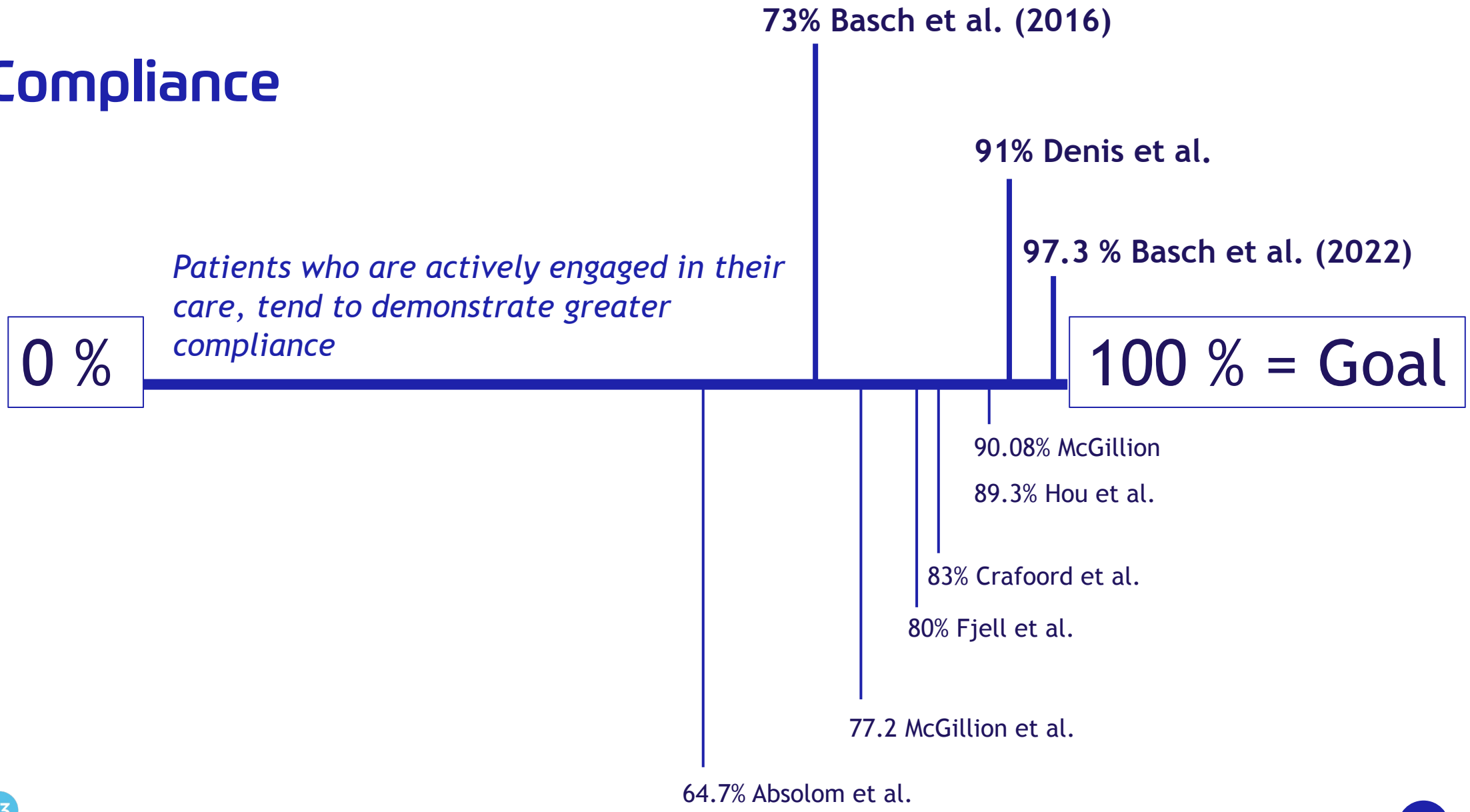
Testimonials

*"I **felt safe** reporting every day....It was excellent....I noticed, before logging off, that I would be called...**A huge security**....Having the app and a continuous access to help has made me feel better." [Crafoord et al.]*

*"It has been very **easy and convenient**....The app is easy to use....When you feel ill, **it is a security**, but if you feel good it is a negative reminder that you are sick" [Crafoord et al.]*

*"Positive, good experience. Actually **outstanding experience**, it was really good for me. Showed me what I can and can't do, which was more 'can'. This was a **really positive** experience." [McGillion et al.]*

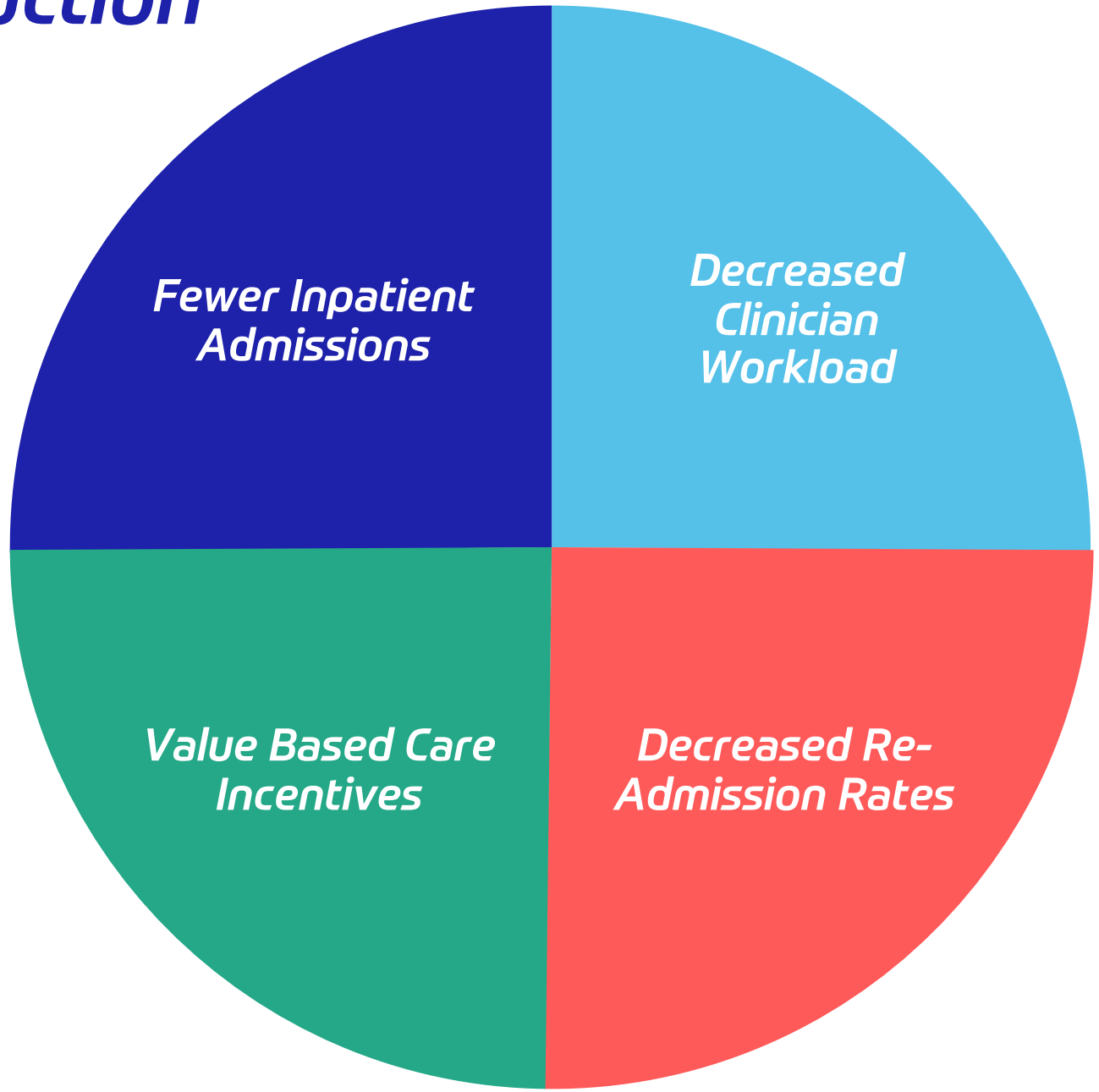
Compliance


73% Basch et al. (2016)
91% Denis et al.
97.3 % Basch et al. (2022)
Patients who are actively engaged in their care, tend to demonstrate greater compliance
0 %
100 % = Goal
90.08% McGillion
89.3% Hou et al.
83% Crafoord et al.
80% Fjell et al.
77.2 McGillion et al.
64.7% Absolom et al.

Remote Patient Monitoring (RPM) for Oncology

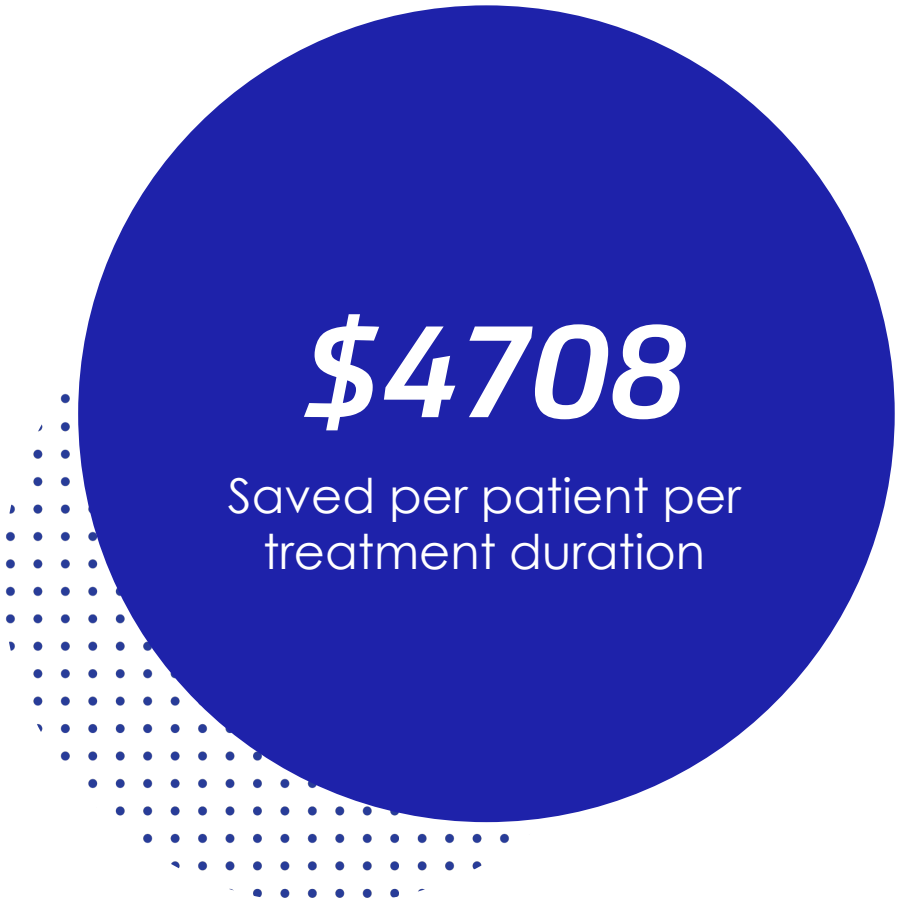
Cost Reduction & Reimbursement

Cost Reduction



Cost Reduction

Lizée et. al (2018)



Longacre et. al (2020)

Remote Patient Monitoring – Core Reimbursement

Code	Description	Frequency	Average
99453	Setup	One-time only	$19
99454	Recording of physiologic data	Monthly	$50
99457	First 20 minutes clinician time	Monthly	$48
99458	Additional 20 minutes clinician time	Monthly (x2)	$39 ($78)
Total per month			**$176 (+$19 first month)**

RPM Billing for 1000 Patients

Over 1 Quarter

Over 1 year

Virtual Check-Ins – Additive Reimbursement (examples)

Code	Description	Frequency	Average Reimbursement
99441	Telehealth (5-10 minutes)	Weekly	$56
99442	Telehealth (11-20 minutes)	Weekly	$91
99443	Telehealth (20-30 minutes)	Weekly	$128

Running The Numbers

	Per Month	Per Year
Reimbursement (1000 patients)	$180,000	$2.2M
Time (per 1000 patients)	1000 Hours	12,000 Hours

Staffing Cost

Current state of the art	Current unbillable activities are covered under RPM	RPM
Non- billable	Patient Portal Messages	CPT 99457
Non- billable	Phone Calls	CPT 99441
Non- billable	Chart Review/ Care Management	CPT 99457

Value-Based Programs

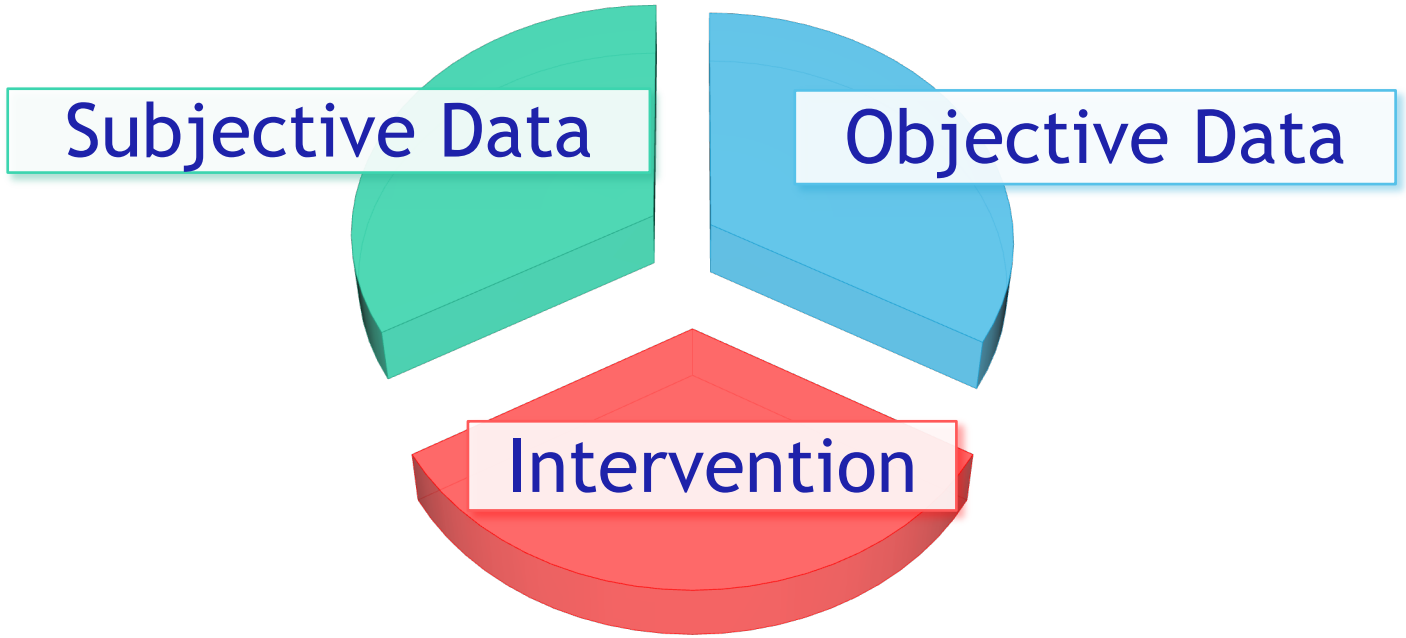
- Driving down costs of acute care benefits practices participating in value-based programs
  - Fewer ED visits
  - Fewer hospitalizations
  - Shorter length of stay

- The right platform can help your practice meet program requirements
  - EOM – Medicare: Enhancing Oncology Model
    - Patient questionnaires (ePRO)
    - Care plan documentation
    - Reduced Health Equity Barriers - Assessing and addressing social determinants of health & barriers to care

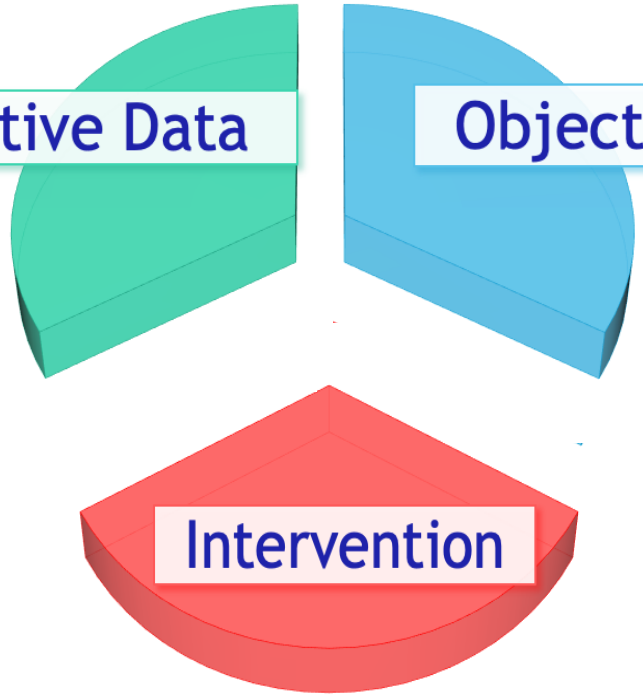
Remote Patient Monitoring (RPM) for Oncology

Technology

EARLY DETECTION & ACTIONABLE DIAGNOSIS



Electronic Patient Reported Outcome Measure (ePROM)



Symptom data

- Rash
- Diarrhea
- Hair loss

Mental Health

- PHQ 9 - Depression
- GAD 7 - Anxiety

Social Health

- EQ5 - Quality of Life Score
- Patient Activation Score

- Video Call
- Messaging
- Educational Videos

Vital Signs

- Heart Rate
- Respiratory Rate
- Blood Pressure
- Temperature
- Oxygen Saturation

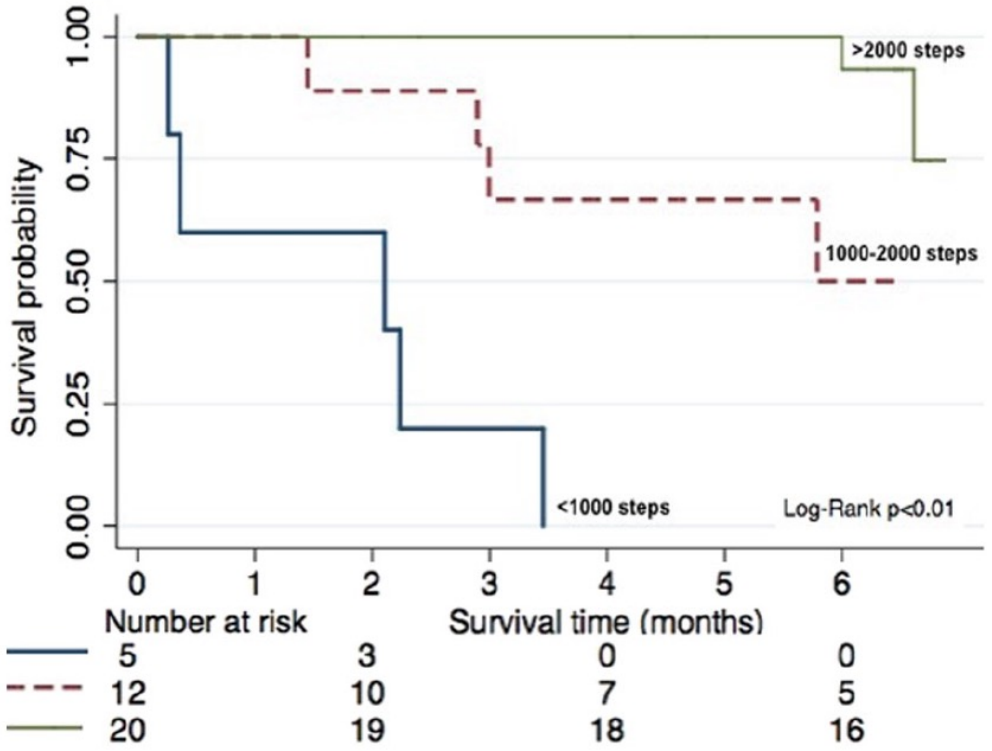
Additional Measurement

- Weight
- Steps

Proxy Measure

- Sleep
- Calorie Expenditure

Importance of Measuring Steps



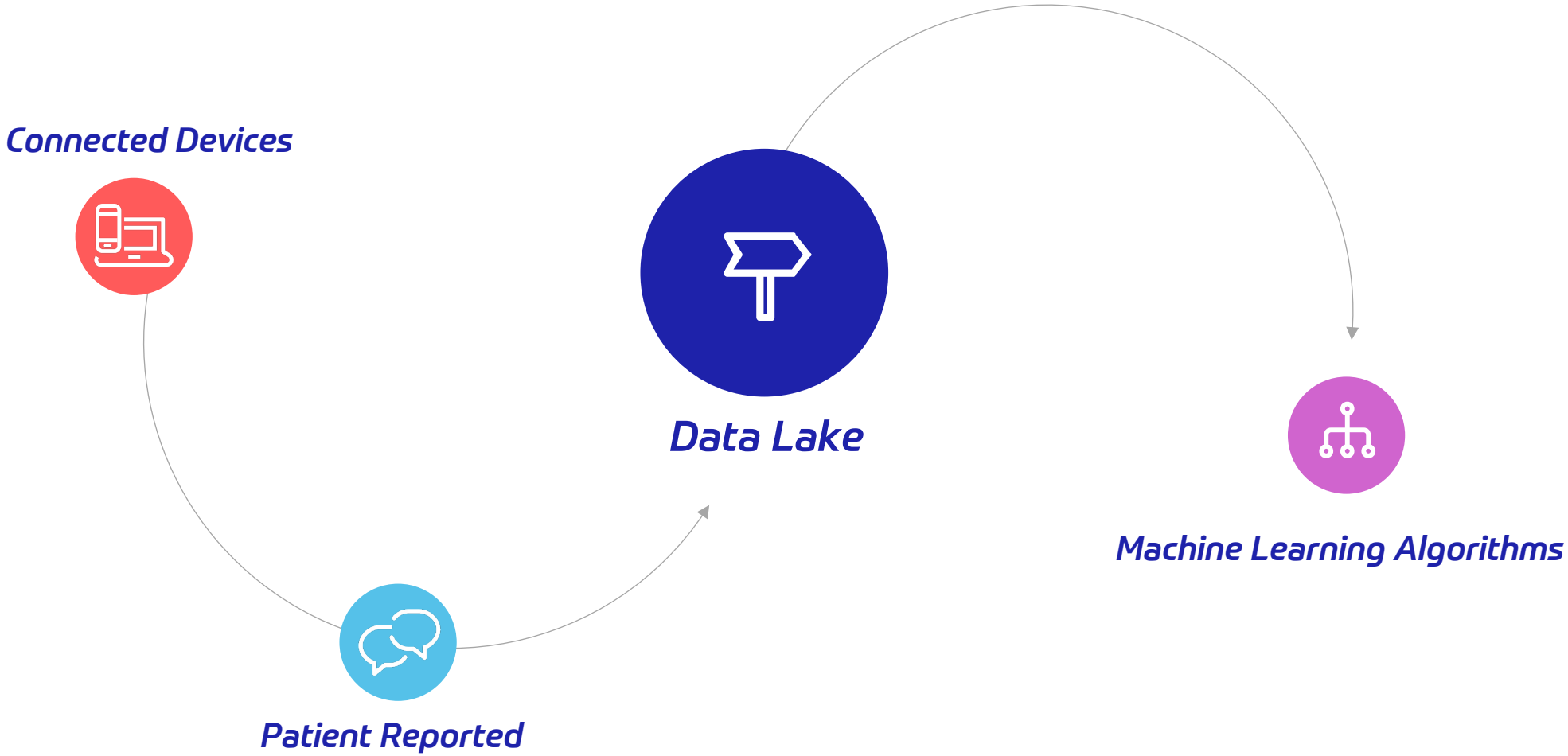
Data show increased mobility leads to improved survival

Gresham, Gillian, et al. "Wearable activity monitors to assess performance status and predict clinical outcomes in advanced cancer patients." *NPJ digital medicine* 1.1 (2018): 27.

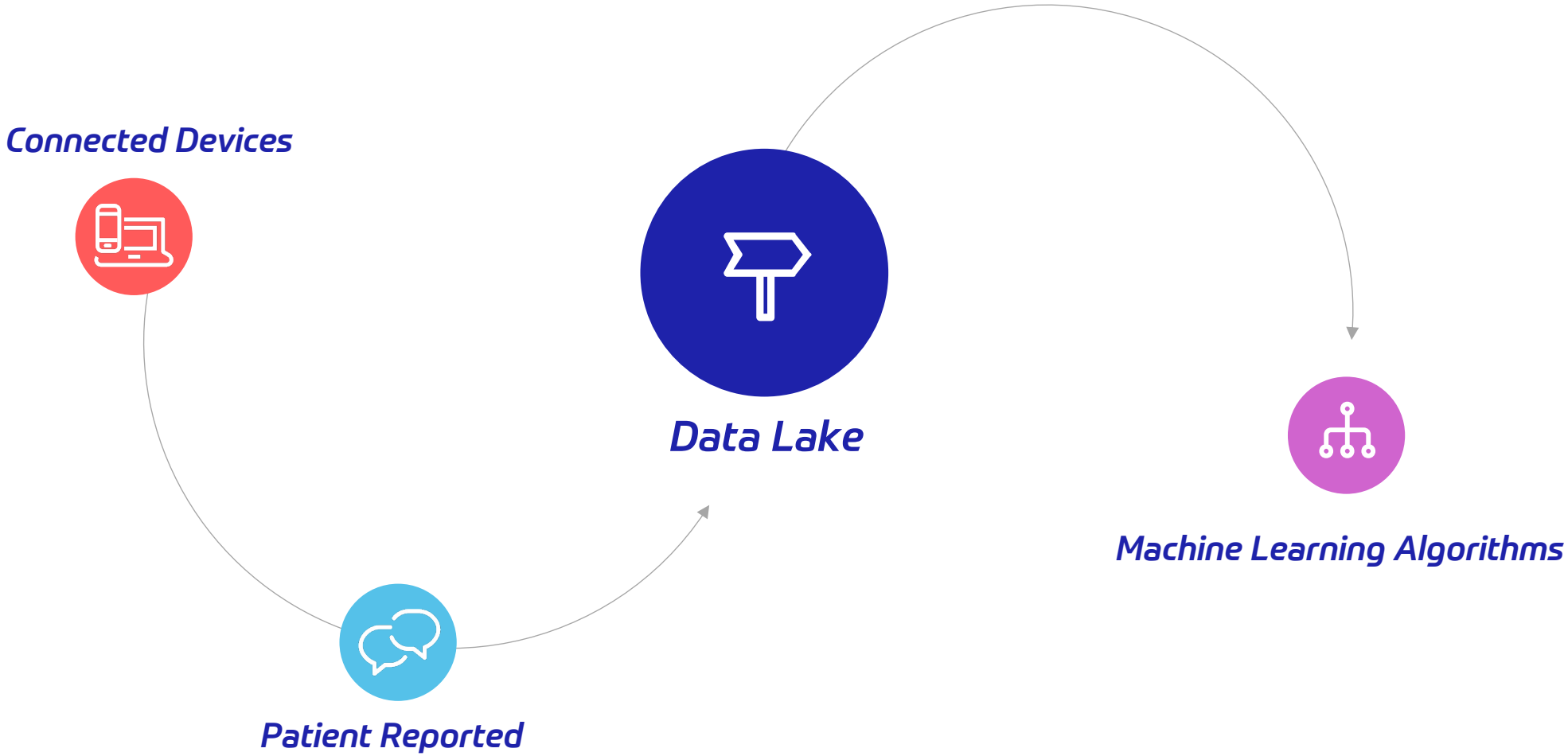
Remote Patient Monitoring (RPM) for Oncology

Future

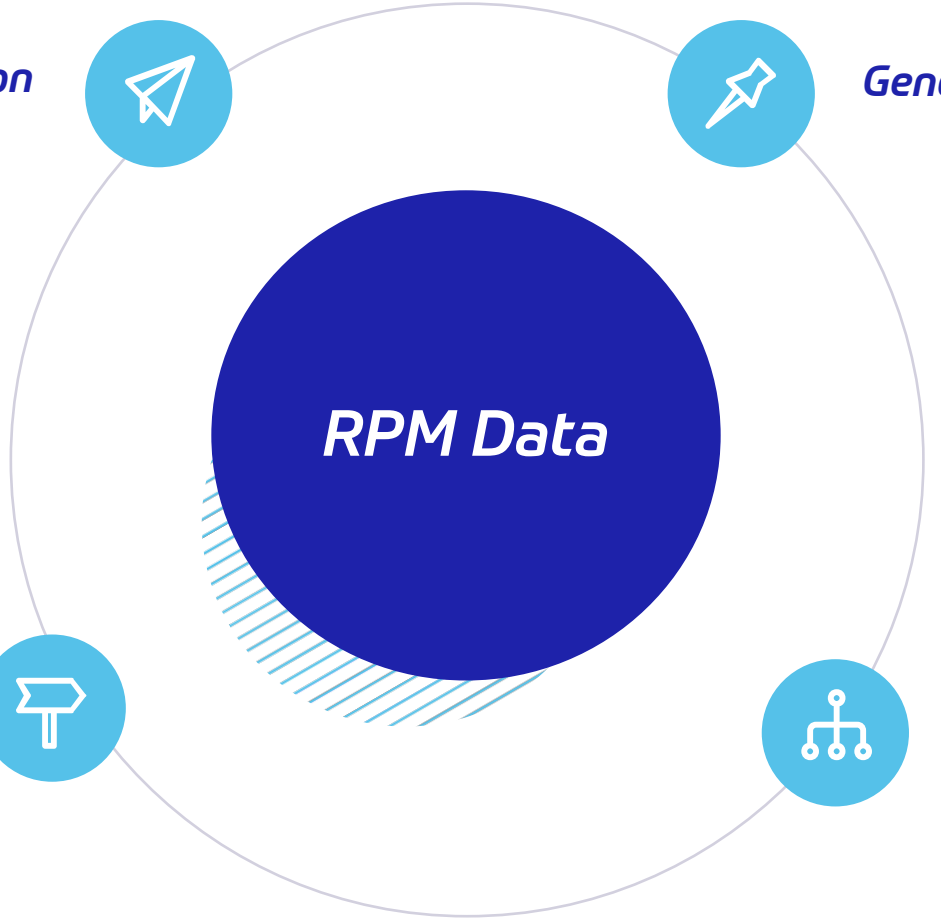
Data Collection



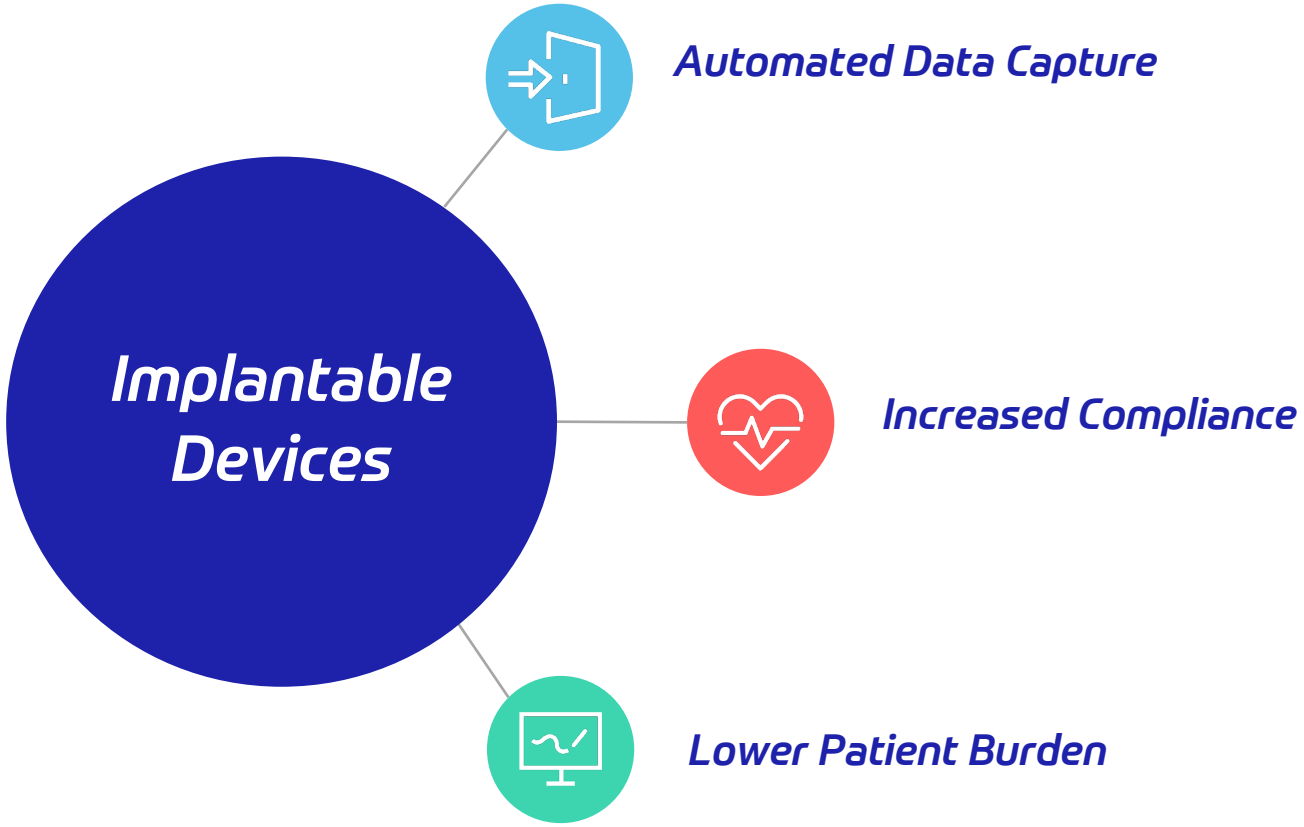
Data Collection



Integrated Technology



Implantable Devices

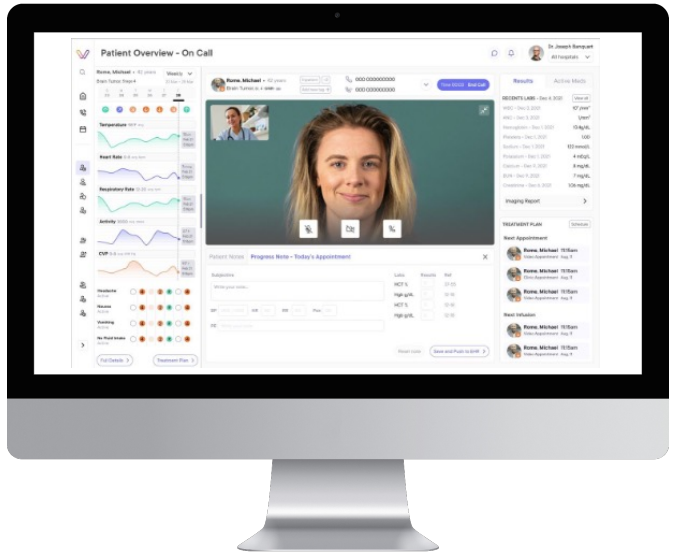


Structuring Your Program

One-Size Fits All Works Well for Nobody

Choosing the Right Vendor

- Quality of RPM hardware & software
- Customer support
- Cloud vs. in-office server
- Additional care services
  - ePRO
  - Patient engagement/communication
  - Caregiver engagement
  - Telemedicine
  - Documentation support
  - Multilingual?
- Billing & coding support
  - Automated vs. manual
  - Documentation
- Data integration with EMR



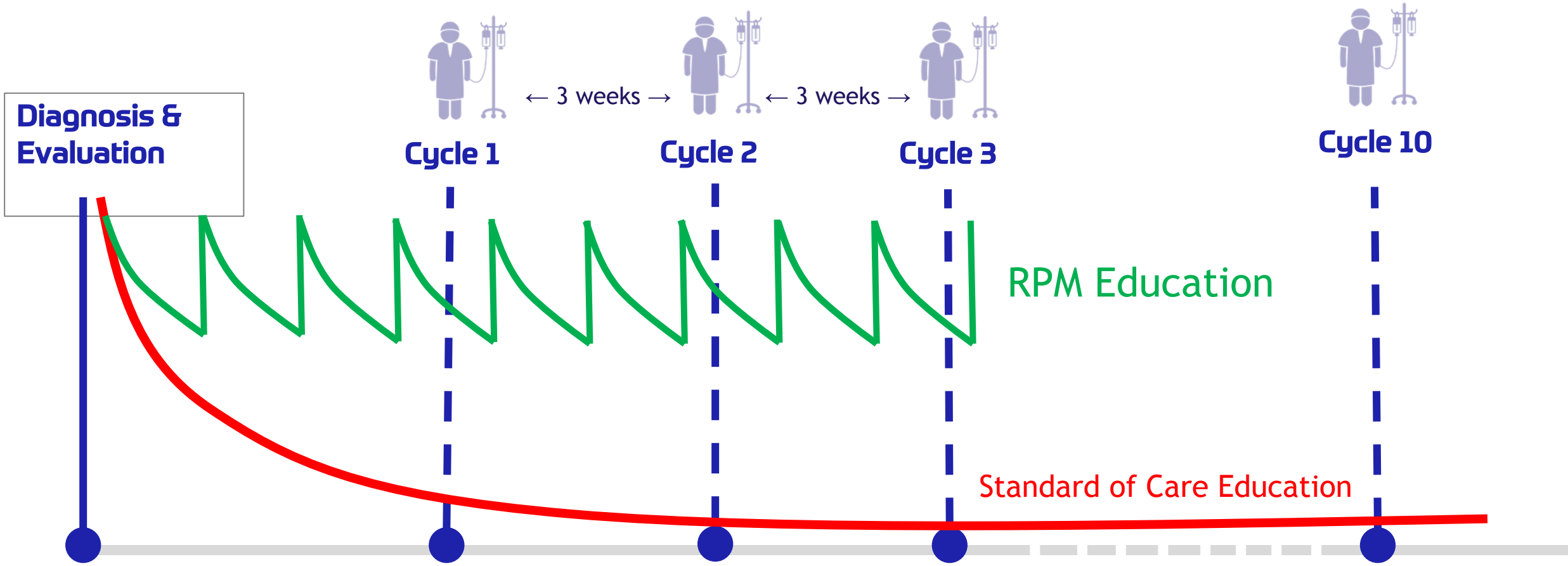
Core Program Requirements

- Medical devices as defined by FDA
- Clinical Buy In
- Patient Education and Support
- Patient Consent
- RPM Order

Areas to watch

- Engage IT during vendor selection
- Onboarding process
- Compliance
  - Will drive clinical outcomes and reimbursement
- Reduce patient workload
  - Compatible devices
  - Data auto-upload
  - Easy symptom reporting capabilities
  - Regular reminders
  - Positive reinforcement & feedback loop

Patient Education



A well managed RPM with the correct tools is shown to improve all aspects of the Quadruple Aim – Now Quintuple Aim

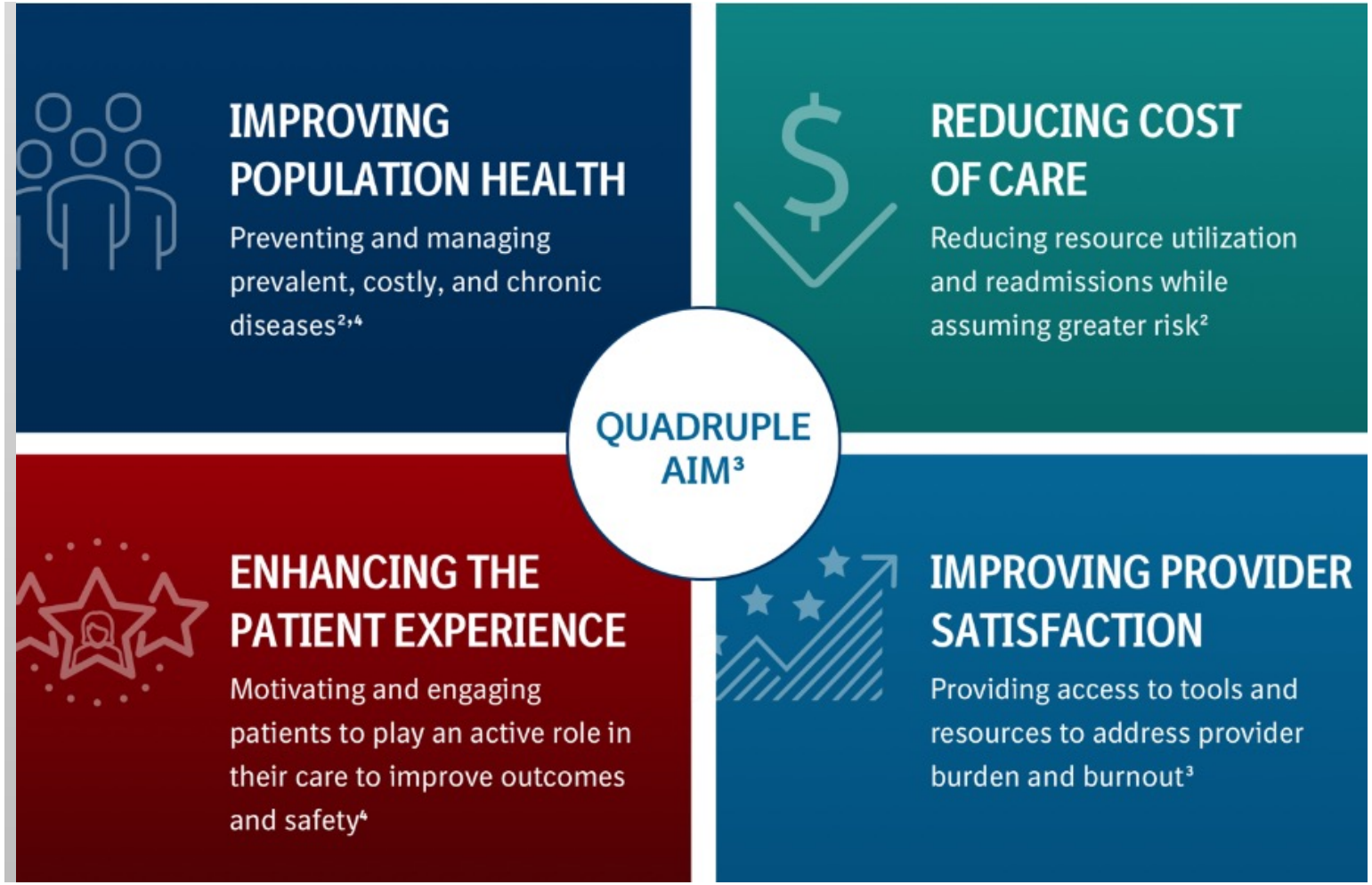


Image sourced from: https://www.strategiesforqualitycare.com/quadruple-aim

Literature Slide

I. Oncology Facts:
   I. www.cancer.gov/about-cancer/understanding/statistics
   II. American Society of Clinical Oncology. (2020). The State of Cancer Care in America, 2020

II. Literature
   I. Basch, Ethan, et al. "Symptom monitoring with patient-reported outcomes during routine cancer treatment: a randomized controlled trial." *Journal of Clinical Oncology* 34.6 (2016): 557.
   II. Basch, Ethan, et al. "Overall survival results of a trial assessing patient-reported outcomes for symptom monitoring during routine cancer treatment." *Jama* 318.2 (2017): 197-198.
   III. Kolodziej, Michael A., et al. "ePRO-based digital symptom monitoring in a community oncology practice to reduce emergency room and inpatient utilization." (2022): 1508-1508.
   IV. Denis, Fabrice, et al. "Randomized trial comparing a web-mediated follow-up with routine surveillance in lung cancer patients." *JNCI: Journal of the National Cancer Institute* 109.9 (2017).
   V. Crafoord, Marie-Therése, et al. "Engagement in an interactive app for symptom self-management during treatment in patients with breast or prostate cancer: mixed methods study." *Journal of medical Internet research* 22.8 (2020): e17058.
   VI. McGillion, Michael H., et al. "Post-discharge after surgery Virtual Care with Remote Automated Monitoring-1 (PVC-RAM-1) technology versus standard care: randomised controlled trial." *bmj* 374 (2021).
   VII. Basch, Ethan, et al. "Symptom monitoring with patient-reported outcomes during routine cancer treatment: a randomized controlled trial." *Journal of Clinical Oncology* 34.6 (2016): 557.
   VIII. Basch, Ethan, et al. "Overall survival results of a trial assessing patient-reported outcomes for symptom monitoring during routine cancer treatment." *Jama* 318.2 (2017): 197-198.
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   X. Crafoord, Marie-Therése, et al. "Engagement in an interactive app for symptom self-management during treatment in patients with breast or prostate cancer: mixed methods study." *Journal of medical Internet research* 22.8 (2020): e17058.
   XI. McGillion, Michael H., et al. "Post-discharge after surgery Virtual Care with Remote Automated Monitoring-1 (PVC-RAM-1) technology versus standard care: randomised controlled trial." *bmj* 374 (2021).
   XII. Hou, I-Ching, et al. "Quality of life of women after a first diagnosis of breast cancer using a self-management support mHealth app in Taiwan: Randomized controlled trial." *JMIR mHealth and uHealth* 8.3 (2020): e17084.
   XIII. Absolom, Kate, et al. "Phase III randomized controlled trial of eRAPID: eHealth intervention during chemotherapy." *Journal of Clinical Oncology* 39.7 (2021): 734-747.
   XIV. Gresham, Gillian, et al. "Wearable activity monitors to assess performance status and predict clinical outcomes in advanced cancer patients." *NPJ digital medicine* 1.1 (2018): 27.