# Poll

**Do you currently include Remote Patient Monitoring in your practice?**

a) Yes
b) No
c) No but we are planning for it
d) I’m not sure

UCONN HEALTH

# Delivering Care Anywhere:

## Improving Health Outcomes Through Remote Patient Monitoring

UCONN HEALTH

# This webinar is funded by grants from:



Neither Connecticut Office of Health Strategy nor Connie had undue influence on the content of this program.

UCONN HEALTH

# New CME Series – with CPE sought as appropriate

## Health Information Technology for Clinicians: How to Achieve Optimal Outcomes

Webinars and In-person events


Activity Director/Moderator: Thomas Agresta MD, MBI

Department of Family Medicine, Center for Quantitative Medicine

UConn Health


UCONN HEALTH

# Health Information Technology for Clinicians:
## How to Achieve Optimal Outcomes

### Sample Topics

- Medication Safety/ Reconciliation
- Health Data Analytics
- eCQMs (electronic clinical quality measures)
- Telehealth
- Precision Medicine
- Health Information Exchange
- Patient Consent models
- Public Health Informatics
- Patient-Generated Data

This series is funded by a grant from the Connecticut Office of Health Strategy and Connie, which did not influence the content of the program.

UCONN HEALTH

# Learning objectives

1. Define Remote Patient Monitoring (RPM) and discuss the benefits to patients and providers
2. Discuss how the collection and utilization of RPM data improves chronic condition management and health outcomes
3. Describe how to utilize health information technology to collect, exchange and analyze RPM data to support patient-centered care.
4. Identify challenges and best practices to implement and apply RPM to practice
5. Describe how CT providers are utilizing RPM to better aid underserved populations

UCONN HEALTH

# Housekeeping

All participant lines will be muted during the panel discussion

The panelist will address you questions during the Q/A session from the Q/A chat feature

If we are not able to address your question today, we will follow up with you directly using your registered email.

This session will be recorded and available for download along with the slides used today.

Instructions on how to access will be sent after the session to your registered email along with instructions to earn CME and CPE credit.

UCONN HEALTH

# Presenters

## Lyle Berkowitz, MD

**Clinical Associate Professor of Medicine**
**Feinberg School of Medicine,**
**Northwestern University**
**Founder Director**
**Szollosi Healthcare Innovation Program**
**at Northwestern Medicine**

## Richard Albrecht

**Executive Director of Telehealth**
**Community Health Network of**
**Connecticut Holdings, Inc.**

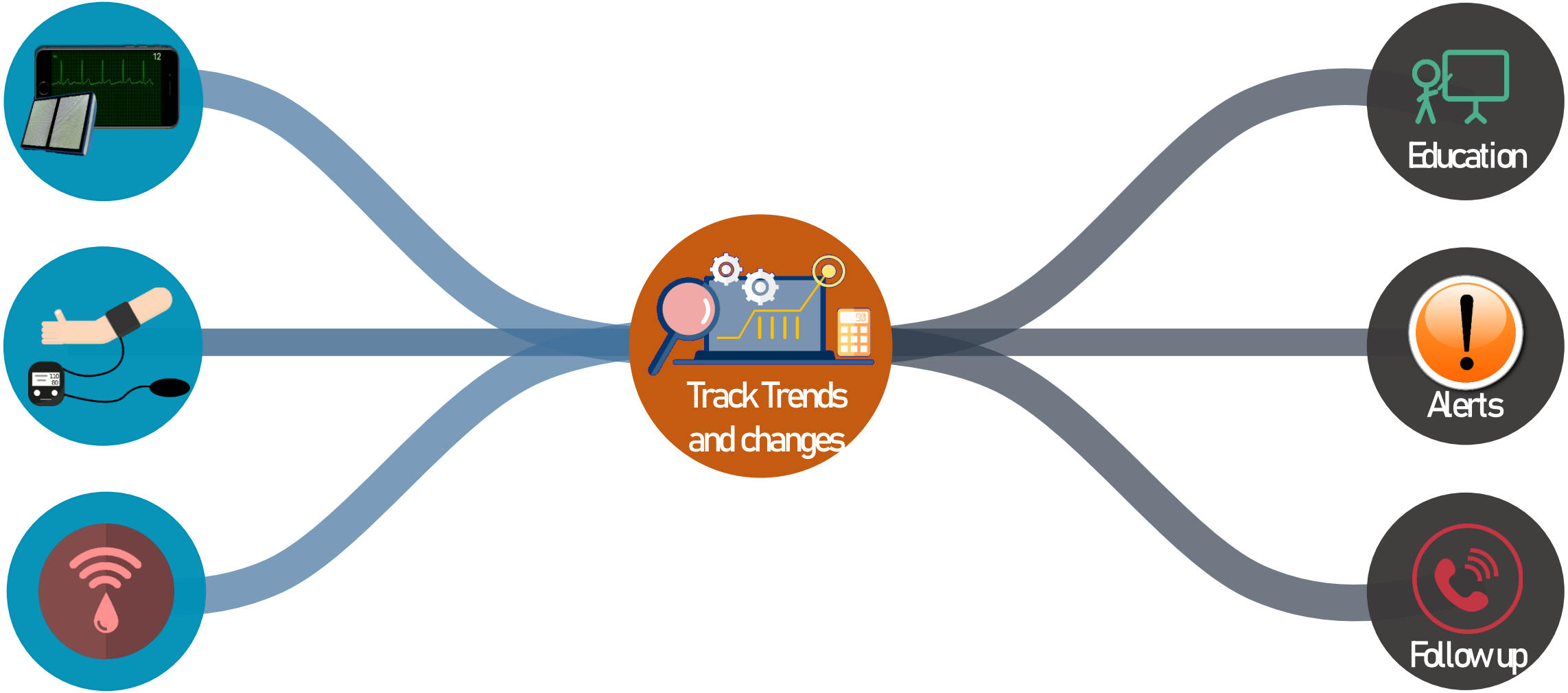
Disclosures: All presenters have reported they have no conflicts to disclose

UCONN HEALTH

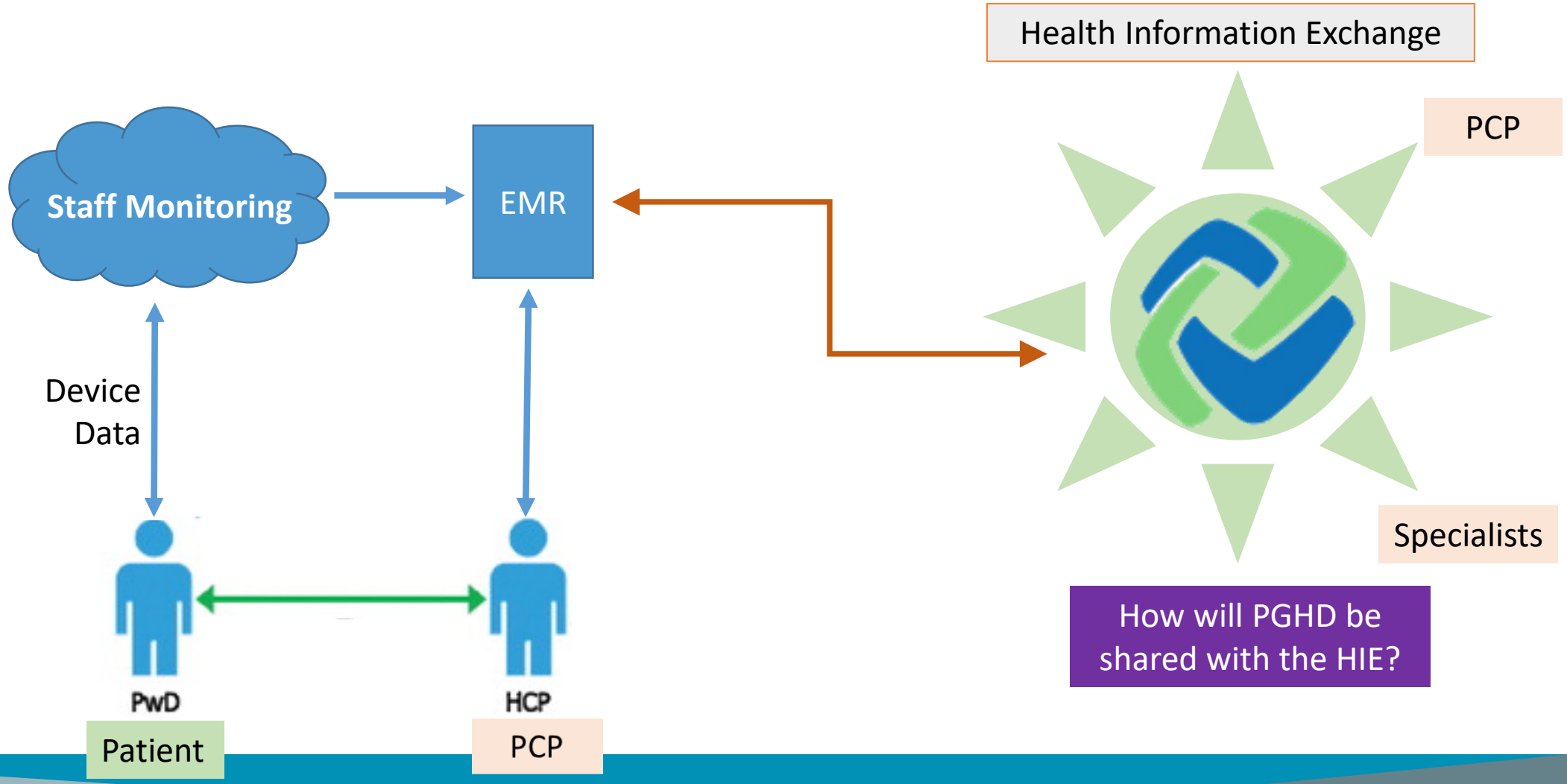
# What is Remote Patient Monitoring?

| CMS Requirements |
| --- |
| Device must meet FDAs definition of a medical device, does not need to be FDA cleared |
| Digital upload of patient data (i.e. no self-reporting) |
| Covers patients with acute and chronic conditions |
| Monitoring must occur over at least 16 days of a 30-day period |
| Qualified health care professional time in a calendar month requiring interactive communication |

# Remote Patient Monitoring

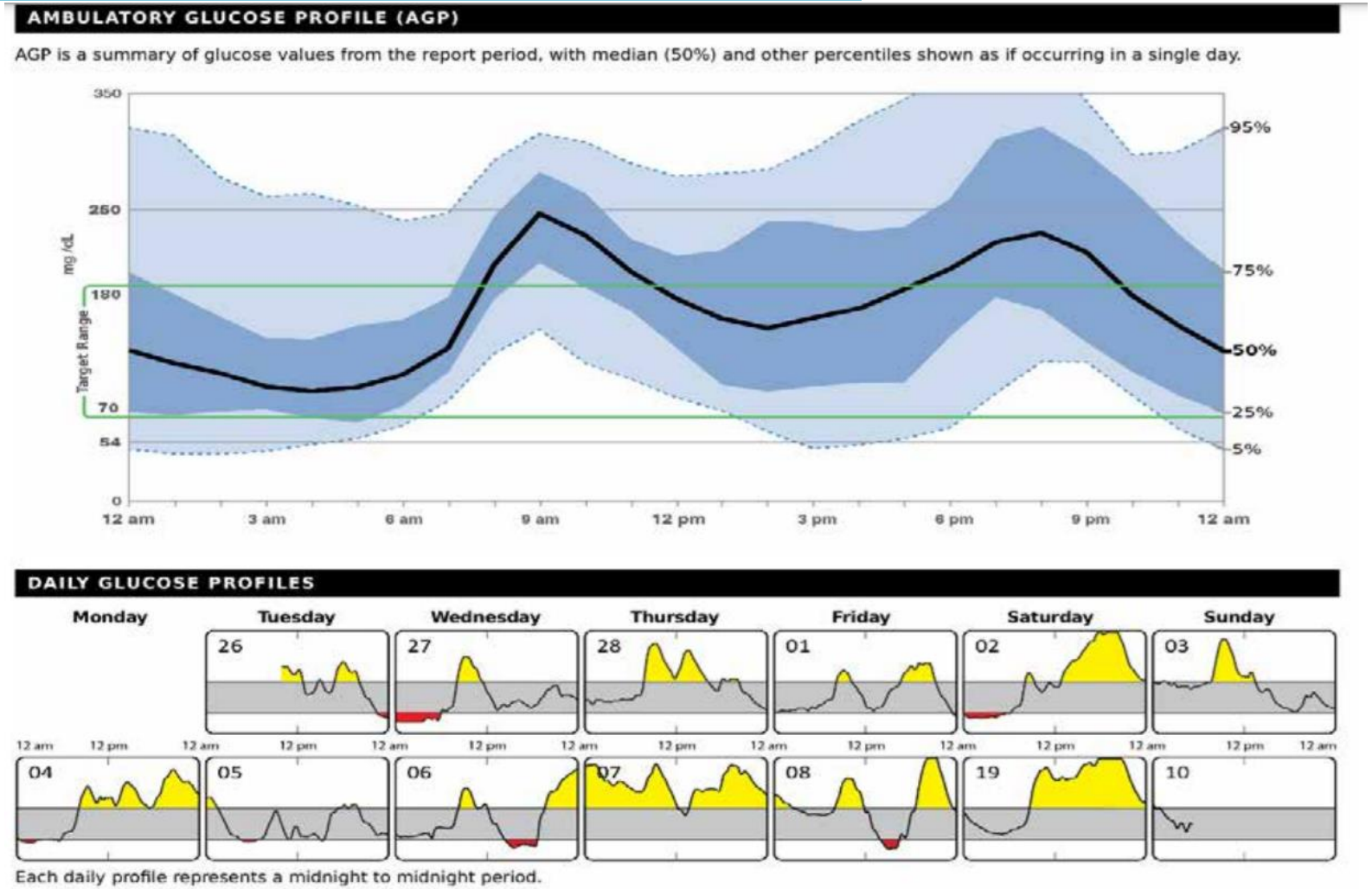


# Example Data Flow Diagram



# Staff View

- Data analyzed for trends
- Visual Reports
- Available in format and location that is appropriate
- Actionable clinical data




Association of Diabetes Care & Education Specialists. (2020) Professional Continuous Glucose Monitoring Implementation Playbook. https://www.diabeteseducator.org/docs/default-source/opencms_test/prof-cgm-playbook.pdf?sfvrsn=2

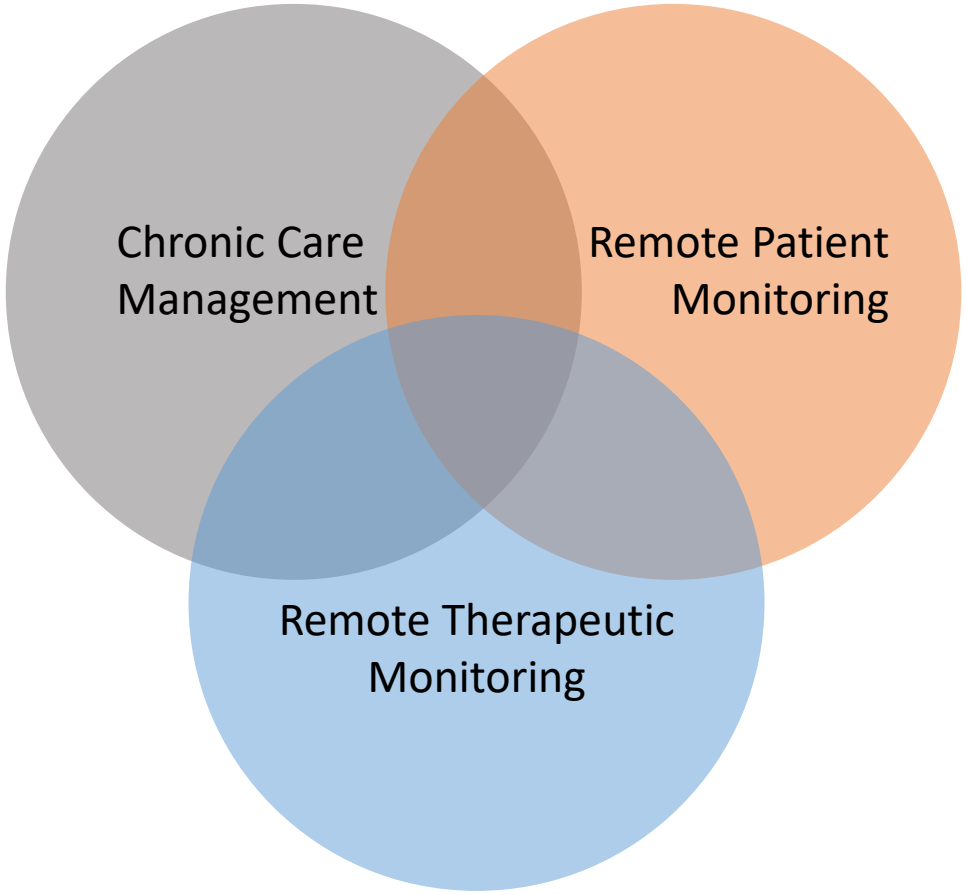
# Right Work, Right Time, Right Person

Medical Assistant

PharmD, RN, LSW etc

Physician Focus

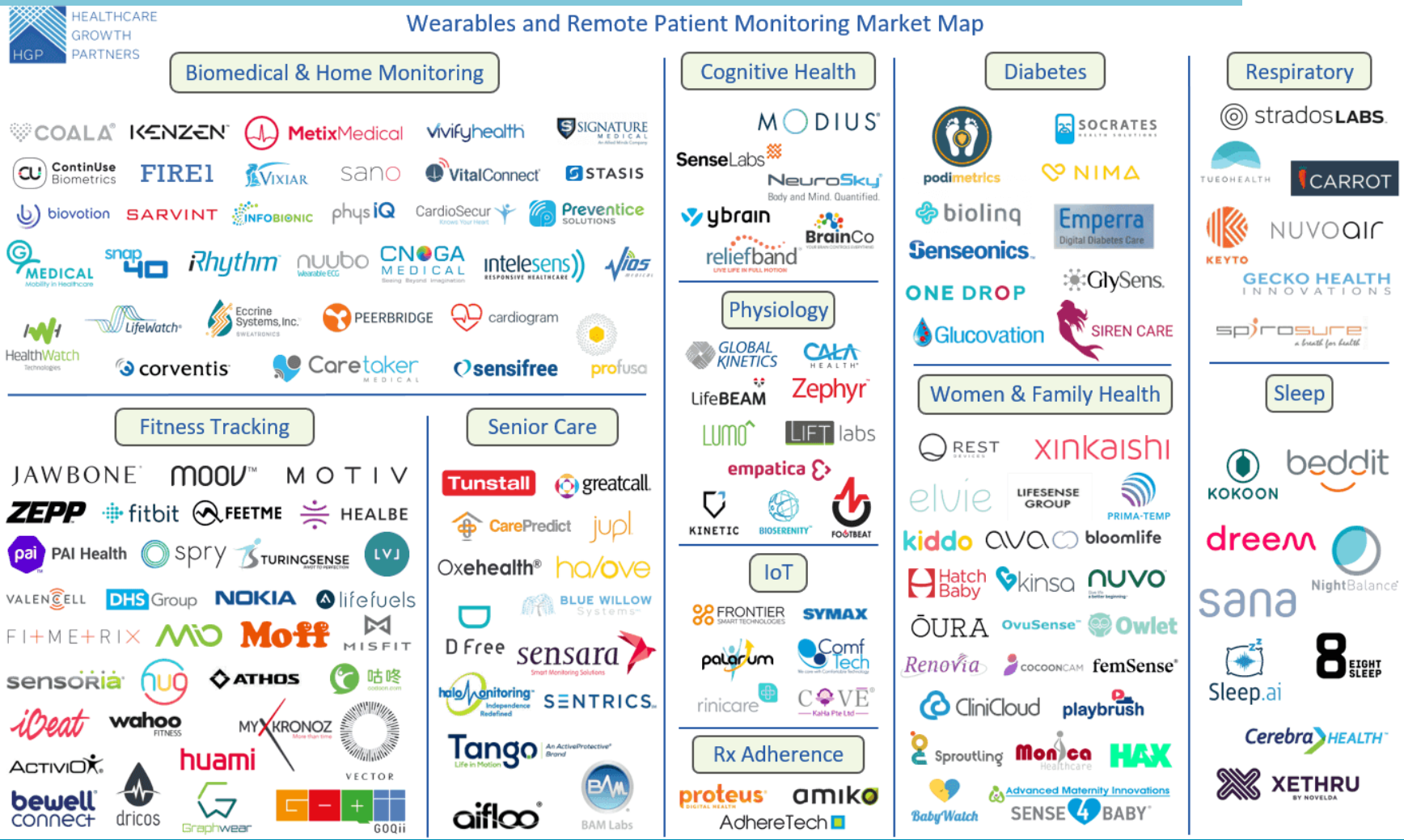
# CMS – Has overlapping programs



# Reimbursement – CPT Codes Billed on a Monthly Basis

| 99453 | 99454 | 99091 | 99457 | 99458 |
|---|---|---|---|---|
| *set-up and patient education* | *device(s) supply with daily recording(s) or programmed alert(s) transmission* | *Collection and interpretation of physiologic data* | *interactive communication with the patient/ caregiver* | *Additional interactive communication with the patient/ caregiver* |
|  |  |  |   |  |
| $19.43 | $64.15 | $58.38 | $51.54 | $42.22 |

# Companies


HEALTHCARE GROWTH PARTNERS
HGP
Wearables and Remote Patient Monitoring Market Map
Biomedical & Home Monitoring
COALA
KENZEN
MetixMedical
vivifyhealth
SIGNATURE MEDICAL
ContinUse Biometrics
FIRE1
VIXIAR
sano
VitalConnect
STASIS
biovotion
SARVINT
INFOBIONIC
physiQ
CardioSecur
Preventice SOLUTIONS
MEDICAL
snap 40
Rhythm
nuubo
CNOGA MEDICAL
intelesens
Vios
HealthWatch
LifeWatch
Eccrine Systems, Inc.
PEERBRIDGE
cardiogram
corventis
Caretaker MEDICAL
sensifree
profusa
Fitness Tracking
JAWBONE
MOOV
MOTIV
ZEPP
fitbit
FEETME
HEALBE
PAI Health
spry
TURINGSENSE
LVJ
VALENCELL
DHS Group
NOKIA
lifefuels
FITMETRIX
MIO
Moff
MISFIT
sensoria
nuo
ATHOS
咕咚
iBeat
wahoo FITNESS
MYKRONOZ
VECTOR
ACTIVIO
huami
bewell connect
dricos
Graphwear
GOQii
Senior Care
Tunstall
greatcall
CarePredict
jupl
Oxehealth
hoove
BLUE WILLOW
D Free
sensara
haloMonitoring
SENTRICS
Tango
aifloo
BAM Labs
Cognitive Health
MODIUS
SenseLabs
NeuroSky
ybrain
BrainCo
reliefband
Physiology
GLOBAL KINETICS
CALA HEALTH
LifeBEAM
Zephyr
LUMO
LIFT labs
empatica
KINETIC
BIOSERENITY
FOOTBEAT
IoT
FRONTIER SMART TECHNOLOGIES
SYMAX
palarum
Comf Tech
rinicare
COVE
Rx Adherence
proteus
amiko
AdhereTech
Diabetes
podimetrics
SOCRATES
NIMA
bioliq
Emperra Digital Diabetes Care
Senseonics
GlySens
ONE DROP
Glucovation
SIREN CARE
Women & Family Health
REST
xinkaishi
elvie
LIFESENSE GROUP
PRIMA-TEMP
kiddo
ava
bloomlife
Hatch Baby
kinsa
nuvo
ŌURA
OvuSense
Owlet
Renovia
COCOONCAM
femSense
CliniCloud
playbrush
Sproutling
Monica Healthcare
HAX
BabyWatch
Advanced Maternity Innovations
SENSE4BABY
Respiratory
stradosLABS
TUEOHEALTH
CARROT
KEYTO
NUVOair
GECKO HEALTH INNOVATIONS
spirosure
Sleep
KOKOON
beddit
dreem
NightBalance
sana
Sleep.ai
EIGHT SLEEP
Cerebra HEALTH
XETHRU BY NOVELDA

# Remote Monitoring Challenges

Device Options
Internet Access
Patient Skill

Information Display
Alarm Triggers
Workflow design
ROI Model

Involvement Third Party
Data Validity
Data Provenance
Data Volume
Privacy / Security


Conceptualizing a Data Infrastructure for the Capture, Use and Sharing of Patient Generated Health Data in Care Delivery and Research https://www.healthit.gov/sites/default/files/onc_pghd_final_white_paper.pdf

# Cost/Benefit

*New Revenue*

- RPM Payments

*Also can*

- Free up MD time for other reimbursed patient care

**Fee-for-Service**

**Value-based**

*Shared Savings & Quality Revenue*

- Lower Risk of Readmissions and post-discharge utilizations
- Improve payer quality scores
- Proactive and preventative functionalities
- Opportunities to improve patient satisfaction

# Poll

**What do you perceive as the biggest benefit of remote patient monitoring for patients and/or providers?**

a) Decreased ER/hospital admissions and visits
b) Better patient medication compliance
c) Increase in care gap closure
d) Improved provider reimbursement

UCONN HEALTH

# Remote Patient Monitoring – Lessons Learned
# A Community Health Centers Experience in Connecticut

Devices measure health data

Glucose Monitor

Blood Pressure Monitor

Weight Scale

Health data is securely transferred

Health trends are displayed on a user-friendly dashboard

Patients and family learn from seeing health trends

Nurses monitor health data and trends

Alerts are escalated to primary care provider

Patient behavior is modified through teachable moments

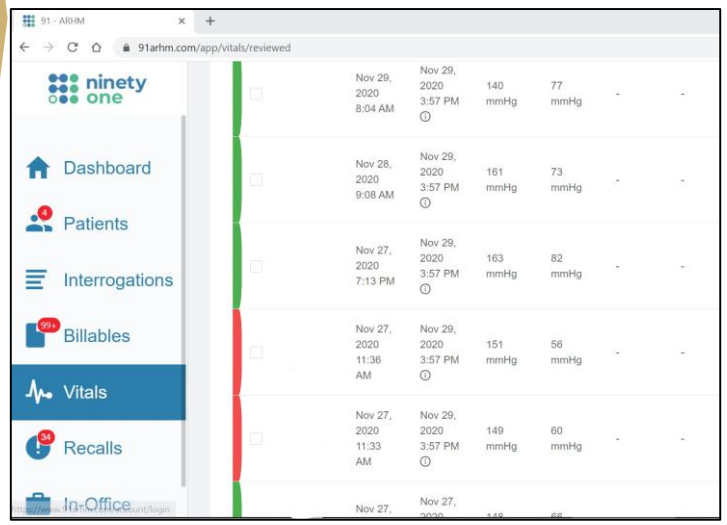
*Enhances care. Changes behaviors. Lowers costs.*

# Our Process

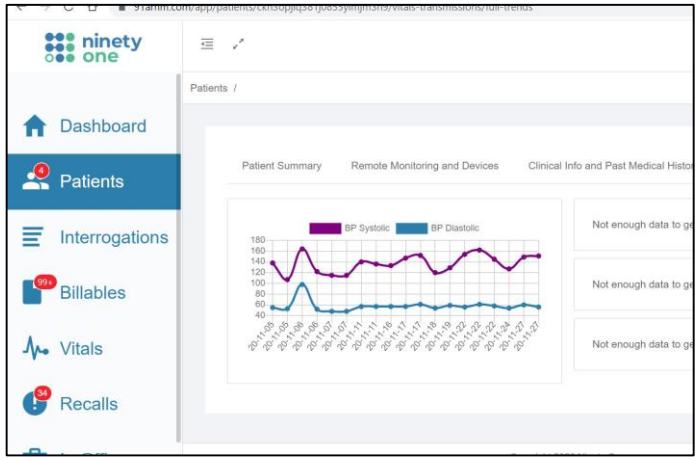
Patient checks BP


Reading transmitted via Bluetooth to hub

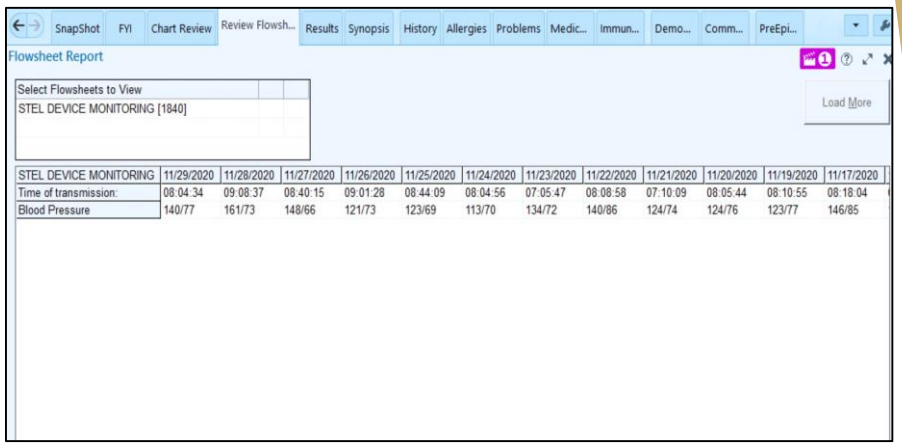
Reading transmitted from hub to portal to EMR




Data in portal; red = alert




Monthly trend view in portal




Flowsheet view in EPIC EMR

# What Patients See

## RPM Made Simple for Patients

No need for:

Wi-Fi, smartphones, apps

Patient Setup Instructions:

Step 1: Plug in Hub

Step 2: Measure Vitals

Instant transmission:

< 5 seconds

# What patients don’t see


Patients use devices as they normally would

Stel Vitals Hub

The hub blinks blue when a measurement is received

Cellular

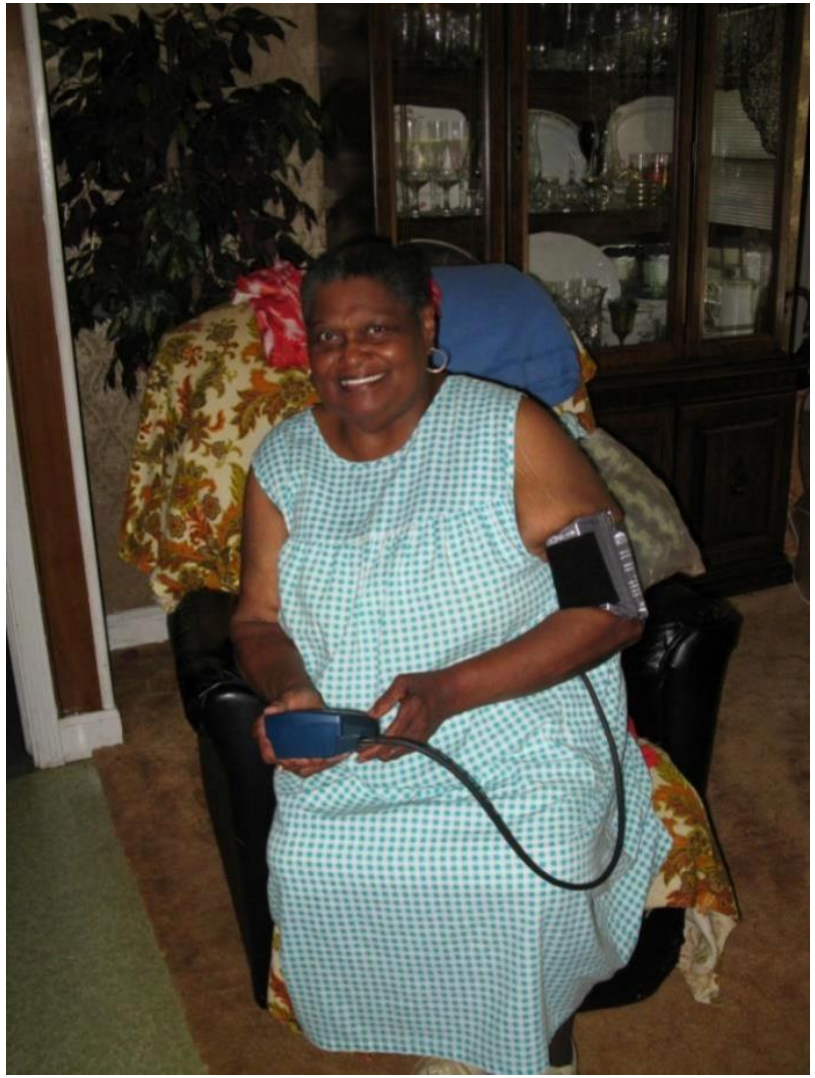
2G, 3G, 4G

Hub supports multiple bands to ensure connectivity

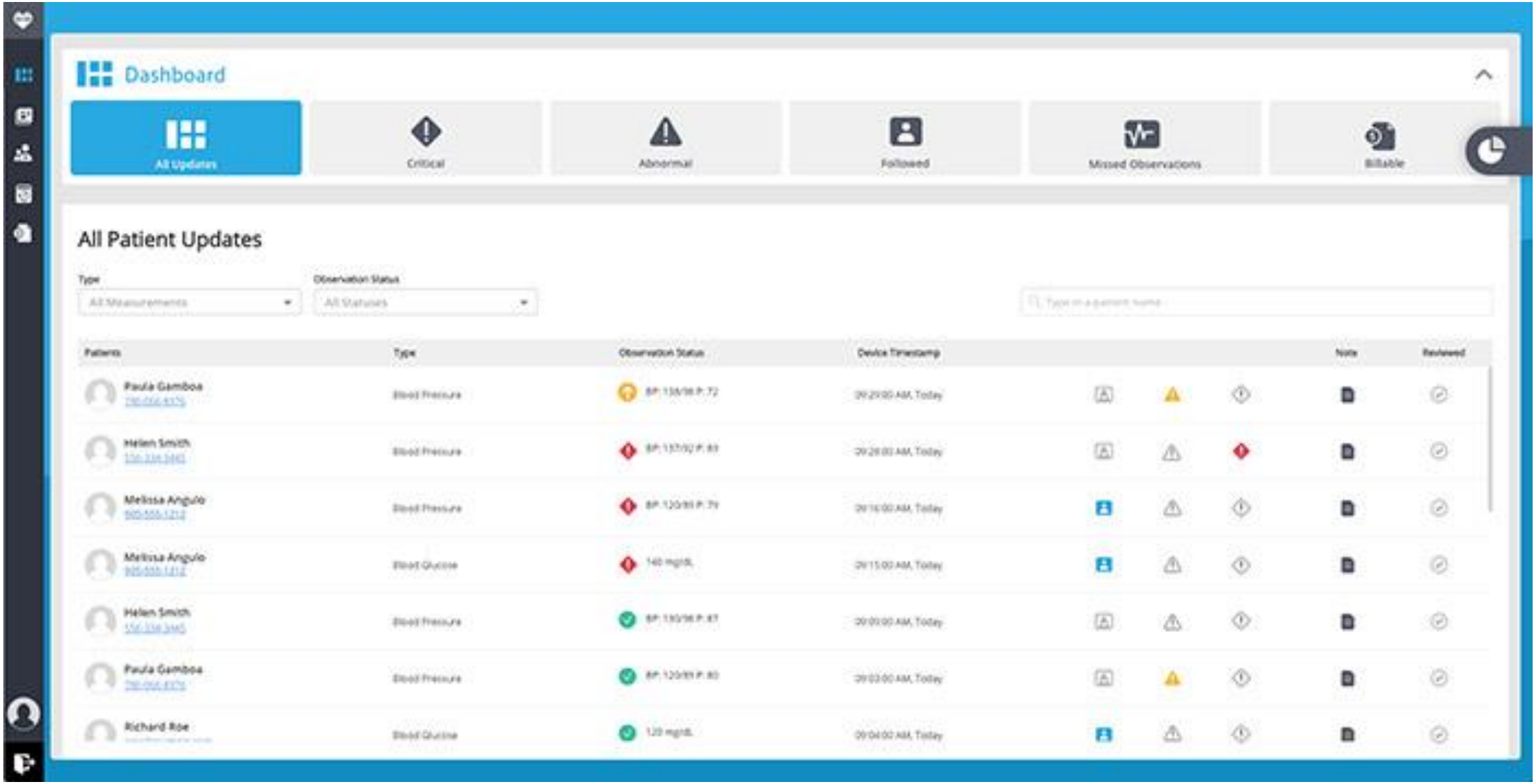
Epic Allscripts Cerner

Data goes to where you expect it. Stel works within your existing workflows

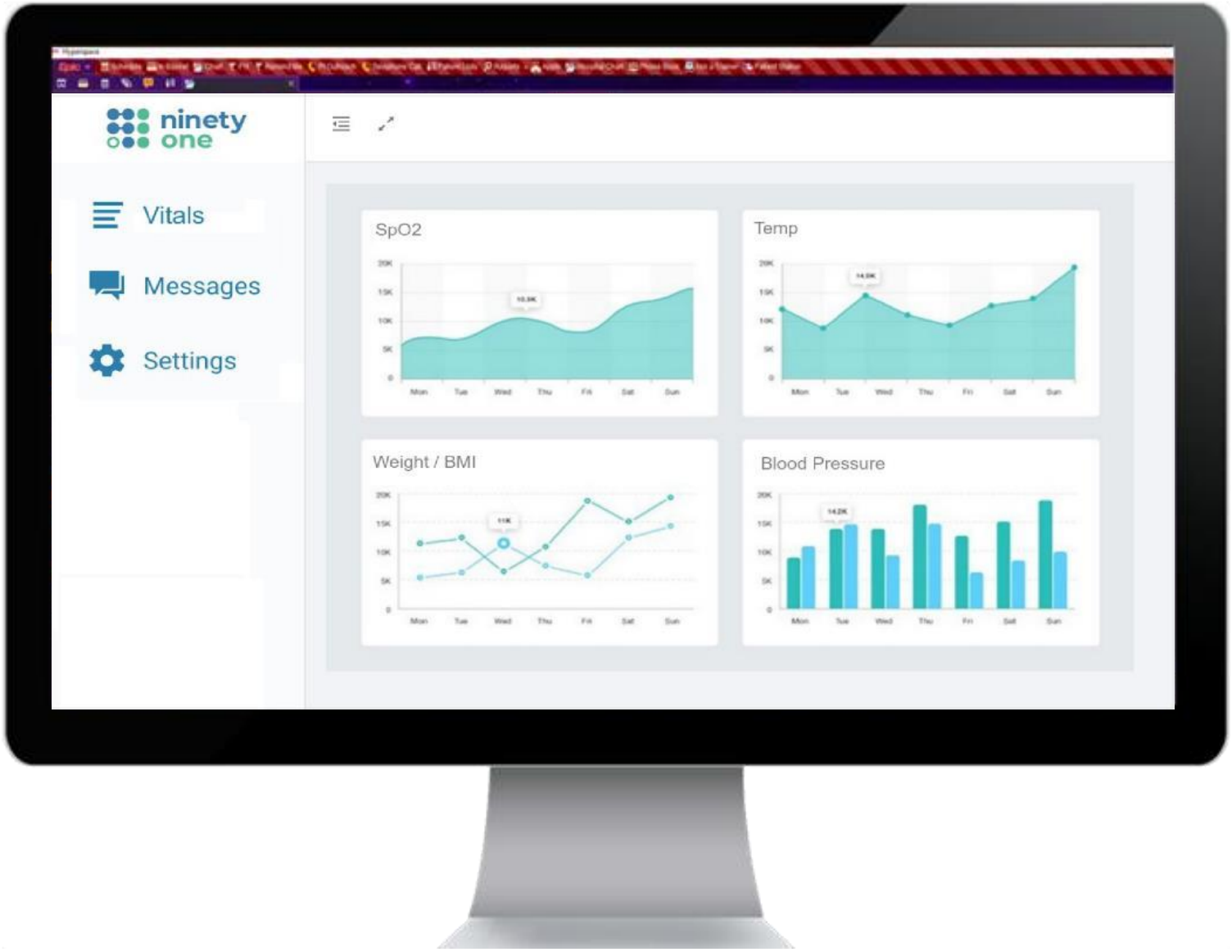
# Cellular Enabled Devices Can Send Biometric Readings Directly to Clinician Dashboard



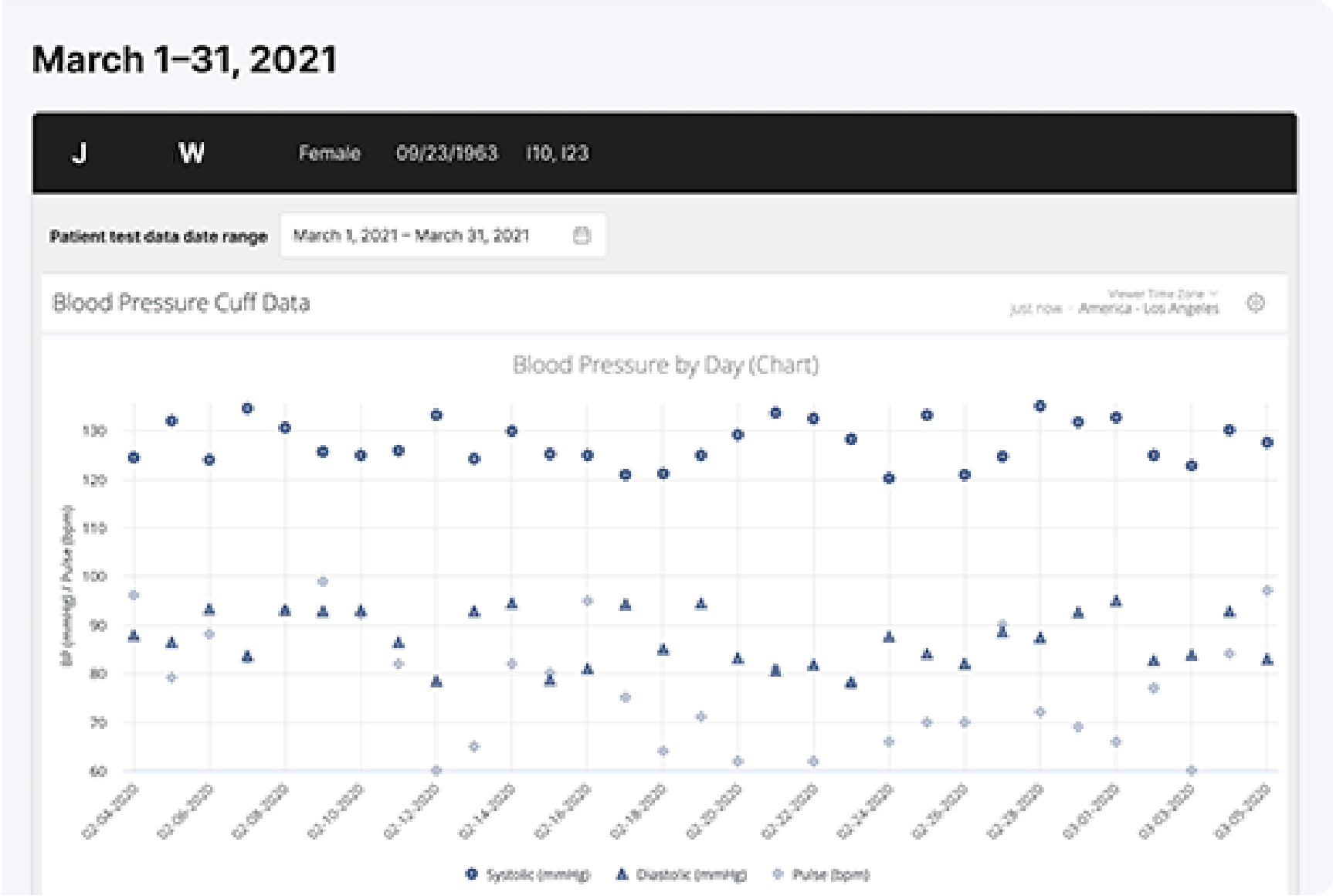
# RPM Patient Data Dashboard Example



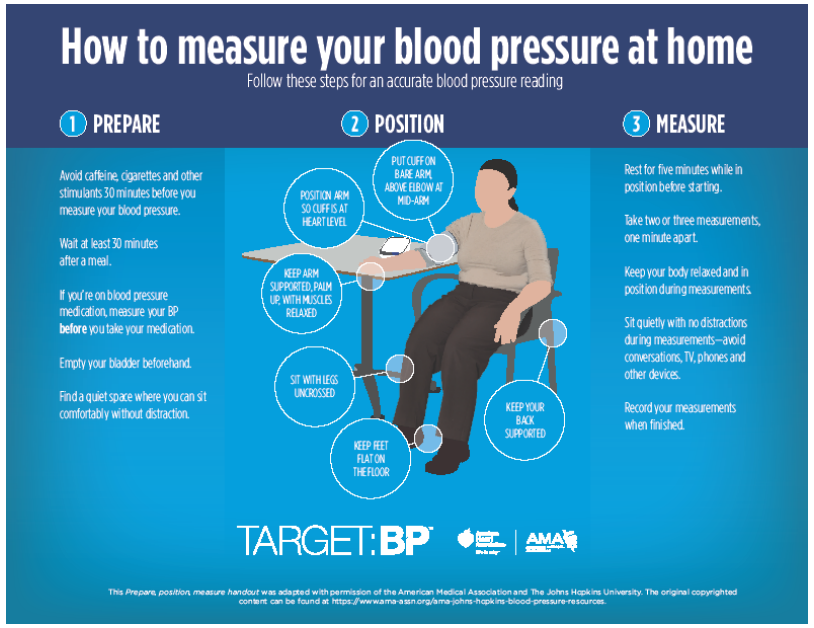
# Example of Trended RPM Patient Data in Portal



# RPM Patient Data Drill-Down Example

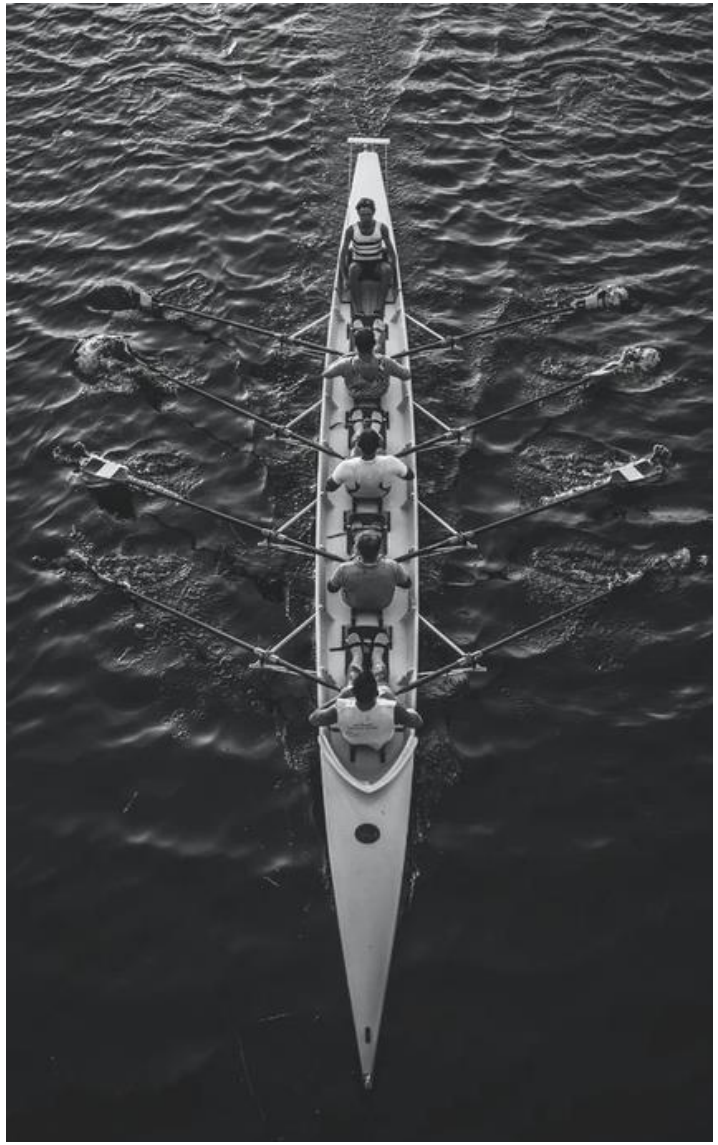


# Lessons Learned: For the Patient




1. Simple Technology
2. Thorough Training
3. Pro-Active Support

# Lessons Learned: For the Clinical Teams



1. Understand the “Why”
2. Utilize Smart Clinical Workflows

# Some Early Observations

## Outcomes (through week 4 of pilot)

78yo M with HTN, hx of CVA, hx of MI. With just 2 weeks of monitoring, identified to have persistent severely uncontrolled HTN. Scheduled for telemed visit with clinician and medications changed.

In a typical clinic setting, we would not have seen him back for 6+ wks, likely longer given the pandemic.

**Mr. CB – early intervention**

76yo M with HTN, hx of CKD, hx of MI. On 3 medications for HTN. BP remained significantly above goal, consistently for the first 2 weeks of monitoring. We were able to recommend labwork which showed worsening renal function and prompted a referral to nephrology.

**Mr. DD – early intervention and referral**

A couple of patients noted to have BP readings below goal, consistently. With continued monitoring, may be able to discontinue some medications

**Reduce polypharmacy, improve patient safety**

# Poll

**What ways could the collection of RPM data improve patient-centered care in your practice?**

a) Increased connection between the provider team and patient

b) Monitor trends in the patient's health

c) Proactively address any concerns before they develop into more serious health problems

d) Determine medication effects and modify if needed

UCONN HEALTH

# RPM and COVID - NYP and Hypoxia Monitoring

- Existing RPM program for Heart Failure, Hypertension
- Added Oxygen saturation and or O2 concentrator (o2 sat below 92%)

**2000**
Post ED patients

**3600**
Post Hospital &
At-risk ambulatory
Patients

**14 days**
Daily Calls
Med Students, PAs-
Sxs, temp. $O_2$ sat

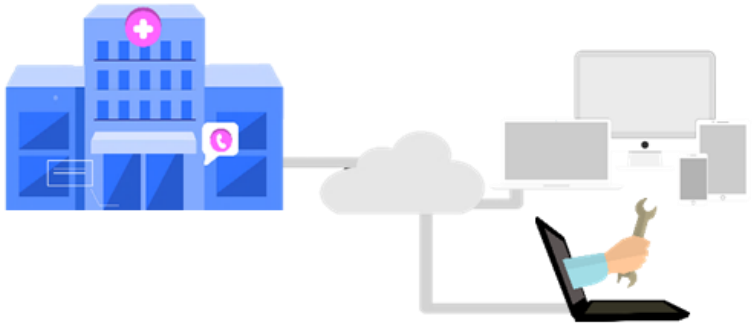
Protocols for escalation to physician or directly sending to Emergency Dept.

**22** Sent to ED

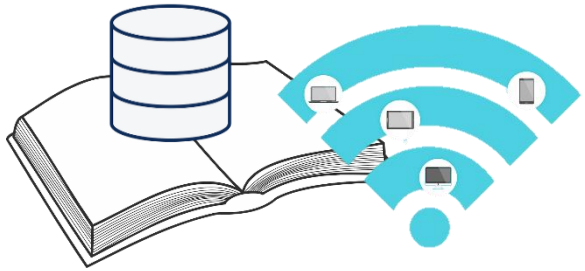
**33** Re-admitted

Casale, P. N., Vyavahare, M., Coyne, S., Kronish, I., Greenwald, P., Ye, S., Deland, E., & Fleischut, P. M. (2021). The Promise of Remote Patient Monitoring: Lessons Learned During the COVID-19 Surge in New York City. *American College of Medical Quality,* 36(3), 139-144)

# RPM and COVID - NYP and Hypoxia Monitoring

Device management important



Digital Literacy and Available Wi-Fi important to address

Casale, P. N., Vyavahare, M., Coyne, S., Kronish, I., Greenwald, P., Ye, S., Deland, E., & Fleischut, P. M. (2021). The Promise of Remote Patient Monitoring: Lessons Learned During the COVID-19 Surge in New York City. *American College of Medical Quality,* 36(3), 139-144)

# Questions

- Contact us for further information /
  HIELearning@uchc.edu
  Or
- Visit us at:
  https://health.uconn.edu/health-interoperability-learning/

UCONN HEALTH

# Poll

**What type of solutions might you implement in your practice to better support and encourage RPM in your practice?**

a) Integrate it into current EHR

b) Ensure RPM is as close to traditional care as possible

c) Properly educate staff and patients

UCONN HEALTH


UCONN HEALTH