



# CareSignal®

Deviceless Remote Patient Monitoring



## Mental Health Center of Denver

### How Deviceless Remote Patient Monitoring Scales Virtual Care to Improve Chronic and Behavioral Health Outcomes

Wes Williams, PhD | VP & CIO, Mental Health Center of Denver

Blake Marggraff | CEO & Founder, CareSignal | [blake@caresignal.health](mailto:blake@caresignal.health)

# Agenda & Learning Objectives

- Review the **State of Whole-person Care**: Balancing Revenue & Relationships
- Examine **Real-world Impacts & Quantitative Outcomes**: Engagement & Clinical Results
- Identify **Specific, Actionable Strategies** to Increase Care Access for High-risk & Rising-risk
- Connect **Key Learnings** to Your Organization's Position
- Q&A

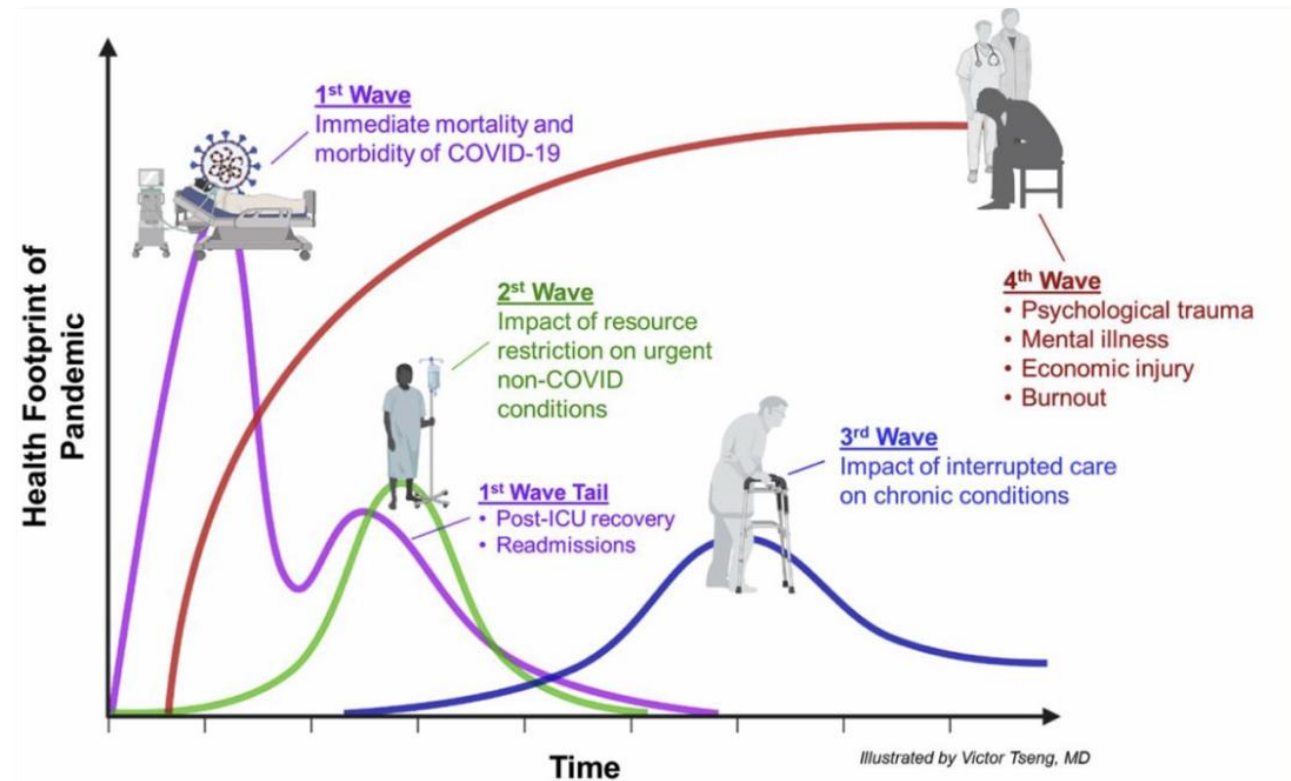
# Learning From the Past: Sensitive PWS Avoid Care, Resulting in Higher Morbidity & Mortality



“[T]he continuity of regular medications or treatments for chronic diseases were **interrupted** during the SARS epidemics because the **patients were fearful of going to hospitals.**”  
(T.-H. Lu et al., 2007)

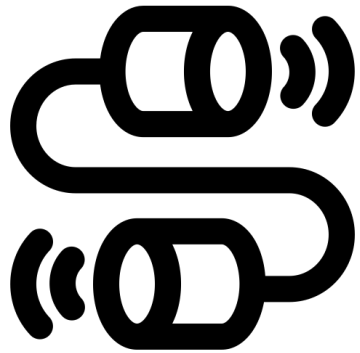


“[M]ortality caused by **diabetes mellitus and cerebrovascular diseases significantly increased** during the SARS epidemic by 8.4% and 6.2%, respectively.  
(S.-Y. Wang et al., 2012)



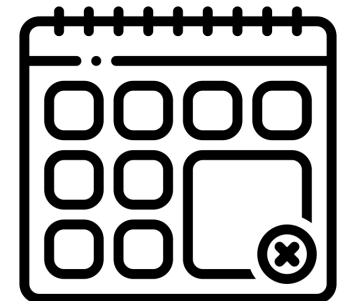
# New Challenges & Obstacles to Care

Inappropriate utilization, stemming from social, behavioral, and medical determinants, exacerbates existing issues



Traditional patient-facing engagement may not scale, particularly if the only solution is to ramp manual processes

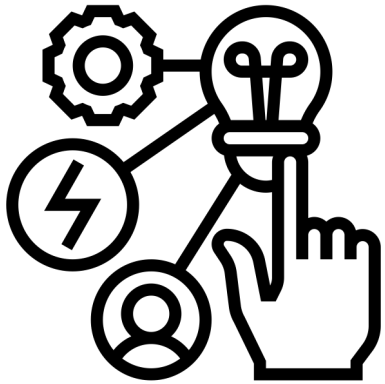
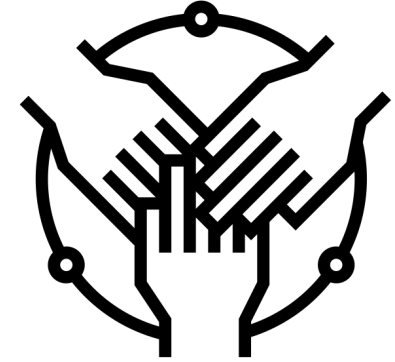
Limited resources and provider availability, compounded by barriers to appointment adherence, reduce capacity





# Many Opportunities Exist to Recover, and Improve

Behavioral healthcare and whole-person care providers are in a powerful position to innovate on care models



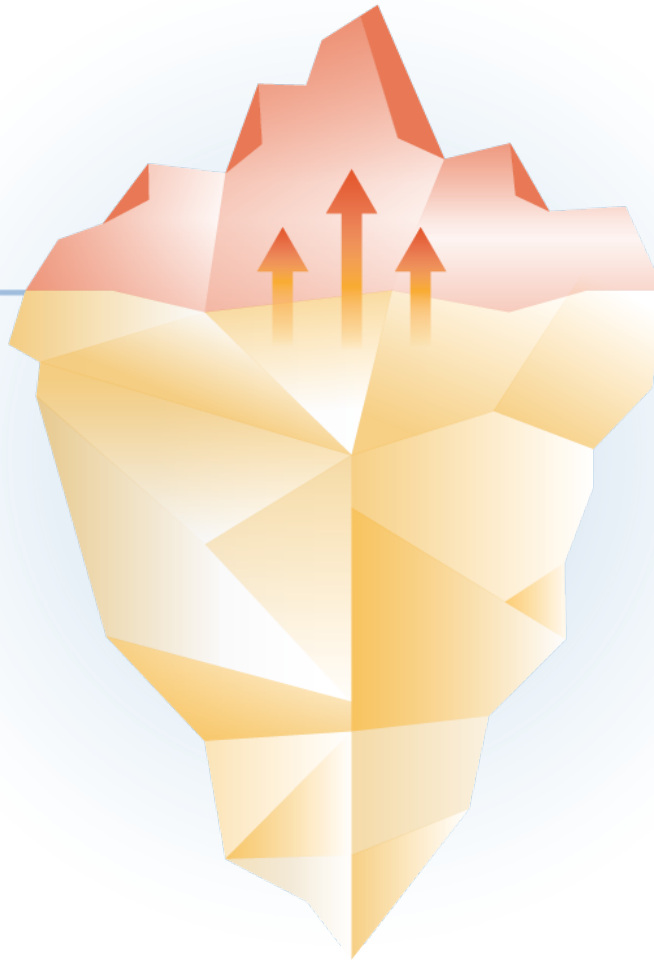
Patients, more than ever before, will consider engaging through new, virtual-first care delivery channels

Existing clinical resources can be augmented, without creating new workflows or adding staff headcount, through a combination of technology and tech-enabled services



# Specific, Actionable Strategies Begin With the Right Population Focus

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



**High-Risk:**  
5% of  
population

**Rising-Risk:**  
20% of  
population

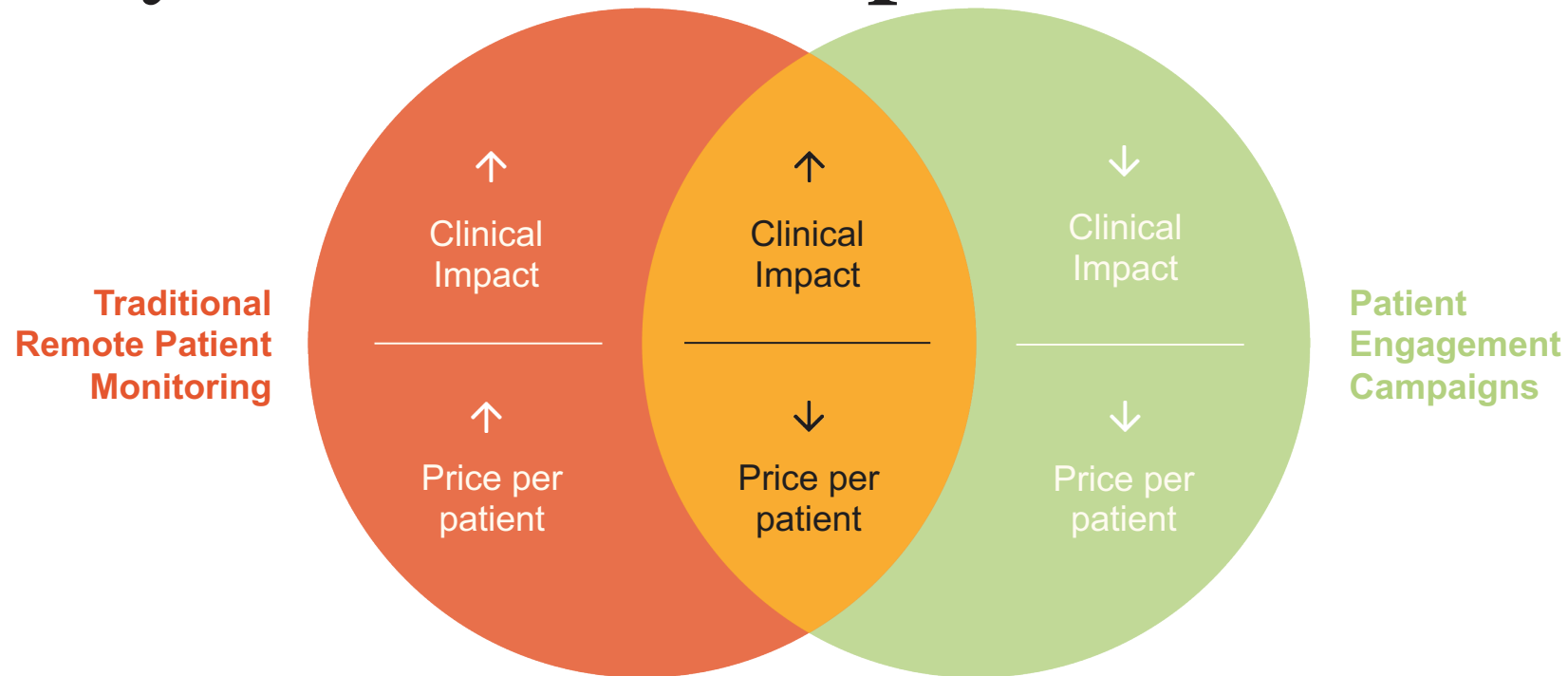


The NEW ENGLAND  
JOURNAL of MEDICINE

*“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.**” – Hotspotting Study*

(A. Finkelstein et al., 2020)

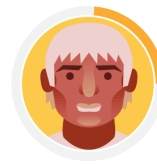
# Deviceless Remote Patient Monitoring: a Scalable, Clinically Actionable Component of Virtual Care



**High Risk**  
0.5 – 5 %



**Rising Risk**  
20%



**Low Risk**  
75%



Relevant Patient  
Population

Financial  
Opportunity

# Ubiquitously Accessible Technology Meets Patients Where They Are

CareSignal works for  
**any** patient

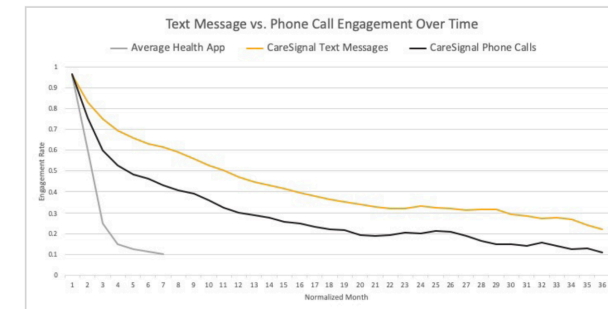
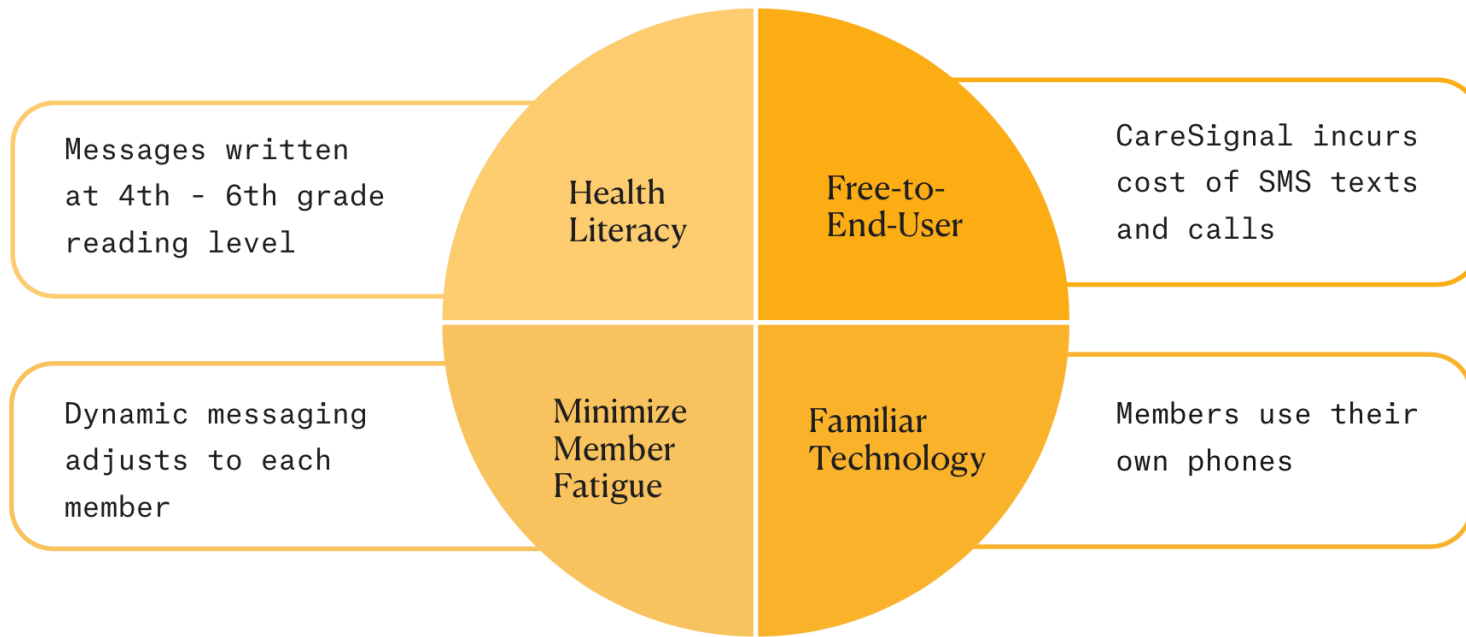
Via **smartphone**, **pay-as-you-go**  
**phone**, **landline**, or **concerned**  
**caregiver's** phone

**10+**

Publications in peer-  
reviewed journals



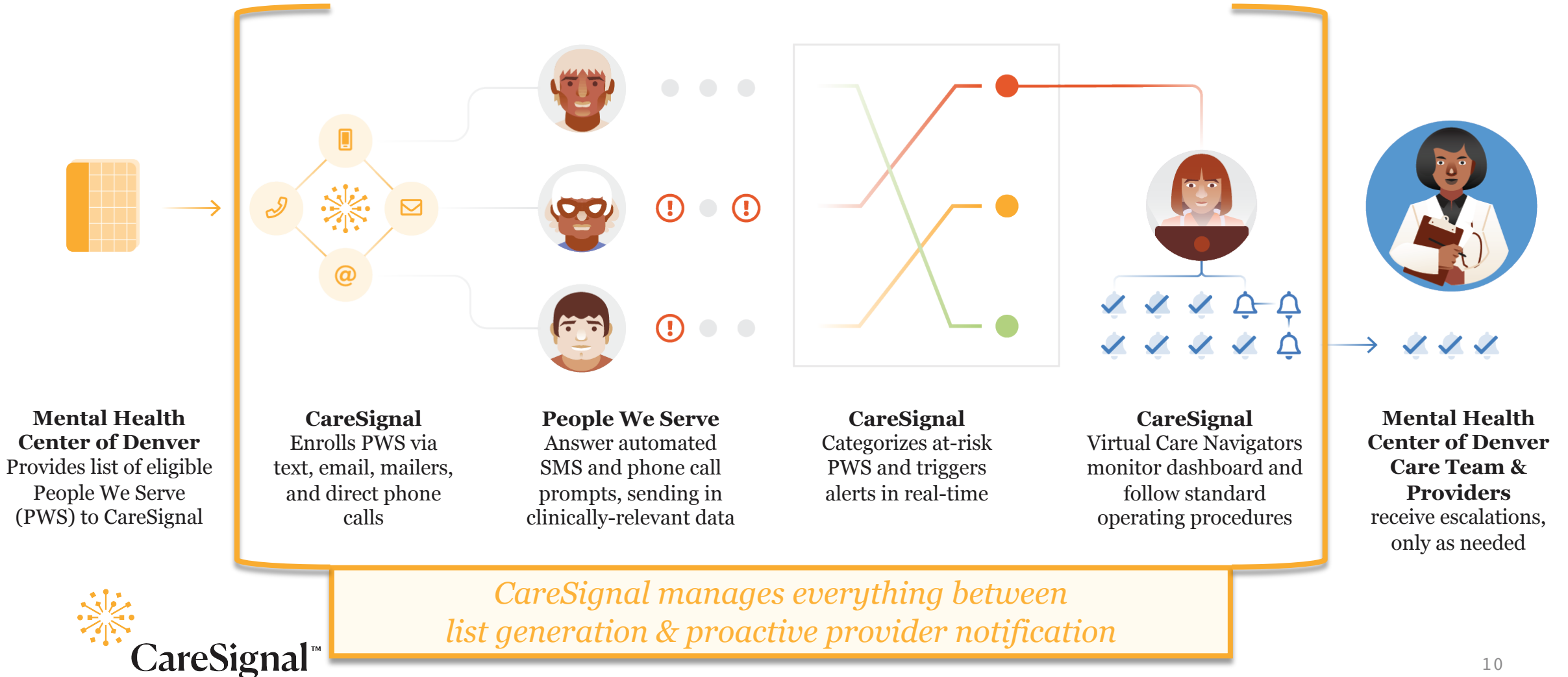
# Deviceless Remote Patient Monitoring Removes Barriers that Traditionally Accompany “Virtual”



**6x**

Better Engagement for Members on CareSignal

# Examining the Mental Health Center of Denver + CareSignal Workflow





**Key Drivers of High Enrollment & Retention:**  
People We Serve-facing and provider-facing awareness

## We have a new program just for you!

Life gets busy. It is easy to get distracted from using the skills, resources and daily routines that support your health and well-being. The Mental Health Center of Denver is now offering an automated text and phone message service called **CareSignal** to encourage your focus between treatment appointments.

### How does it work?

You can use a cell phone or land line – any type of phone!

Choose if you would like to receive **automated texts or calls**.

Messages asking questions about your feelings, thoughts and behaviors will come to your phone **2-3 times per week, at a time of the day that you determine**.

When you receive an automated message question, you will text or push a phone button with your response.

Periodically your Mental Health Center of Denver clinician will be informed of your responses, so together you can discuss how your well-being plan is working.

### Does it cost anything?

The Mental Health Center of Denver and the messaging service do NOT charge any fees for this program. Check your phone plan to see if any text or data rates apply.

If you have questions about the **CareSignal** program, please speak with your primary clinician.

### How could it benefit me?

These are possible ways your participation in the program can support your treatment:

- Encourage use of your skills, resources and support network (Am I using my well-being action plan?)
- Reflect on your well-being (How well am I managing distress?)
- Receive supportive messages between treatment appointments
- Provide more information for treatment planning discussions
- Understand your progress over time

### What are the messages?

Messages vary depending on which module you are eligible for. In general, you might receive:

- **Self-assessment** questions like...

Message Service

On a scale of 0 (very bad) to 10 (very good), how are you feeling?

You

6

Thank you! Have a great day.

- **Notifications**, like...  
"Your responses indicate that you may be having a difficult time. Someone from your treatment team will reach out to you within two business days."
- **Supportive statements** like...  
"Way to go! You're making a positive difference in your own health!"

## Welcome to CareSignal!

That you will be participating in this innovative service and hope that it self-care, improves your treatment experience and enhances your overall

### In the program?

When you join the program, you will receive a text message in the coming weeks. To participate, you will provide a verbal phone. You can also provide your preferred text or email address to receive messages. Your **Enrollment Phone #**:

Number: 720-571-1642  
Please note, you can save this number in your phone (it doesn't have

to be added to your clinician when we verify your

### How will I know I've joined the service?

Once you save the following information into your Contact list:

1-603-7991  
855-229-7379

When you make the Contact anything you want to save in your phone.

When you receive a text or call, you will see a code of blank lines at the bottom of the screen on the phone

When you receive a text or call, you will see a code of blank lines at the bottom of the screen on the phone

When you receive a text or call, you will see a code of blank lines at the bottom of the screen on the phone

When you receive a text or call, you will see a code of blank lines at the bottom of the screen on the phone

### Frequently Asked Questions

**Will the texts/calls cost money or use my data?**  
The service is free. Text and data rates may apply (please check your phone plan).

**What if I am in need of immediate support?**  
This program is NOT a substitute for crisis services. If you need immediate support, please contact **Colorado Crisis Services at 1-844-493-TALK (8255) or text TALK to 38255; or call 911**

**What if I want to change my message preferences?**  
Leave a message with your name and day/time change request(s) to the applicable Enrollment phone number (listed in the left column).

If you wish to change the phone number your messages are directed to, please complete a new consent form with your clinician.

**What information is shared with my clinician?**  
Staff will periodically receive information based on your responses. You will be notified if they will be reaching out to you. Otherwise, the responses can be used to inform treatment planning discussions.

**What if I want to stop the program?**  
If you choose to "opt-out" of the program, you can:  
• Type STOP (and Send) if you are texting  
• Push the star key during a call if receiving calls

### If using the phone message option:


**What if I miss my automated call?**  
If you do not pick up the call, up to two more attempts will be made over two hours.

**Can I call the phone number back?**  
No. These are automated messages so there is not a human on the other end. If you have a question, contact your clinician. If you are in need of immediate support, please call the Crisis Line.

Mental Health Center of Denver mhcd.org | Facebook | Twitter | YouTube

Mental Health Center of Denver mhcd.org | Facebook | Twitter | YouTube

# New "Automated Messages" Program called CareSignal



Mental Health Center of Denver is partnering with CareSignal to provide a new communication service as part of the Caring Contacts program. This will allow for better care and connections with people who are experiencing depression, and/or substance use disorder. CareSignal is a remote monitoring service that sends automated, condition-specific text messages and phone calls to those eligible. If someone

exhibits an acuity of his or her condition, CareSignal will notify clinical staff so they can intervene in a timely manner and according to Mental Health Center of Denver's standard operating procedures. There will be no changes to current workflows. Mental Health Center of Denver aims to positively impact the lives and well-being of people by identifying risk early and engaging them to improve condition outcomes.

## Depression Program

- > PHQ-9 (mood, depressed, sleep, appetite, fatigue, concentration)
- > Tracks mood and quality of sleep
- > Monitors suicidality (routes person to suicide hotline)

## Substance Use Program

- > Stress related
- > Follows number of meals, loneliness, and sleep

### Depression Messaging

"Could you tell us how you are feeling?"

"Thank you. We will ask you several more questions tomorrow. Please have a good day."

"Sorry we didn't understand that. Please respond yes or no. If this is an emergency, please call 911."

### Substance Use Messaging

"How many days ago did you most recently use?"

"Hi [First Name]! Just checking in, we haven't heard from you recently, is everything OK? Please reply yes or no"

"How many self-help group meetings have you attended in the last week? Please reply with a number (e.g. 1)"

### Depression Testimonials

"What I like about it is that I see myself everyday when you question me how I feel throughout the day and I can scalped 1 through 10 and it makes me feel like somebody cares and I could analyze it myself and it just makes me feel good."

"I like how it just checks up on me from time to time when u may feel no one is there. It helps me out."

### Substance Use Testimonials

"It's comforting to know that someone cares and that help is immediately available at the other end if I need it"

"Keeps me aware of my health and I don't put it in the back burner when I get busy because of the texts"

"I feel there is daily contact with my doctor"

### Changing Preferences

**To change message preferences:**

You can email the change request to the DCC at [epharmix@mhdcd.org](mailto:epharmix@mhdcd.org)

Or, you or the person in services can call and leave a message for the DCC (be sure to include person's name, phone number, and change requests)

Depression: 720-571-1641  
Substance Use: 720-571-1185

**To change the phone number receiving messages:**

Complete a new "consent for Automated Messages" form

**To "opt-out" of the program:**

- Typing "Stop" (and send) if they are receiving texts
- Pushing the star (\*) button during a call if they are receiving phone messages

### Enrollment Checklist

- Explain the program to eligible individuals
- If interested, complete the "Consent for Automated Messages" form
- If not interested, mark your caseload roster (so you don't ask them again)
- Provide them a copy of the program flyer
- Remind them they'll receive a call from the program within the next couple of business days to clarify their message preferences (days / times)
- Coach them to add the message phone #'s to their contact list so they know when the messages come from the program

### Alert Checklist

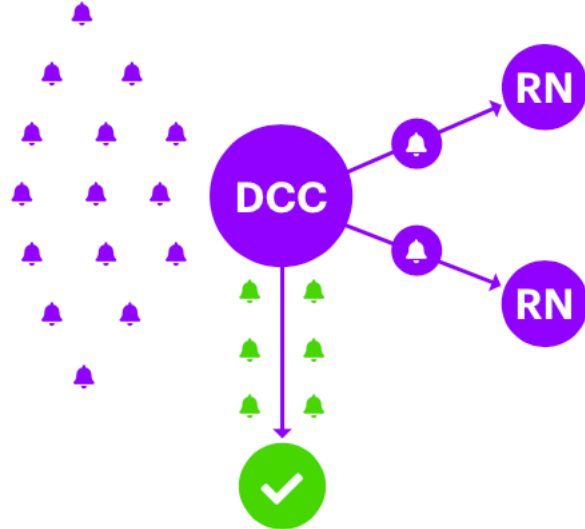
- Review the type of Alert and associated data
- Outreach the individual by phone within the same or next business day
- Provide interventions as identified in the Alert Workflows
- Reply to the DCC with highlighted Alert Resolution items so they can be entered into the system

"Automated Messages" program moving forward to alleviate any confusion about naming.



## Key Drivers of High Enrollment & Retention:

Mental Health Center of Denver-friendly workflow via white-labeled subclinical “Virtual Care Navigation”



- As Mental Health Center of Denver People We Serve (PWS) generate alerts, CareSignal-employed “DCC” Digital Care Coordinators (a.k.a. Virtual Care Navigators) promptly reach out to each PWS.
- Many alerts are resolved with no escalation
- Alerts that require a clinical level of care are escalated to Mental Health Center of Denver teammates
- People We Serve experience seamless, high-touch care; Mental Health Center of Denver teammates only interact at top-of-license, and as a result scales virtual care to larger populations than previously possible

# Real-world Impact: Activation & Engagement

## Depression

### Automated Touches

**15,507**

Texts

**13,092**

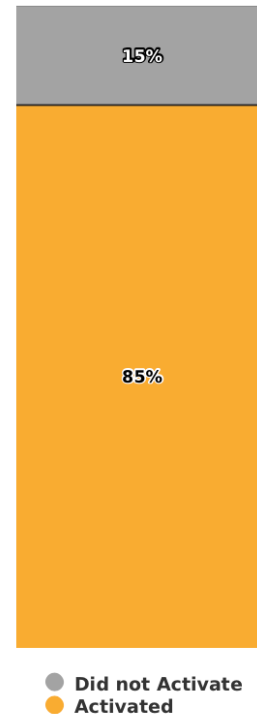
Calls

**2,415**

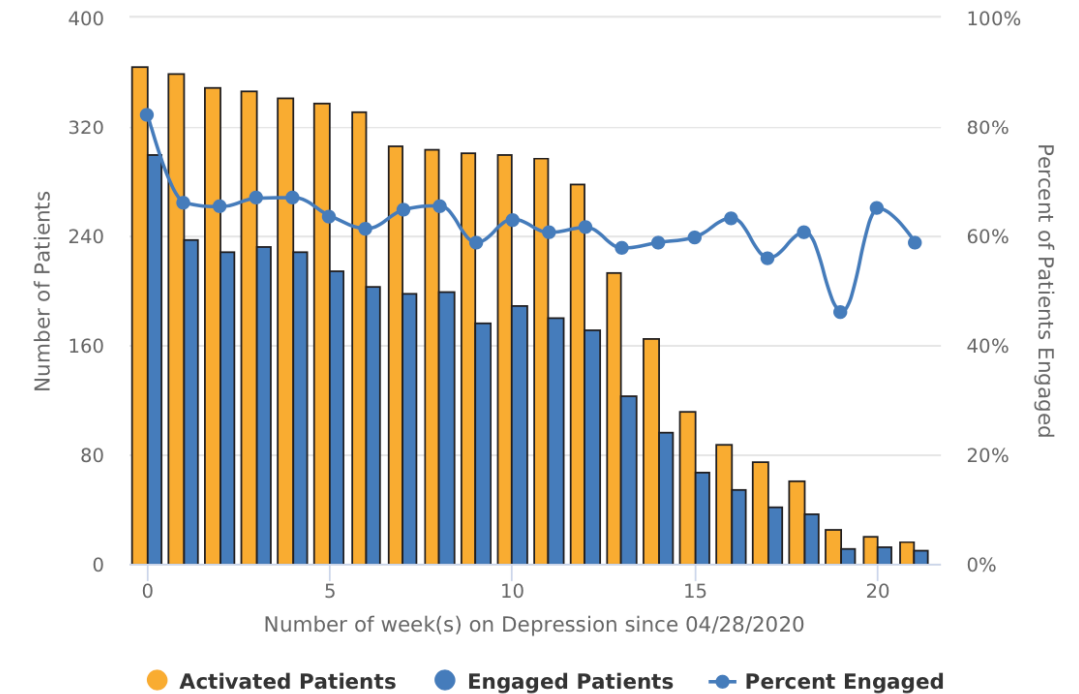
Alerts Triggered

**646**

### Activation



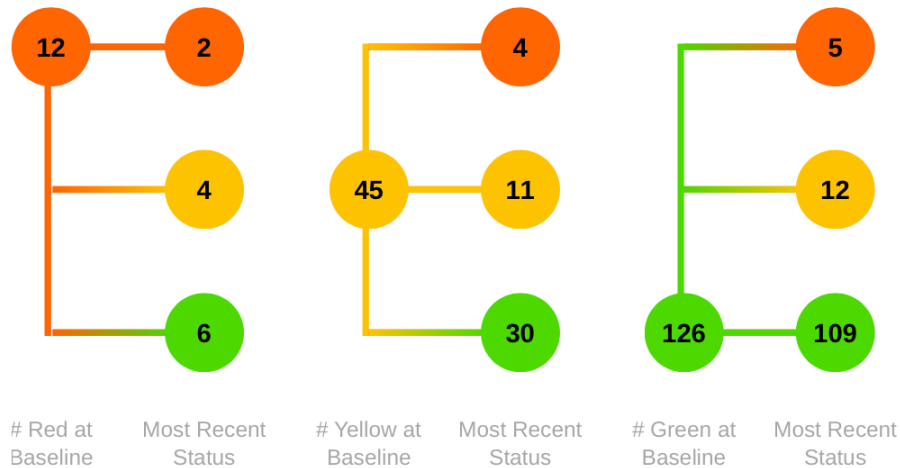
### Engagement



# Real-world Impact: Clinical & Risk Improvements

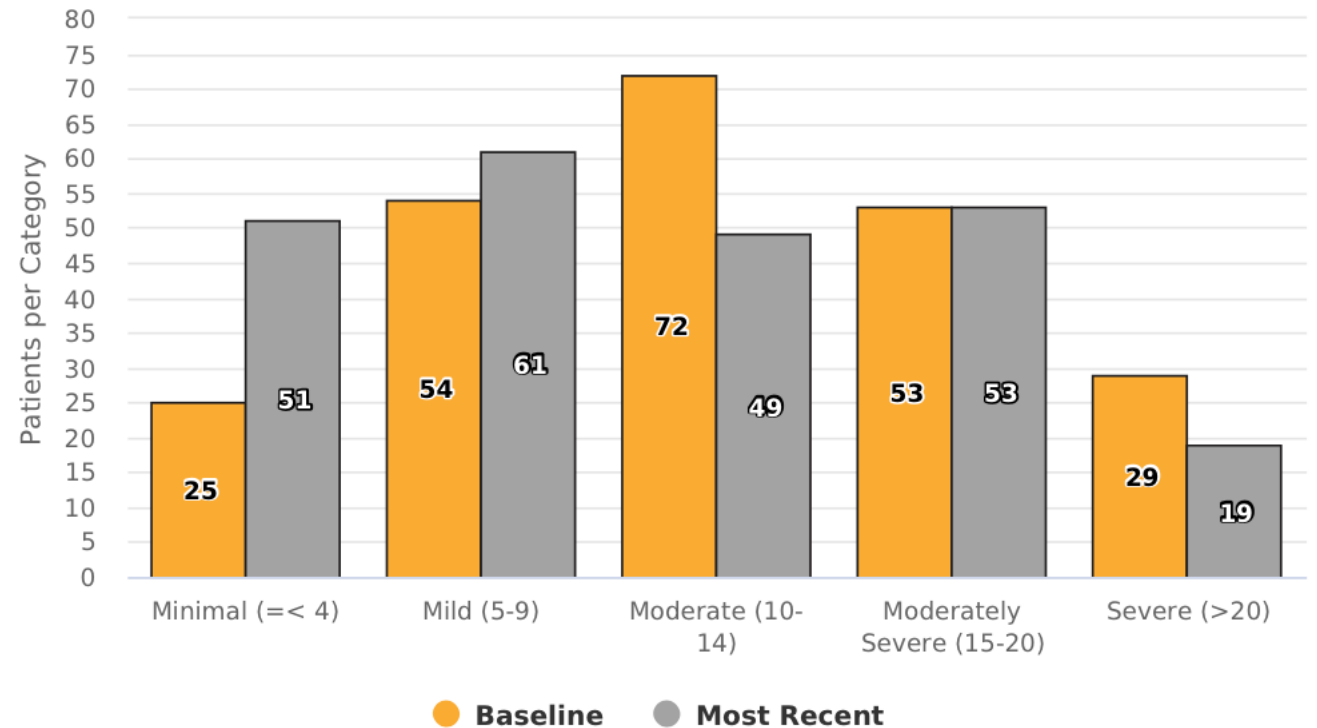
## Depression

### Depression Status Changes



### PHQ-9 Stratification for Depressive Disorder

Starting Score vs End Score



# Real-world Impact: Clinical & Risk Improvements

## Substance Use

### Automated Touches

**3,418**

Texts

**2,969**

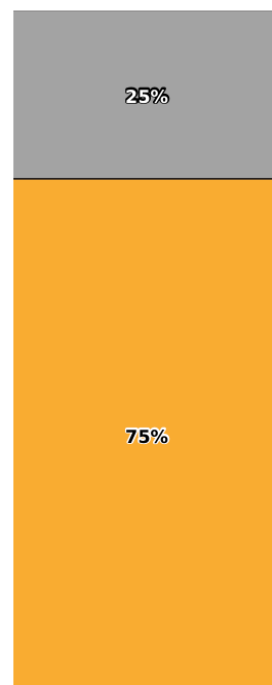
Calls

**449**

Alerts Triggered

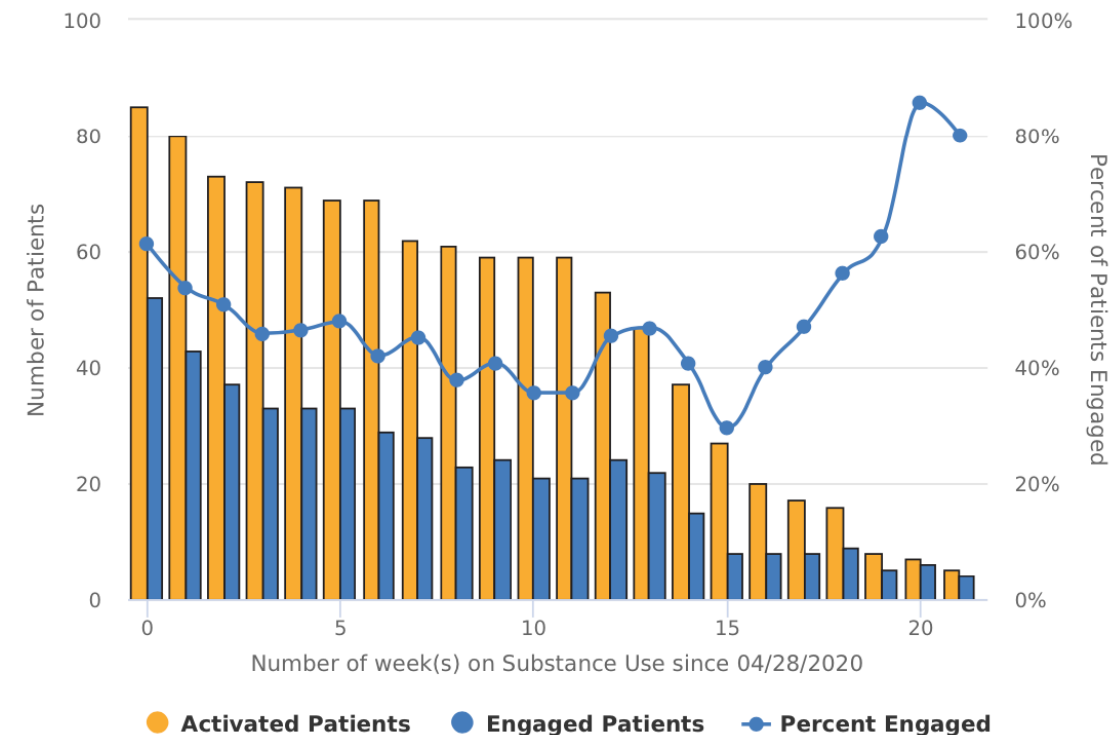
**177**

### Activation



● Did not Activate  
● Activated

### Engagement



# Real-world Impact: PWS Satisfaction/Experience

That they make me refocus my day....and regain my mood and relationship for that day. Regroup myself and deal with my issues at that moment. -Patient #94892

Comforting to know someone out there cares enough to check up on me, without knowing me. Non Judgemental - Patient #94872

I like the sense of security the program provides. Reminds me to use my skills. -Patient #99638

I love this program, giving myself a chance to reflect on my emotions twice a week has been very beneficial working with my doctor. Including the crisis line number for emergencies may be helpful. -Patient #97073

I know if I really am having a rough day if that text comes when I feel that way someone knows and will reach out to me. -Patient #95961

I like that they are little reminders to stop and think about how i am feeling during the day -Patient #95299

It let's me know someone is listening to me and checking in on me because I matter. -Patient #97448

They help me with my mood and makes me realize that sometimes I could feel better than I do -Patient #94884  
I think they have come in handy for my iwn use too. They allow me to stop and think about how I feel. -Patient #94886

# Real-world Impact: PWS Satisfaction/Experience

**Improved Communication** · These messages have improved your communication with \_\_\_\_\_.

N = 290

Average = 7.13



1 - Strongly Disagree

Strongly Agree - 9

**Care Satisfaction** · You are getting the best possible care from \_\_\_\_\_.

N = 298

Average = 7.15

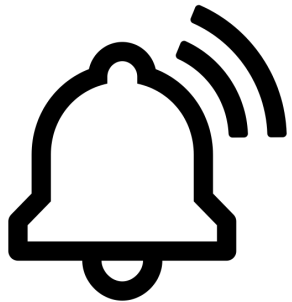
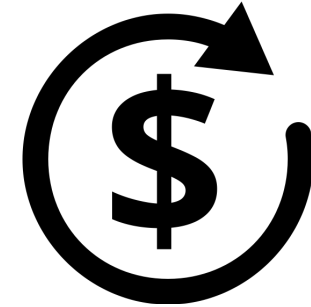


1 - Strongly Disagree

Strongly Agree - 9

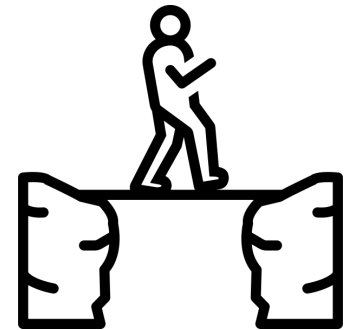
# Key Learnings

The future is virtual, and incentive structures are finally catching up to make that future financially sustainable



Alert fatigue, even with Virtual Care Navigation to augment existing staff, is an easily overlooked real-world challenge

The “digital divide” for low-socioeconomic status individuals is more detrimental than ever before; technology solutions must account for this potential Achilles heel







CareSignal®

Deviceless Remote Patient Monitoring



Mental Health  
Center of Denver

## How Deviceless Remote Patient Monitoring Scales Virtual Care to Improve Chronic and Behavioral Health Outcomes

Wes Williams, PhD | VP & CIO, Mental Health Center of Denver

Blake Marggraff | CEO & Founder, CareSignal | [blake@caresignal.health](mailto:blake@caresignal.health)

# CareSignal Portfolio

## Chronic Condition Management

- Diabetes
- Hypertension
- Heart Failure
- COPD
- Asthma
- Dialysis
- Epilepsy

## Behavioral Health & Substance Use

- Depression
- Substance Use
- Opioid Management
- Mood
- Caregiver support
- Basic Needs / SDOH

## Maternal Health

- Breastfeeding
- Breastmilk
- Postpartum depression

## Discharge Support

- Appointment Reminder
- Post Discharge
- Referral
- Surgery
- Pneumonia

## Screening Reminders

- Colorectal cancer
- Breast cancer
- Cervical cancer
- Diabetes ophthalmology
- Chlamydia screening
- Lead screening

## Complementary Support

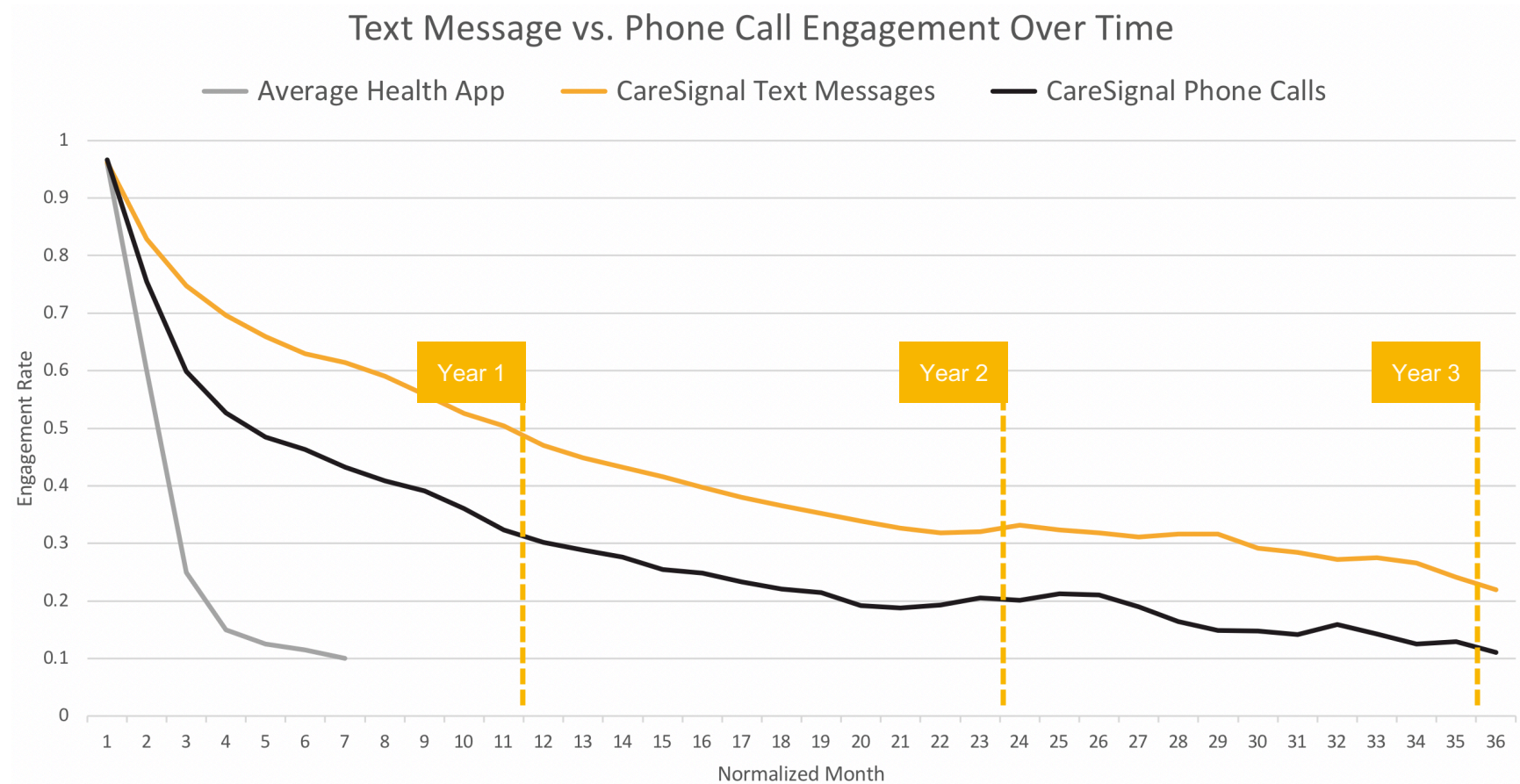
- Fall Risk
- Wellness
- Medication Tracking
- Medication Adherence

# CareSignal: 6x-12x Better Engagement Duration

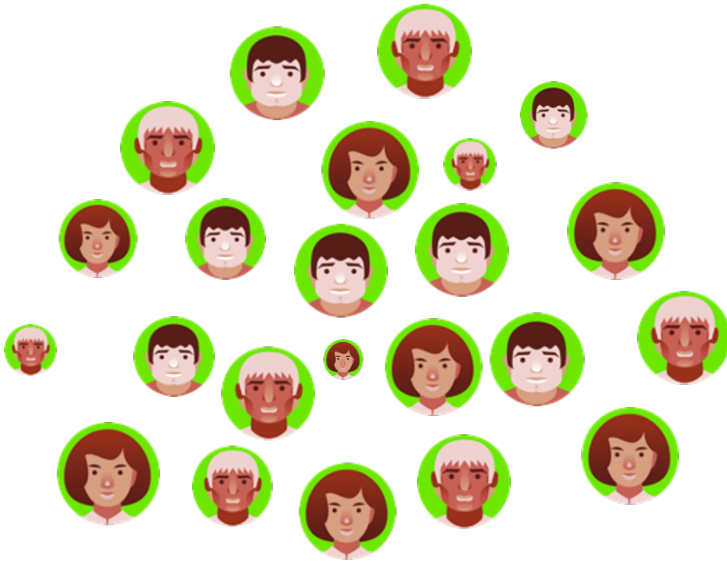
**Patient Engagement**

**1 in 2**

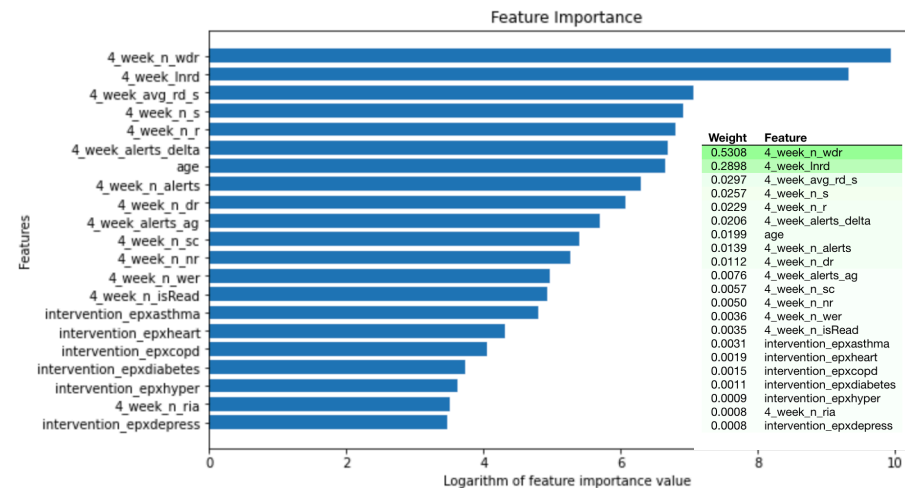
Patients stay engaged 12 months or longer



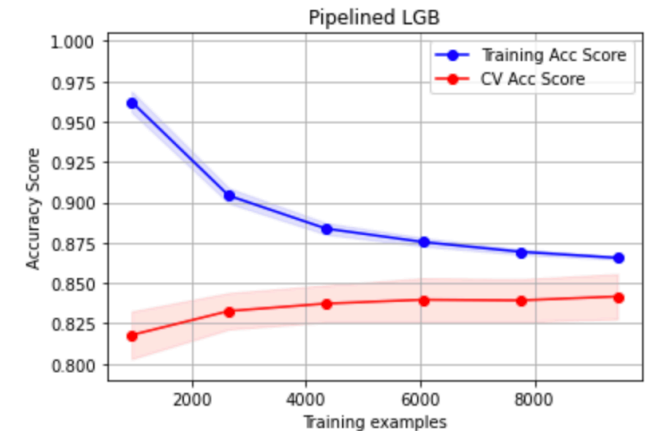
# CareSignal AI: Preventative Re-Engagement



Over 16,000 patient  
years of data & metadata



Seven ML models &  
more than 80 features

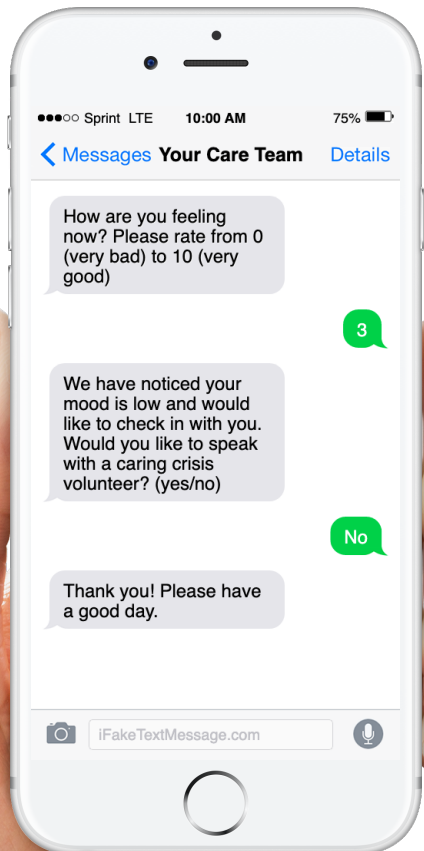


High Accuracy  
(precision & recall  
83% - 90%)

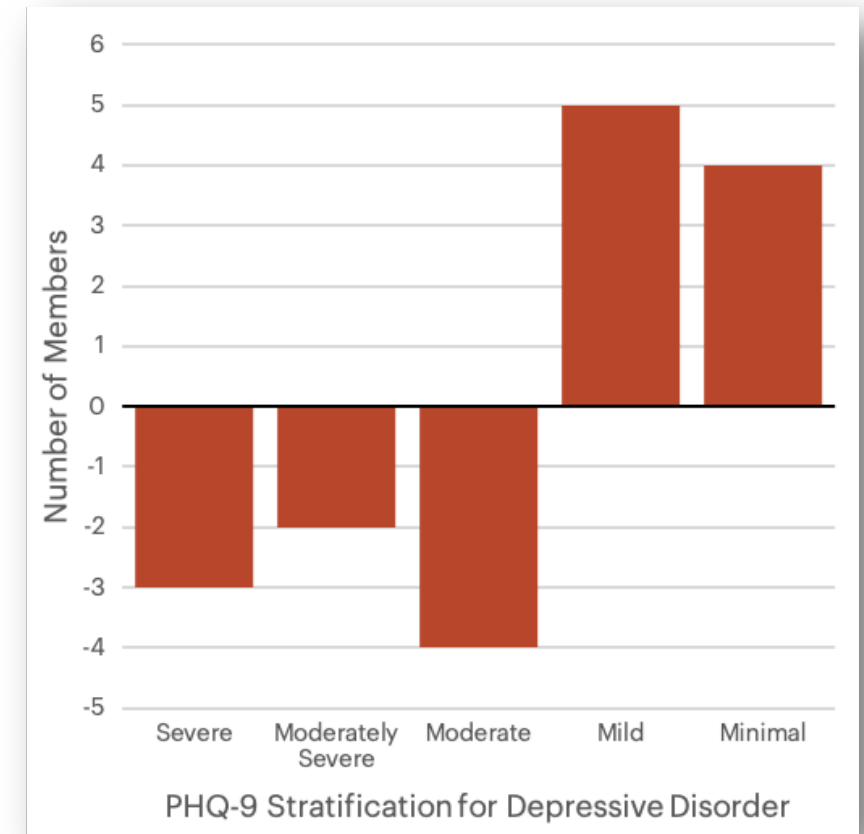
# Behavioral Health

- Partner Case Study: 28% reduction in PHQ-9

## Patient Generated Health Data



- **Depression**
  - Mood & PHQ-9
- **Substance use**
  - Tracking uses & triggers to use
- **SDOH**
  - Housing, food, employment, insurance, interpersonal violence
- **Anxiety**
  - GAD-7

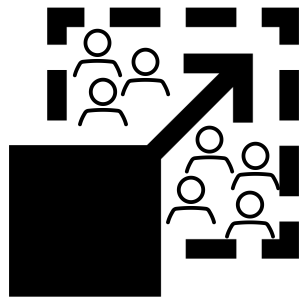
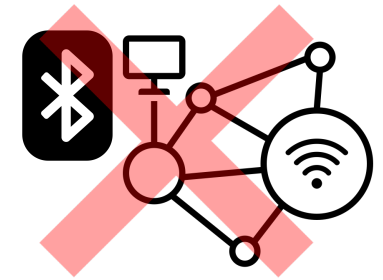


# What is *Deviceless* RPM?



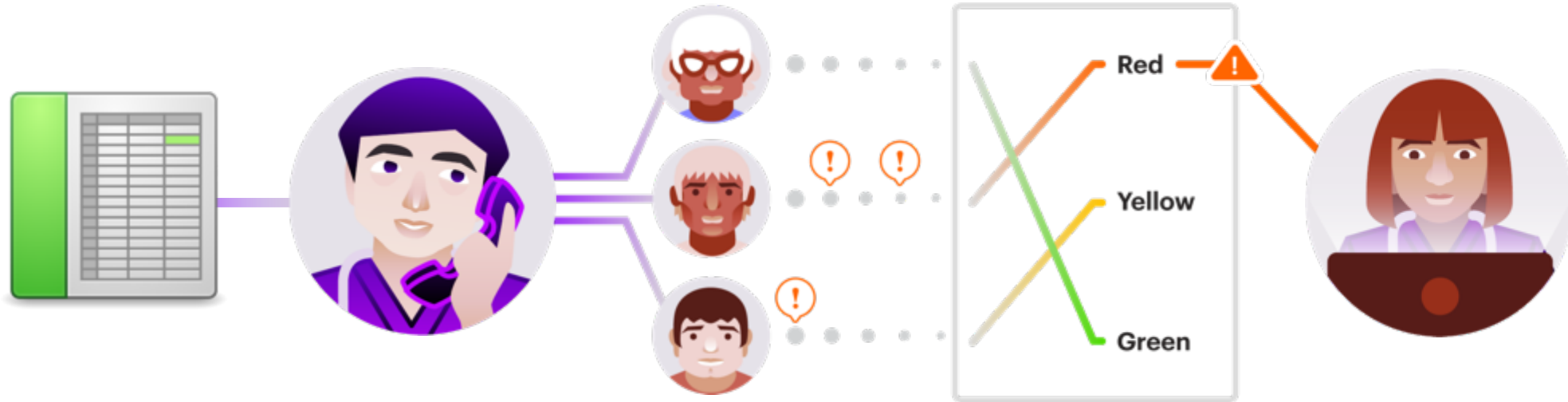
Functions solely with the technology that patients or concerned caregivers already own and understand: cell or landline phones.

Does *not* use or require costly Bluetooth kits that require ongoing IT support and expensive deployment management.



Allows risk-bearing organizations to deploy clinically actionable monitoring across tens of thousands of eligible patients, instead of just a few hundred.

# TCPA and HIPAA Compliance in Context



## Partner List Provided

- PHI encrypted in transit and at rest
- HIPAA-trained, SOC 2-verified staff, technology, & protocols

## Enrollment

- TCPA-compliant outreach (limited to three attempts)
- HIPAA-compliant identity confirmation
- HIPAA & TCPA-compliant consent capture (all recorded)
- Patient educated & reminded to keep PHI & phone access private

## Patient Interaction

- HIPAA & TCPA-compliant duplicate consent capture (stored for audit)
- Reminder of purpose & ability to opt out & revoke consent
- Limited PHI (e.g. name, phone number, and single question about symptoms)

## Messaging & Stratification

- HIPAA-compliant (safe harbor) encrypted data transmission, storage, & access
- TCPA enforcement: patients cannot receive automated messages without confirmation

## Care Management

- PHI encrypted in transit and at rest between CareSignal and Partner team