Population Health Alliance

POPULATION HEALTH ALLIANCE

The premier Association for improving population health

- **PHA is the industry's only multi-stakeholder professional and trade association solely focused on population health management.**
- **PHA members run the range of entities from across the healthcare ecosystem, which seek to improve health outcomes, optimize the consumer and provider experience and drive affordability:**
  - health systems
  - health plans
  - employer solutions
  - academia
  - biopharma
  - tech companies
- **Next Upcoming Event: Health and Racial Equity Course**

  The virtual trainings will be held over four 2-hour sessions on consecutive Fridays this fall from 1:00pm to 3:00pm EDT. Starting Friday, September 17

staff@populationhealthalliance.org

www.populationhealthalliance.org

CareSignal®

Deviceless Remote Patient Monitoring

POPULATION HEALTH ALLIANCE

The Promise of Population Health

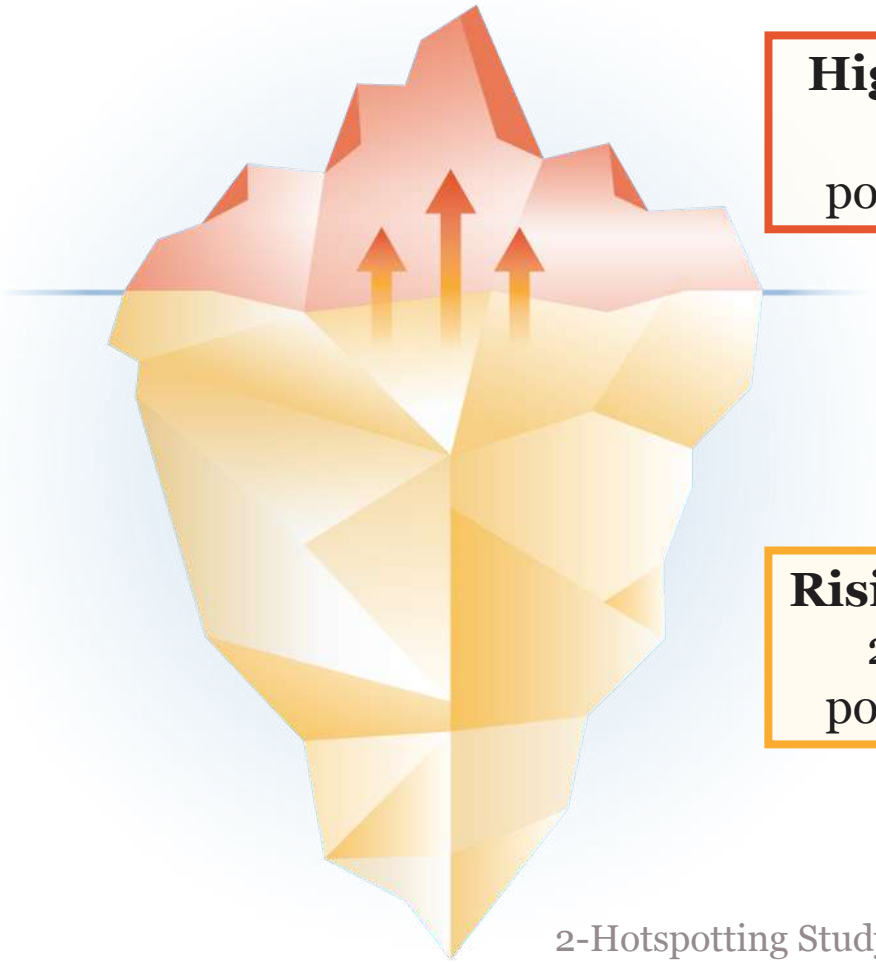
Driving Value Based Care Success with Scalable, Equitable, and Impactful Remote Monitoring

Blake Marggraff | CEO & Founder, CareSignal | blake.marggraff@caresignal.health
Jaan Sidorov, MD | Executive Director, Population Health Alliance

The Myth of Population Health: High-Risk ≠ High ROI

Focusing on Just the High-Risk Patients Does Not Change Medical Costs

Each year, 1 in 5 of rising-risk patients become expensive, high-risk patients[1]



High-Risk: 5% of population

Rising-Risk: 20% of population

The NEW ENGLAND JOURNAL of MEDICINE

Our findings may also reflect fundamental challenges with the strategy of targeting superutilizers: ***many patients whose medical costs are high today will not be as high in the future.***[2]

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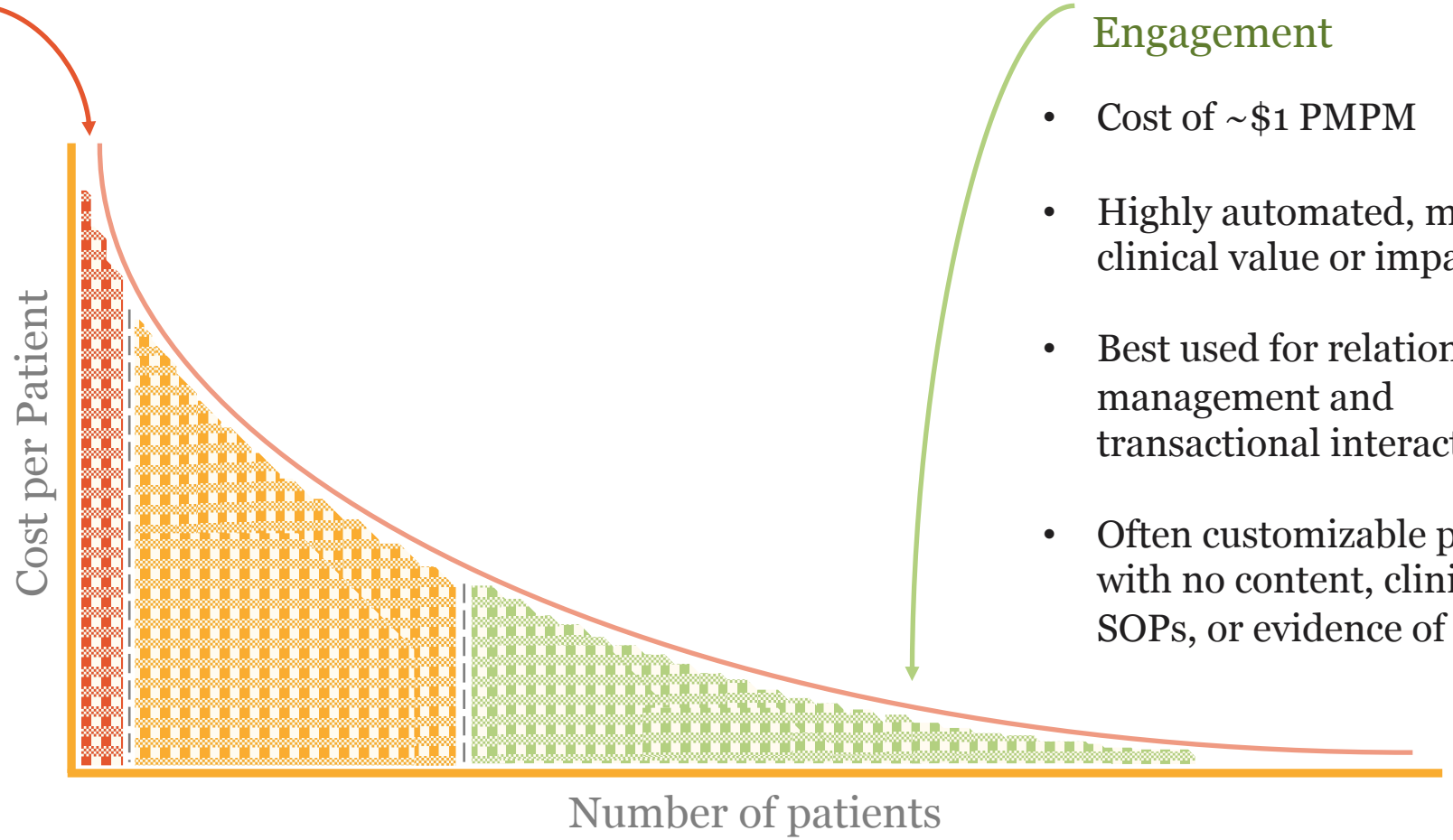
1-Advisory Board Report (link)
2-Hotspotting Study (A. Finkelstein et al., 2020) (link)

Remote Monitoring Must Align Cost and Acuity

Device/app-based Remote Patient Monitoring

- Cost of ~$100 PMPM
- Often only feasible when billed
- Requires patient implementation & training
- Clinicians become tech support for patients
- Appropriate for the highest-morbidity populations



Non-clinical Patient Engagement

- Cost of ~$1 PMPM
- Highly automated, minimal clinical value or impact
- Best used for relationship management and transactional interactions
- Often customizable platforms with no content, clinical logic, SOPs, or evidence of efficacy

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Problem With Traditional Device-Based RPM
Executives cite the following as barriers to RPM

- **Large Upfront Investment** Hardware is expensive; short-term monitoring and engagement only
- **Not Scalable** Reserved for super utilizers; rising-risk go unmonitored
- **Poor Adoption** Unused devices still incurring fees & time-intensive enrollment processes
- **Low Accessibility** Technology disparities increase the digital divide leaving patients behind
- **Costly Staffing & Logistics** Nurses fixing connection issues, training patients, collecting devices
- **Only Biometric Collection** Vitals only, not holistic care (e.g. Behavioral Health)
- **Patient Copays** Engagement drops to <10% with $20+ co-pay

CareSignal™

Remote Monitoring Must Align Cost and Acuity

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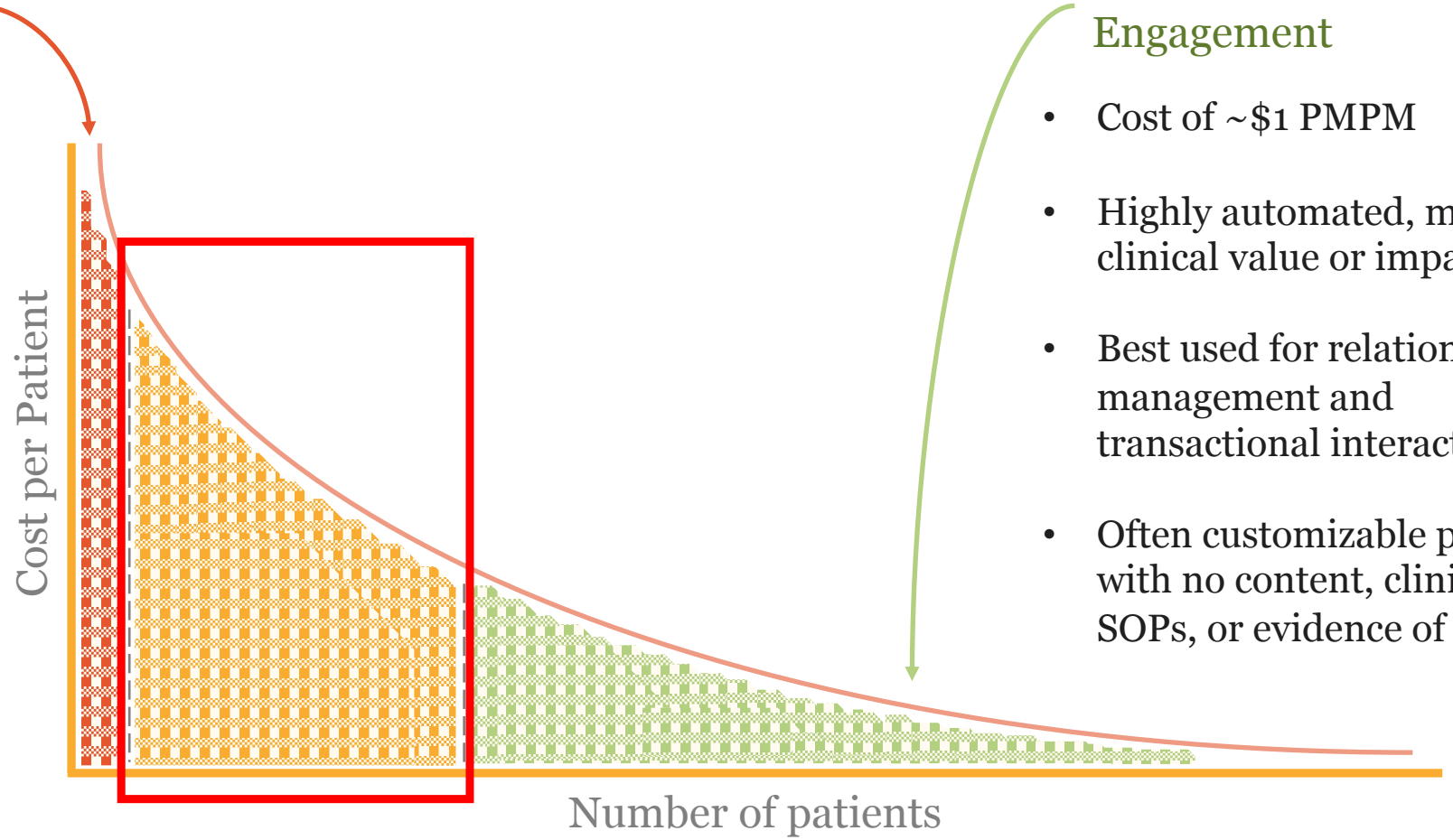

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CareSignal™

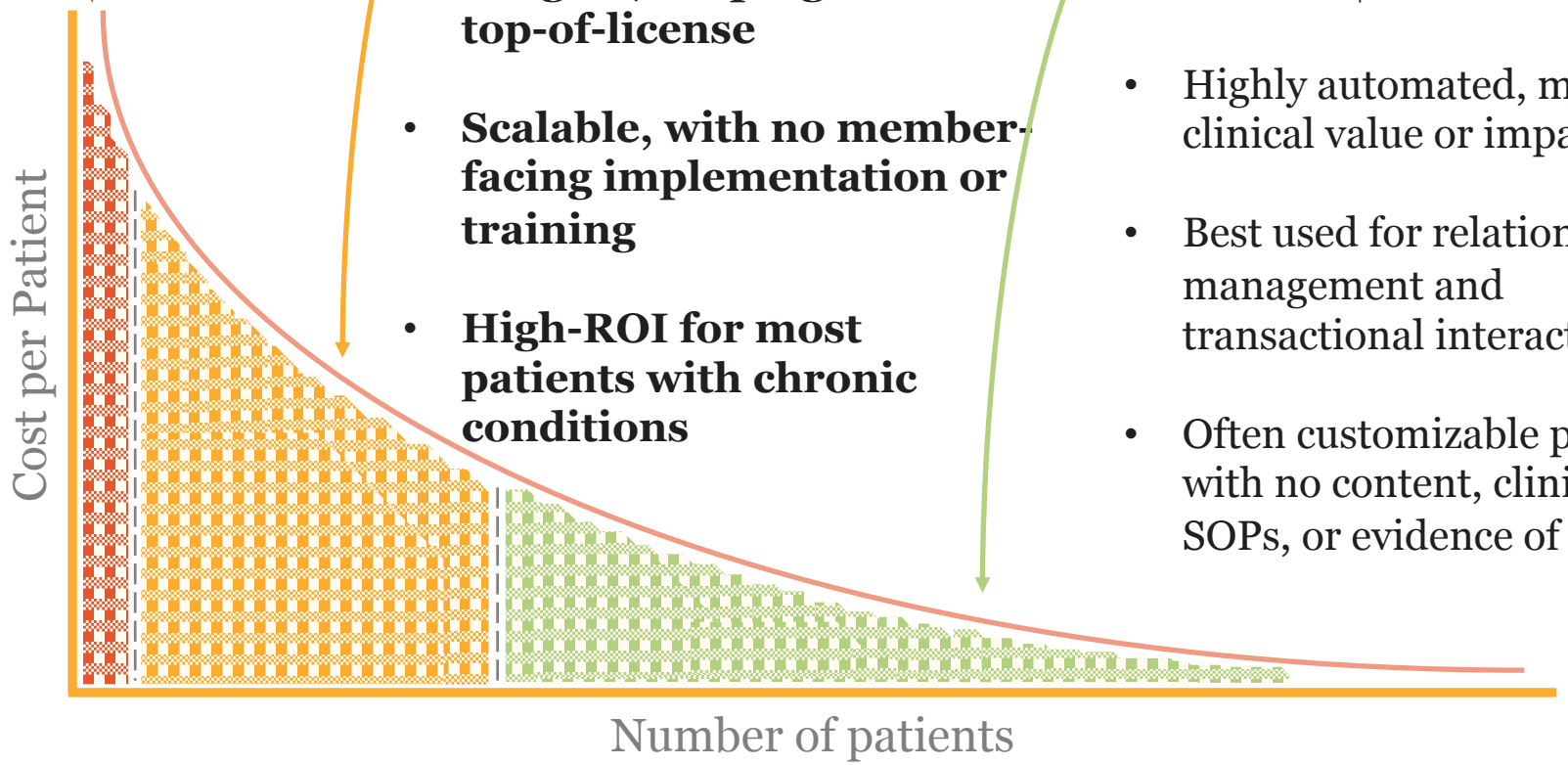
Remote Monitoring Must Align Cost and Acuity

Device/app-based Remote Patient Monitoring

- Cost of ~$100 PMPM
- Often only feasible when billed
- Requires member implementation & training
- Clinicians become tech support for patients
- Appropriate for the highest-morbidity populations

CareSignal Deviceless Remote Patient Monitoring

- **Clinically actionable insights, keeping team top-of-license**
- **Scalable, with no member-facing implementation or training**
- **High-ROI for most patients with chronic conditions**



Non-clinical Patient Engagement

- Cost of ~$1 PMPM
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- Best used for relationship management and transactional interactions
- Often customizable platforms with no content, clinical logic, SOPs, or evidence of efficacy

CareSignal™

Solution: Deviceless Remote Patient Monitoring

Affordable | Accessible | Scalable

- **No new devices required**
  No apps, downloads, or passwords
- **Accessible for all patients**
  Promote & elevate health equity

verizon · T-Mobile · Sprint · AT&T · boost mobile · metro by T-Mobile

- **Clinically validated**
  13+ Peer Reviewed Publications
- **Engagement powered by AI**
  Predict & prevent drop-off

CareSignal™

CareSignal Programs

30+ Evidence-Based Programs | One Portfolio

Chronic Conditions

- Heart Failure
- COPD
- Diabetes
- Hypertension
- Asthma

Behavioral Health

- Depression
- Anxiety
- Substance Use
- Opioid Management
- Caregiver Support

Specialty Support

- SDoH
- Maternal Health
- Dialysis
- Surgery

Post Discharge

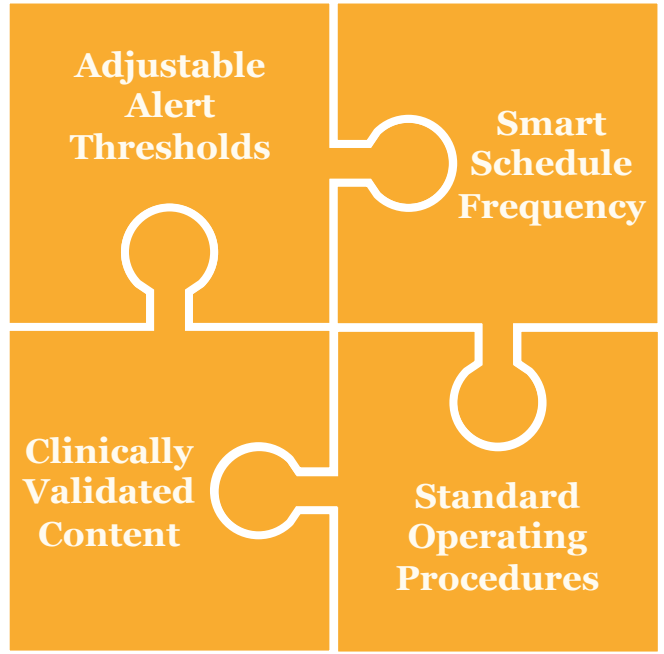
- Post Discharge
- General Medical
- Vital Signs
- Pneumonia

Care Coordination

- Screening Reminders
- Appointment Reminders
- Referral

General Programs

- COVID Suite
- Influenza
- Fall Risk
- Wellness
- Medication Adherence



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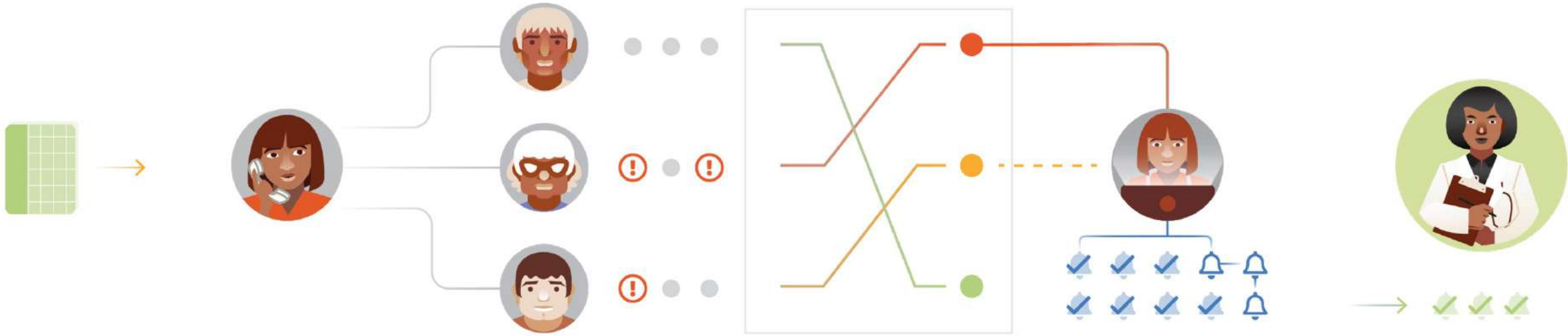
CareSignal Patient Journey
Supportive Services to Ensure Success



Client
Provides list of eligible patients to CareSignal

CareSignal
Enrolls patients via text, email, mailers, and direct phone calls

Patients
Answer automated SMS and phone call prompts, sending in clinically-relevant data

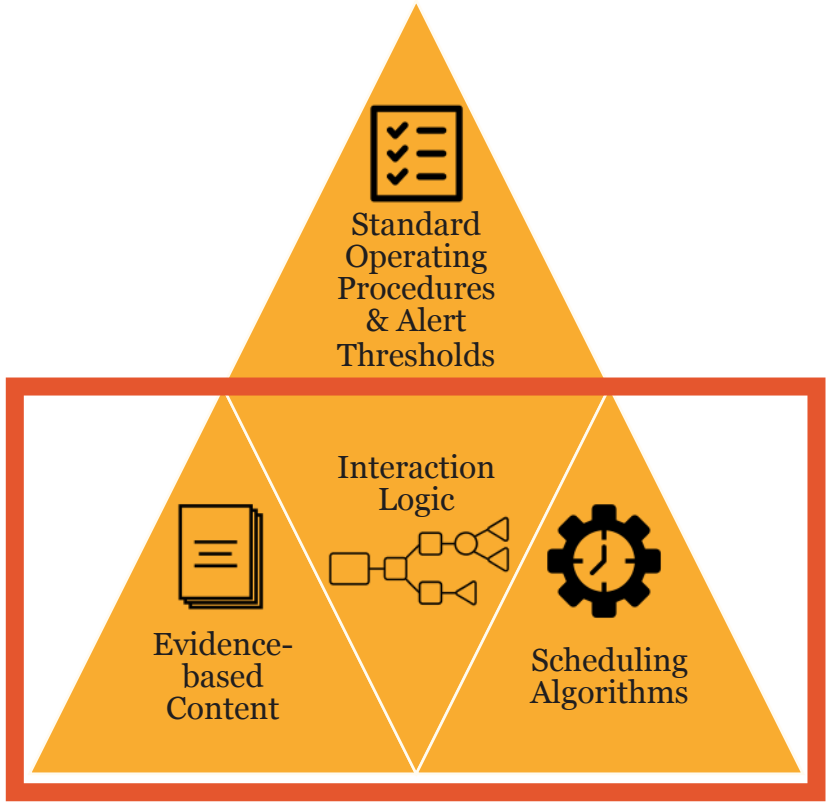
CareSignal
Categorizes at-risk patients and triggers alerts in real-time

CareSignal or Client
Virtual Care Navigators monitor dashboard and follow standard operating procedures

Providers
receive escalations, only as needed

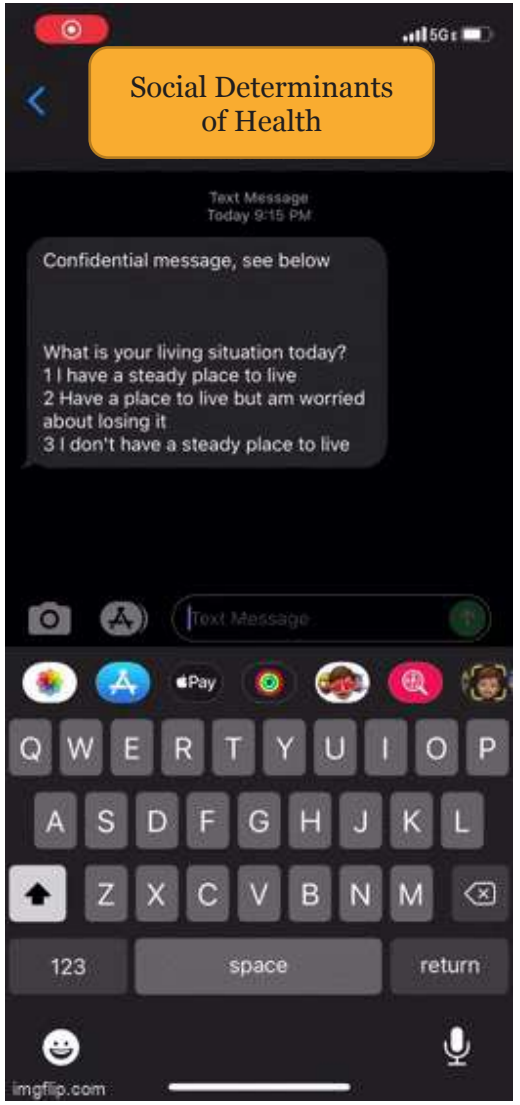
CareSignal™

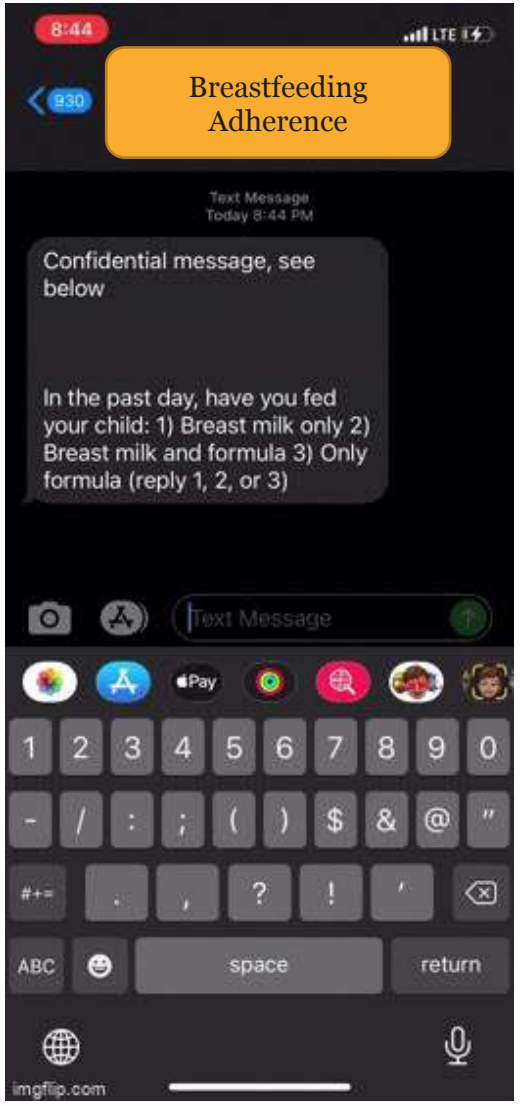
Accessible, Condition-specific Patient Experience



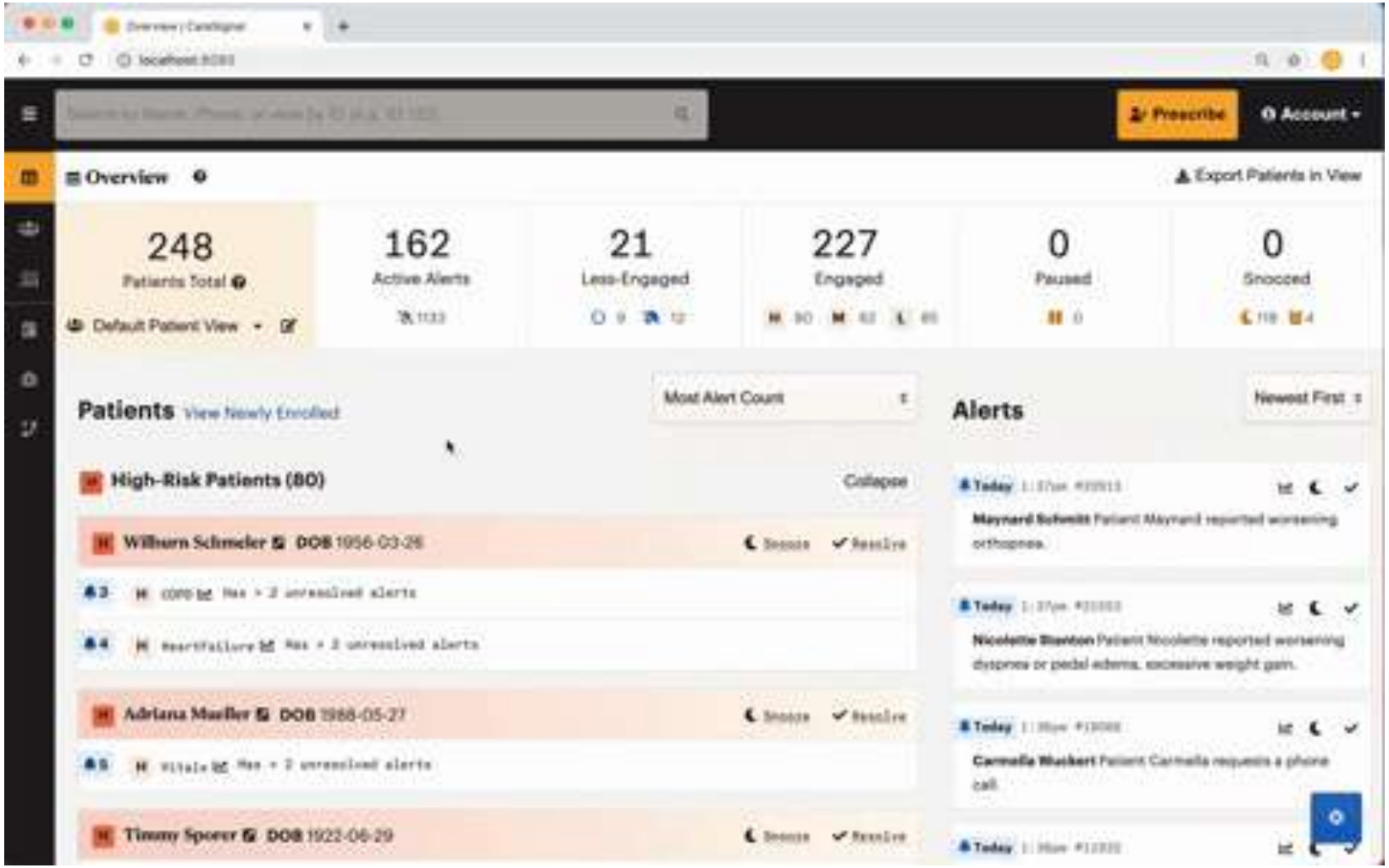
Want to try it? Use your camera app:

CareSignal™





Real-time, Population-level Visibility & Actionability



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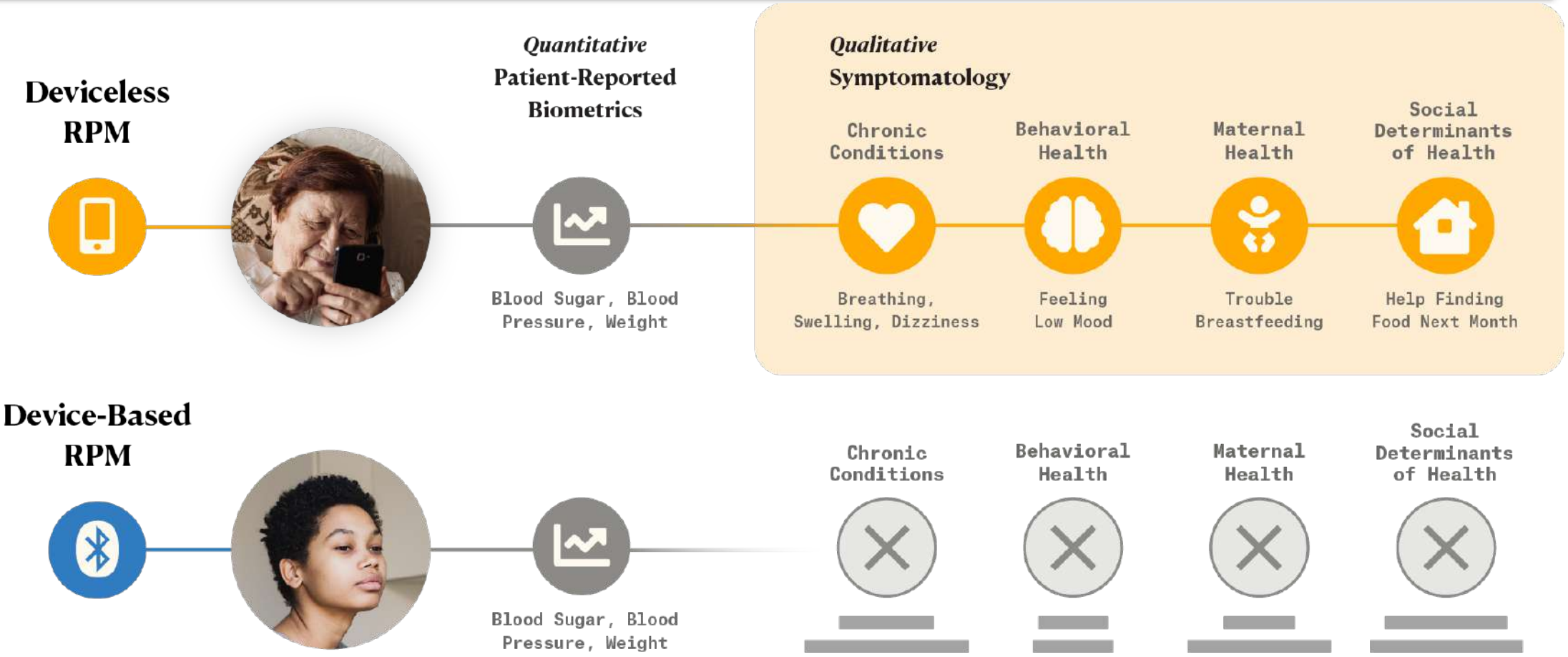
Want to experience CareSignal? *try.caresignal.health*

Deviceless RPM: Chronic, Behavioral, SDOH, & More



Addressing SDOH and behavioral needs can result in annual savings ***>$2,400 per patient***[1]

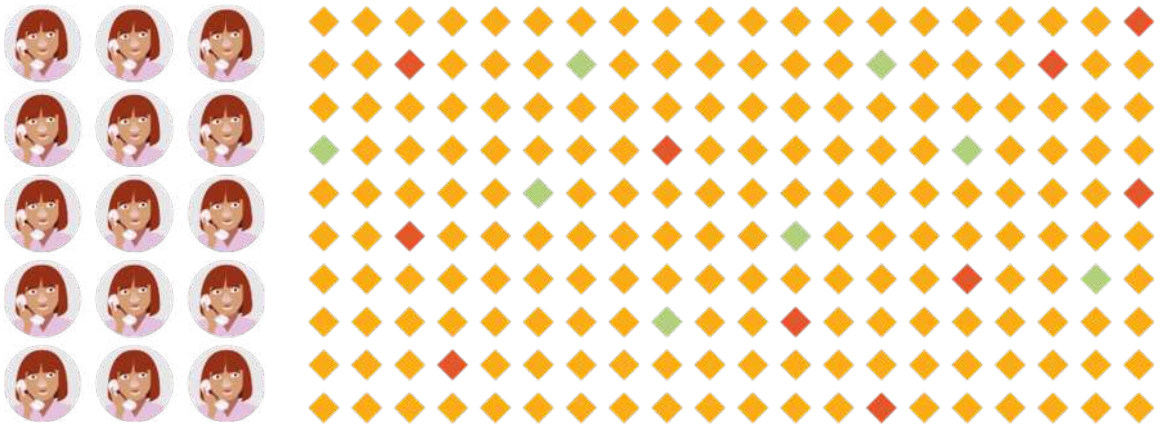
CareSignal™

Drive Scalable, Top-of-License, Population-level Care Management with Real-time Insights

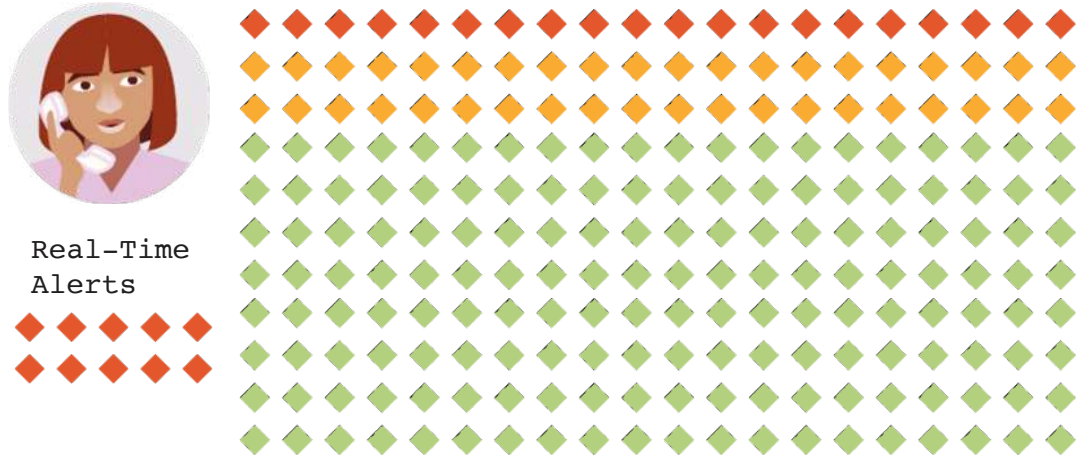
Manual outbound outreach limits impact and efficiency

Automated inbound insights drive top-of-license, high-impact, scalable care

15 Care Managers : 1,500 Patients



1 Care Manager : 1,500 Patients



CareSignal™

CareSignal Results
Proven Clinical & Financial Outcomes

13+ Publications
in Peer-Reviewed Medical Journals

62% decrease in hospitalizations for patients with COPD

46% decrease in CHF ED visits

1.15% drop in HbA1c over 4 months

50% improvement in blood pressure control over 12 weeks

28% drop in PHQ-9 for patients with depression

>2.1x increase in follow-up appointment adherence

Annual Medical Cost Reduction for every 1,000 patients enrolled

COPD	CHF
$850k	$3.7M
Diabetes	**Hypertension**
$625k	$500k
Depression	**Post-Discharge**
$2.6M	$300k

CareSignal™

Mercy

Case Study

"CareSignal has created a technology that is simple to implement and produces a quick and sustainable impact on patient care. CareSignal allows Mercy to expand our ability to support patients with chronic conditions using a technology-first approach that allows nurse care managers to intervene when patients most need help.

Without this technology, nurses spent considerable time reaching out to patients in non-value-added activities that limited their ability to respond to patients at the right time. Now with smart technology, we can systematically reach out and connect with more patients on a routine basis and utilize our nurses to intervene when patients are beginning to have worsening symptoms.

This leads to a better patient experience, more targeted care management intervention, improved medication adherence, reduction in avoidable emergency department visits, and improved care manager and provider satisfaction."

- Mary Laubinger
Vice President, Population Health Navigation

Heart Failure

POPULATION

Employees diagnosed with CHF and a history of CHF-related ED visits prior to starting the intervention

CLINICAL OUTCOME

59%

reduction in CHF ED visits

HIGH LONGITUDINAL PATIENT ENGAGEMENT

57%

of patients were engaged at three months

33%

of patients were engaged at six months

FINANCIAL OUTCOME

-$848.20

per member per month

COPD

POPULATION

Employees diagnosed with COPD and a history of COPD-related ED visits prior to starting the intervention

CLINICAL OUTCOME

30%

reduction in COPD ED visits

HIGH LONGITUDINAL PATIENT ENGAGEMENT

54%

of patients were engaged at three months

39%

of patients were engaged at six months

FINANCIAL OUTCOME

-$193.85

per member per month

Diabetes

POPULATION

Employees diagnosed with diabetes

CLINICAL OUTCOME

2.03%

average reduction in HbA1C[1]

HIGH LONGITUDINAL PATIENT ENGAGEMENT[2]

89%

of patients were engaged at three months

78%

of patients were engaged at six months

FINANCIAL OUTCOME

-$200.71

per member per month

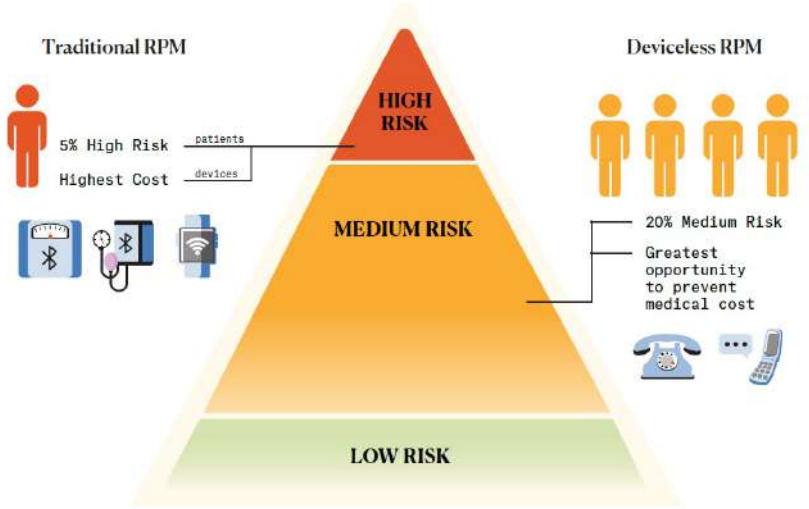
CareSignal™

AMGA™
Advancing High Performance Health

Mercy presented outcomes at 2020 AMGA Conference

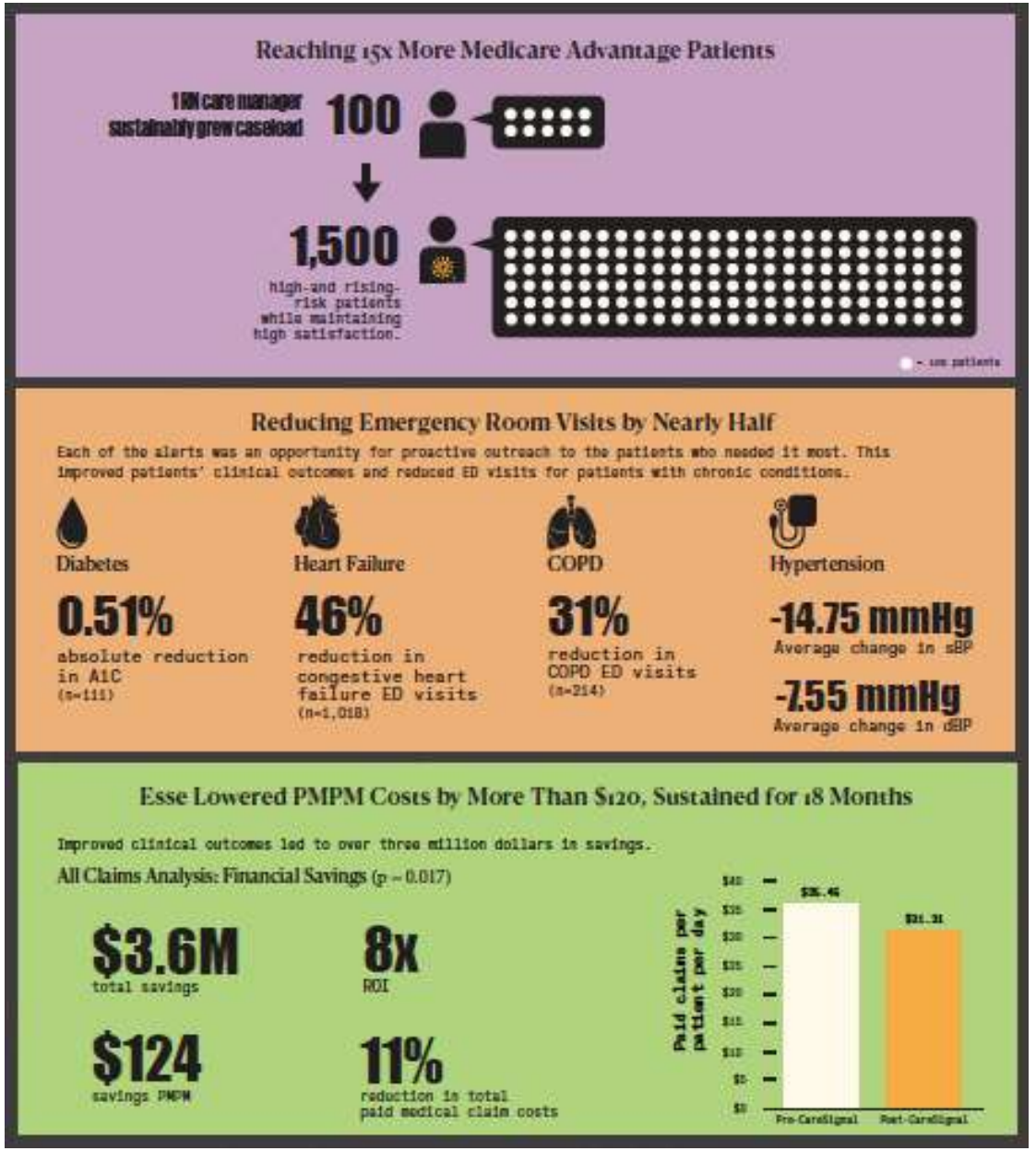
Case Study

Deviceless Remote Patient Monitoring Scales to Rising-Risk Patients at a Fraction of the Cost of Device-Based RPM



"Now we've been able to wrap our hands around a whole group of people who otherwise might not have gotten all those touches that they received with the platform. We've been able to scale the outreach dramatically without an increase in staff, and that's really important. High-risk care management is inherently a reactive model. By extending care management into the rising-risk patients, we are becoming more proactive. Now we can say, 'Hey, there might be a problem developing. Let's reach out to the patient instead of waiting until he goes to the ED.' It's helped us manage rising-risk patients who might not have perceived a need for a care management team before."

– Carla Beckerle
Vice President of Clinical Programs at Esse Health



CareSignal™

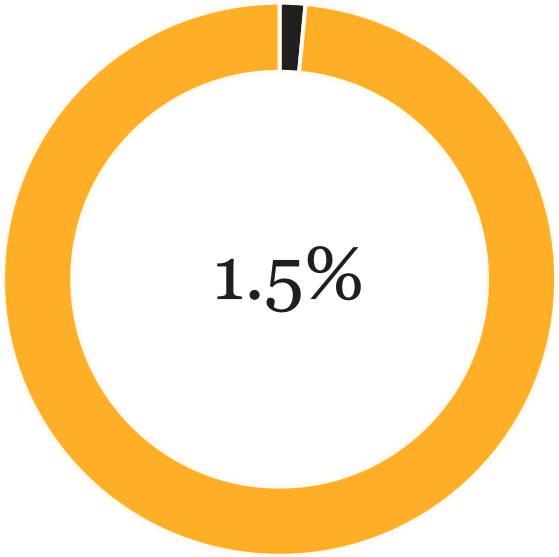
AMERICAN TELEMEDICINE ASSOCIATION

Presented outcomes at 2020 ATA & Abstract Published in Telemedicine and e-Health

CareSignal.AI – Superior Long-term Engagement
AI-driven preventative re-engagement

Leverage CareSignal.AI to Predict and Proactively Prevent Patient Dropoff

Baseline Weekly Dropoff Rate



10,600,000+
days of patient data

Prevents **57%** of weekly drop-off

2+ months additional engagement

CareSignal™

Learn more at www.caresignal.ai

The Technology Behind CareSignal AI
Sophisticated Machine Learning & Artificial Intelligence

Finding the right patient at the right time for predictive activation or re-engagement is like finding a needle in a haystack.

To "guess" the right needle would be very inefficient.

Instead, CareSignal looks at millions of historical "haystacks," each with its own unique pieces of hay

10,600,000+
days of patient interaction data & metadata, including known ground truths

By using the right models, such as **Long Short-term Memory Recurrent Neural Networks**, **Random Survival Forest**, **Gradient Boosting + Calibration**, and more, CareSignal AI accurately predicts which patients are actually the "needles" in need of proactive outreach

Finally, CareSignal's tech-enabled Engagement Specialist team reaches with superhuman accuracy – over 1000% more efficiently than a human could!

That means improved outcomes and reduced utilization:

- Fewer COPD and CHF ED visits
- Improved sustained A1c reduction for members with diabetes
- Faster average decrease in PHQ-9 for patients with depression

CareSignal™

Identify the Optimal Population & Model Adoption

- Conditions & Adoption/Retention
- Disease-specific ROI (bottom-up)
- Overview & Pricing

	Medicare	Commercial	Self-Insured Employees	Medicaid	Total Patients
At-risk Lives	6,326	0	0	0	6,326
Shared Savings %	50%	30%	100%	10%	Blended Shared Savings 50%
Prevalence Rates					
COPD	11.6%	2.4%	2.4%	12.4%	
CHF	14.5%	1.5%	1.5%	10.3%	
Diabetes	27.4%	4.3%	4.3%	26.6%	
Hypertension	59.9%	17.0%	17.0%	42.6%	
Depression	15.4%	4.3%	4.3%	31.2%	
Patients with Diagnosis					**8,148**
COPD	734	0	0	0	734
CHF	917	0	0	0	917
Diabetes	1,733	0	0	0	1,733
Hypertension	3,789	0	0	0	3,789
Depression	974	0	0	0	974
Eligible Patients for CareSignal					**3,960**
COPD	660	0	0	0	660
CHF	826	0	0	0	826
Diabetes	867	0	0	0	867
Hypertension	1,364	0	0	0	1,364
Depression	244	0	0	0	244
Patients Enrolled in CareSignal					**1,584**
COPD	264	0	0	0	264
CHF	330	0	0	0	330
Diabetes	347	0	0	0	347
Hypertension	546	0	0	0	546
Depression	97	0	0	0	97

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Project Clinical Outcomes & Financial Returns

Conditions & Adoption/Retention

Disease-specific ROI (bottom-up)

Overview & Pricing

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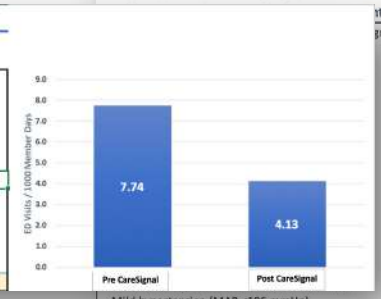
CareSignal Research and Reference Studies

Condition	Percentage	Metric	Source
COPD	61.70%	Reduction of hospitalizations	SAGE Journals Publication
CHF	46%	Reduction of ED visits	Published Case Study
Diabetes	1.15%	Avg HbA1c drop	JMIR Publication
Hypertension	47%	% of uncontrolled population brought to control	JMIR Publication
Depression	32%	Clinical improvement	Client Case Study

Congestive Heart Failure (CHF) Savings

ED visit reduction

# of patients with CHF engaging with CareSignal			330	Calculation
	Inpatient admission	ED without admission	Observation stay	
Percent of ED visits resulted in:	82.1%	11.6%	6.3%	Reference
Average cost per type	$23,077	$1,208	$3,189	Reference
ED visits per 1000 patients per year			421	Reference
Estimated ED visits			139	Calculation
Reduction of ED risk			46.0%	Published abstract
ED visits avoided			64	Calculation
Effective cost per ED visit			$ 19,287.25	Calculation
Annual medical cost saved			**$ 1,233,417**	**Calculation**

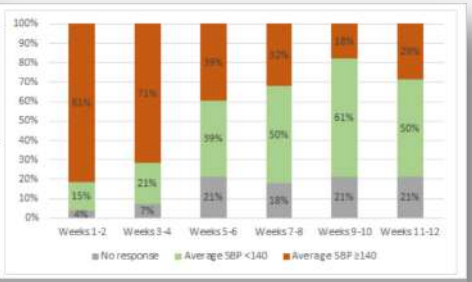


Hypertension Savings

Summary: This model calculates the hypertension ROI by calculating the anticipated reduction in medical costs over a ten year period after a patient is enrolled in Hypertension Intervention. The value is meaningful because peer-reviewed literature by CareSignal has shown accelerated rates to BP control (see graph).

	546	Calculation
	8.0	
	10.8	CareSignal study
	6.6	
	$ 1,185	
	$ 511	
	$ 268	
		Reference
	7%	
	29%	
	64%	
	19%	
	81%	
	0%	
Estimated Annual Savings per patient	$ 524	

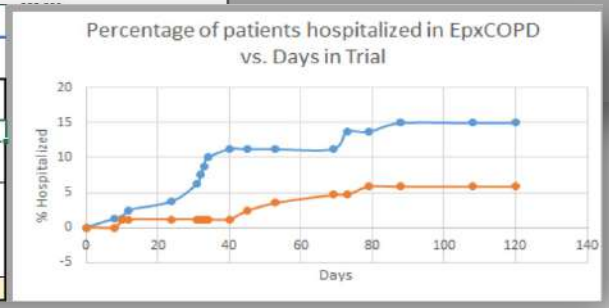
Mild hypertension (MAP <106 mmHg)



COPD Savings

Hospitalization Savings

# of patients with COPD engaging with CareSignal		264	Calculation
Annual rate of hospitalization		18.4%	Reference
COPD hospitalizations		49	Calculation
Relative reduction of hospitalization risk		61.7%	Results from N=168 patient RCT, 6 months (See graph)
New hospitalization rate		7.0%	Calculation
Hospitalizations avoided		30	Calculation
Cost per hospitalization	$	7,500.00	Reference
Annual medical cost saved	**$**	**224,933**	**Calculation**



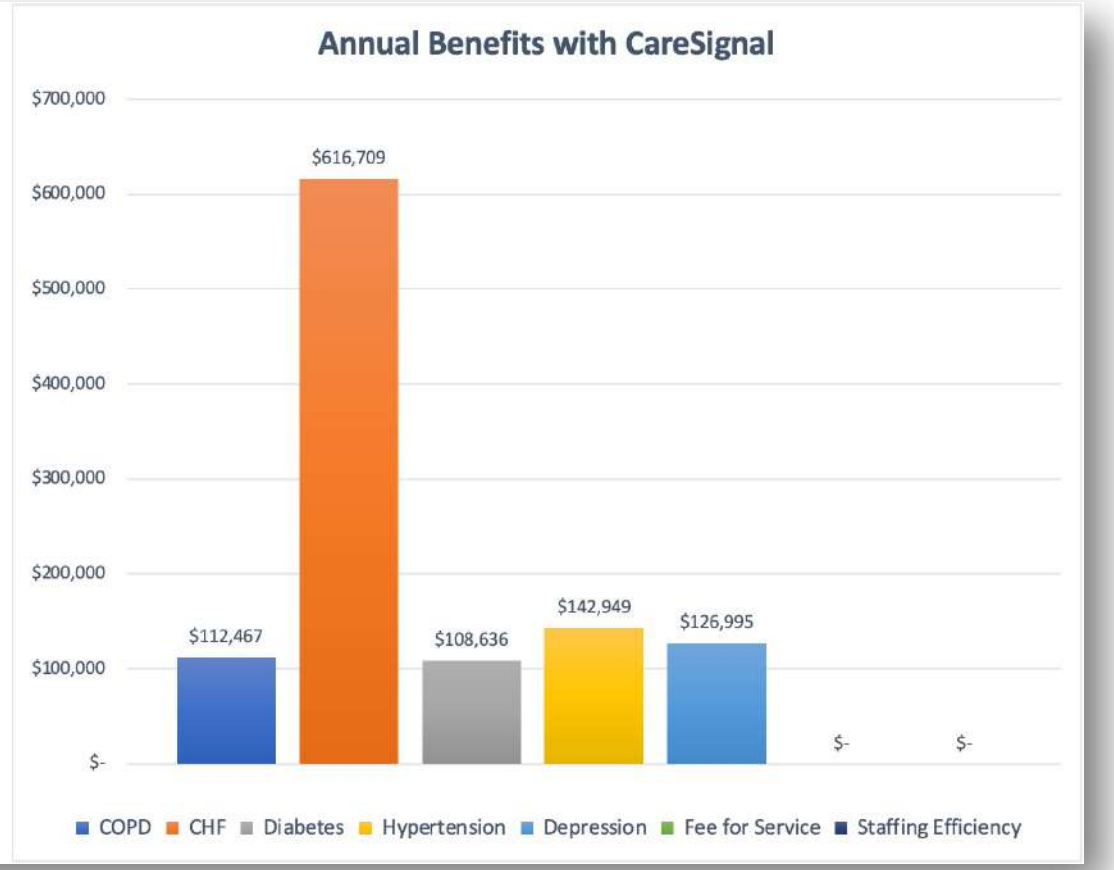
Summarize Condition-specific Value & Total ROI

Conditions & Adoption/Retention

Disease-specific ROI (bottom-up)

Overview & Pricing

Total Benefits		$	1,107,756
Total Costs		$	
ROI Multiple			
Annual Benefits	**Include?**	**$**	**1,107,756**
Shared Savings		$	1,107,756
COPD	Yes		$112,467
CHF	Yes		$616,709
Diabetes	Yes		$108,636
Hypertension	Yes		$142,949
Depression	Yes		$126,995
Fee for Service	No	$	-
Staffing Efficiency	No	$	-
Annual Costs		$	
CareSignal Subscription		$	
Patient Volume	0-250	250-1,000	>1,000
Access & Support Per engaged patient			



CareSignal™

Partnership Testimonials

Health System | Commercial

"CareSignal allows us to systematically reach out and connect with more patients on a routine basis and utilize our nurses to intervene when patients have worsening symptoms."

Mary Laubinger, Vice President, Population Health Navigation, Mercy Virtual

Physician Group | Medicare Advantage

"We've been able to scale the outreach dramatically without an increase in staff. By extending care management into the rising-risk patients, we are becoming more proactive."

Carla Beckerle, Vice President, Clinical Programs, Esse Health

FQHC | Medicaid

"We're definitely reaching, with CareSignal, a broader population, and we're catching more patients in real time than what we were before."

Stephanie Campbell, Director of Nursing, STRIDE Community Health Center

Health Plan | Commercial

"This [Deviceless] Remote Patient Monitoring tool has really enhanced the team's ability to proactively identify members that need care at that point in time."

Jewel Beharry-Diaz, Director of Care Coordination, Innovation Health

CareSignal™

Patient & Partner Feedback

Patients

"The easy way to report the information without having to login in a computer. I get so busy at work I tend to forget to do it. ***This way is so easy****."*

"I feel safe because ***I feel that my doctor is next to me even thou I am 2 hrs away from him****. Different city."*

"It reminds me to test my sugars and to take my insulin. Helps keep me accountable. When my sugars spiked an actual person called to give me support. ***This may have saved my life****."*

"Mostly **I like keeping in contact with the Healthcare team without leaving home. I feel that I am protecting my health better by remaining in and not taking chances with the public**. I appreciate that my health concerns are being addressed in the safest way possible."

Executives & Clinicians

"The entire team was wonderful. ***The most organized roll out of a project with an outside company*** *I have been involved with. Refreshing!"*

Chief Informatics Officer, Physician Group

"It's a ***great benefit to have a program that will assist patients,*** *especially patients who may not have family or friends who can check up on them on a regular basis".*

Care Manager, ACO

"CareSignal has ***improved the ability for our providers and care management staff to connect with our chronic disease patients****. It should help our patients achieve and maintain their treatment goals and allow us to identify patients needing an acute intervention to prevent ER and hospital visits."*

Medical Director, Top 5 Large Health System

"We had never had such a positive and supportive implementation partnership in such a short turnaround*. Everyone was respectful yet accountable and ensured success at every phase. Bravo!"*

Chief Clinical Officer, BH Network

CareSignal™

Beyond Technology: Supportive Services to Ensure Success

"The entire team was wonderful. ***The most organized roll out of a project with an outside company*** *I have been involved with. Refreshing!"*

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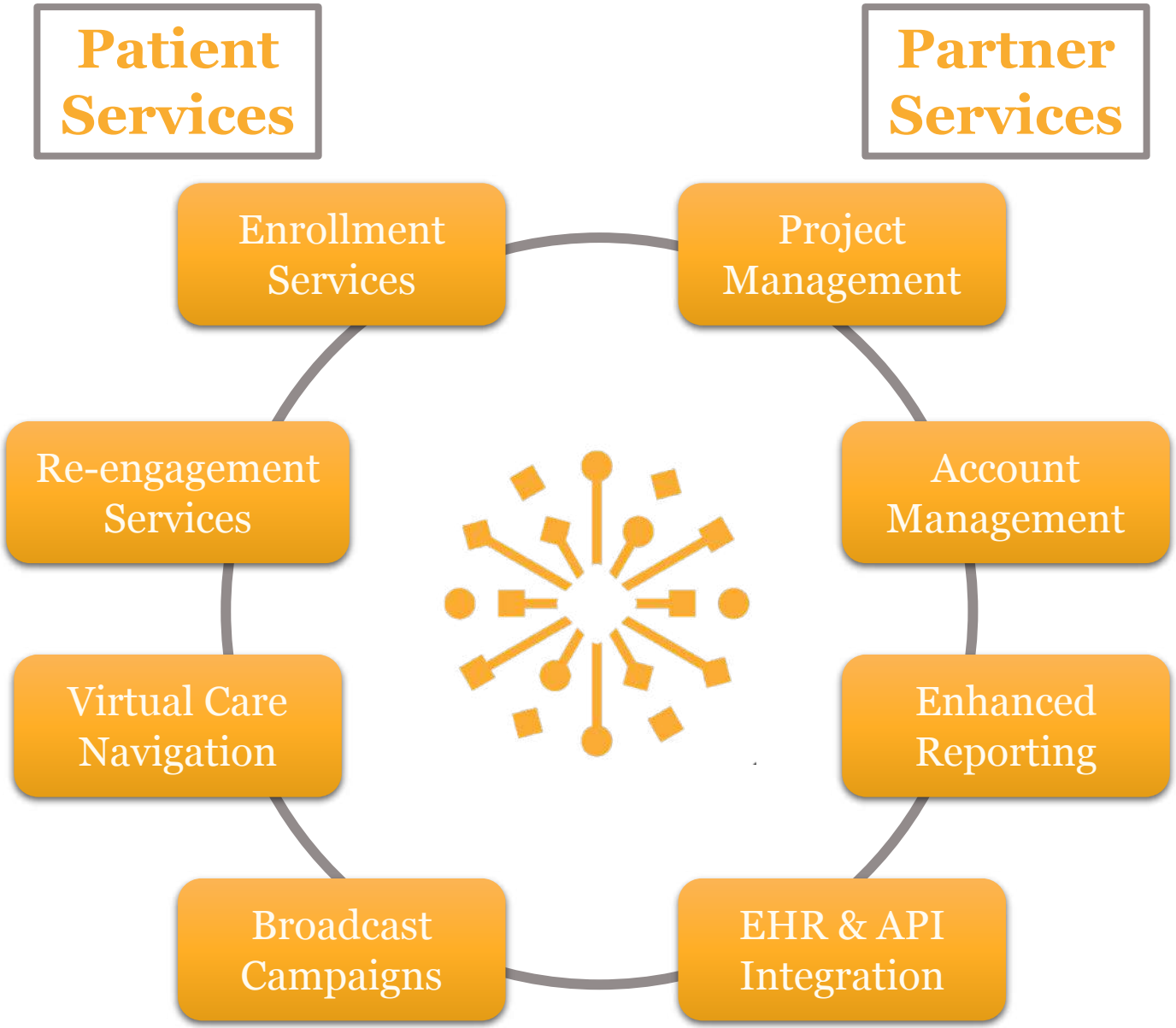


CareSignal™

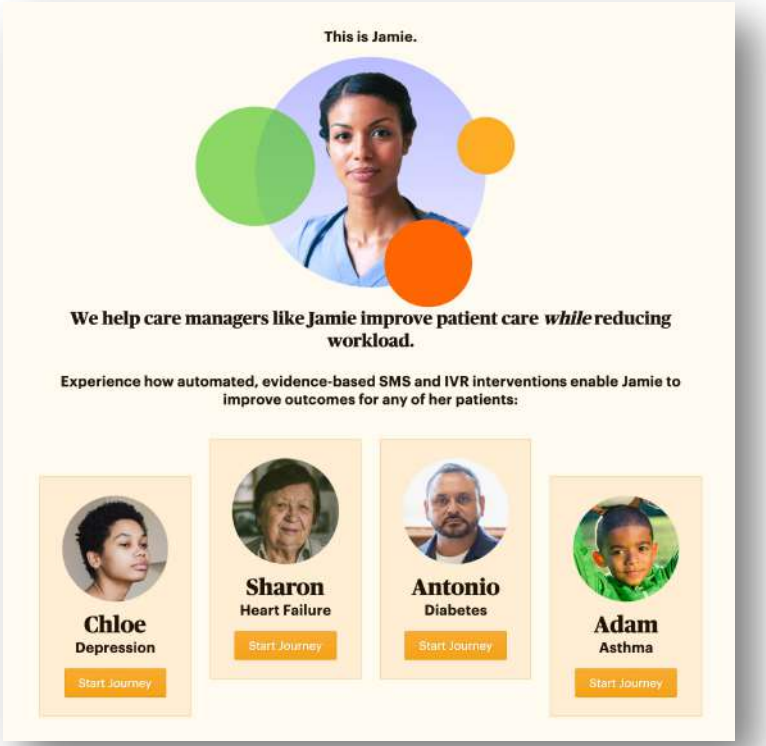
Experience CareSignal

Real-time SMS Demo

Just open your camera app!

Patient & Provider Journey

try.caresignal.health



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Deviceless Remote Patient Monitoring

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The Promise of Population Health

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