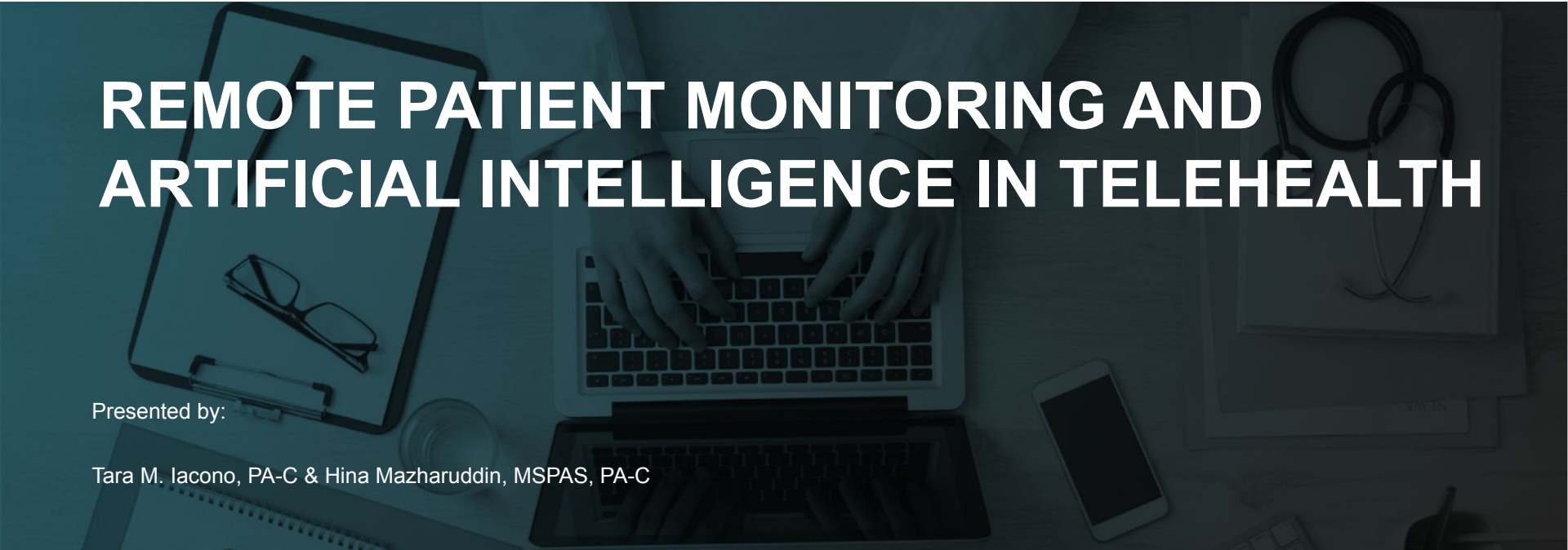
PAVMT
VIRTUAL MEDICINE



REMOTE PATIENT MONITORING AND ARTIFICIAL INTELLIGENCE IN TELEHEALTH

Presented by:

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DISCLOSURES

No disclosures to report.

OBJECTIVES

At the conclusion of this activity, participants will be able to:

- Define Remote Patient Monitoring (RPM)
- Explain how RPM works
- Define the ways in which RPM compliments telehealth and impacts patient satisfaction and disease outcomes
- Explain how RPM has evolved over the past few years
- Describe which patients and disease states qualify for RPM
- Identify the CPT codes and reimbursement rates for RPM

DEFINITION OF REMOTE PATIENT MONITORING

According to the Center for Connected Health Policy[1]:

RPM uses digital technology to collect medical data from patients at distant sites

1. Center for Connected Health Policy. About Telehealth. Remote Patient Monitoring. Accessed August 15,2020. https://www.cchpca.org/about/about-telehealth/remote-patient-monitoring-rpm

DEFINITION OF REMOTE PATIENT MONITORING

Health data can be: “physiologic measurements, answers to survey questions, and information about adherence.” [2]

This “data can be transmitted to care coordination centers, off-site case management programs, specialty and primary care practices, hospitals, skilled nursing facilities, or intensive care units (ICUs) for analysis and initiation of appropriate interventions.” [2]

2. Tucker AL. Remote Patient Monitoring and Care Coordination. In: Rheuban K, Krupinski EA. eds. *Understanding Telehealth*. McGraw-Hill; Accessed October 27, 2020. https://accessmedicine-mhmedical-com.rmuohp.proxy.liblynxgateway.com/content.aspx?bookid=2217&sectionid=187795106

TWO TYPES OF RPM:

STAND ALONE OR INTEGRATED

Stand Alone – can monitor a specific condition.

- An implantable cardiovascular device (ICD)
- Glucometer
- CPAP machine

Integrated - used as part of a comprehensive care management program

- Has many streams of data from many devices and can include patient entered responses as well. [2]

2. Tucker AL. Remote Patient Monitoring and Care Coordination. In: Rheuban K, Krupinski EA. eds. *Understanding Telehealth*. McGraw-Hill; Accessed October 27, 2020. https://accessmedicine-mhmedical-com.rmuohp.proxy.liblynxgateway.com/content.aspx?bookid=2217&sectionid=187795106

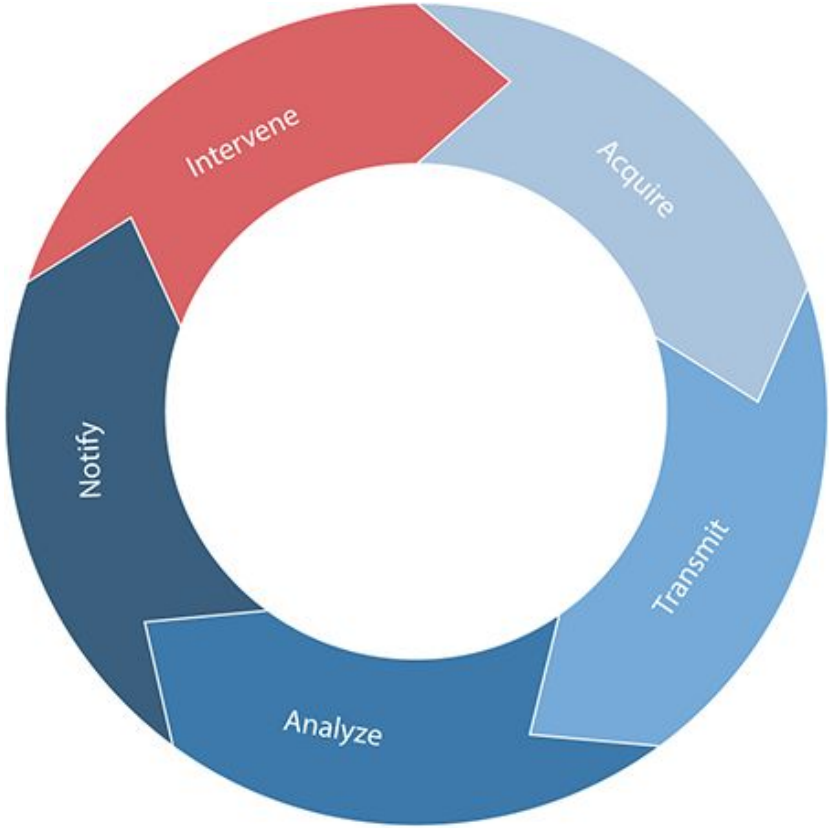
RPM PROCESS

Both stand alone and integrated RPM models follow the same process:

- Acquire
- Transmit
- Analyze
- Notify
- Intervene [2]

2. Tucker AL. Remote Patient Monitoring and Care Coordination. In: Rheuban K, Krupinski EA. eds. *Understanding Telehealth*. McGraw-Hill; Accessed October 27, 2020. https://accessmedicine-mhmedical-com.rmuohp.proxy.liblynxgateway.com/content.aspx?bookid=2217&sectionid=187795106

RPM PROCESS



Source: Karen Schulder Rheuban, Elizabeth A. Krupinski: *Understanding Telehealth*

Citation: Chapter 11 Remote Patient Monitoring and Care Coordination, Rheuban K, Krupinski EA. *Understanding Telehealth;* 1. Available at: https://accessmedicine.mhmedical.com/content.aspx?sectionid=187795106&bookid=2217&Resultclick=2 Accessed: October 27, 2020

LOGISTICS OF RPM

- Patient is prescribed RPM by a healthcare provider (physician, PA, or NP)
- The patient then downloads an app and connects their monitoring device
- The patient starts monitoring the prescribed data while at home
- This data is instantly transmitted through a dashboard where the clinical team can see, review, and react to the data in real time. This allows healthcare providers to provide feedback to patients in between their office visits.
- The provider can bill and receive reimbursement for providing this service.

RPM IS NOT STORE-AND-FORWARD

Store-and-forward communications usually take place between medical professionals as medical consultations[3]

Store-and-Forward examples:

- X-rays
- MRIs
- Photos
- Patient data
- Video-exam clips.

3. Center for Connected Health Policy. Store-and-Forward (Asynchronous). Accessed August 15, 2020. https://www.cchpca.org/about/about-telehealth/store-and-forward-asynchronous

REGULATIONS

- All medical devices must be either approved or cleared by the FDA.
- Data collected from devices is considered private health information and is HIPAA protected.

VALUE OF RPM

RPM is expected to be beneficial to the patients. They should get something of value from doing it.

RPM provides actionable data that can help healthcare providers offer better care for their patients.

VALUE OF RPM

RPM lowers healthcare costs and improves care efficiency by

“shifting patient care from expensive locations such as emergency departments, hospitals, rehabilitation centers, and skilled nursing facilities, into lower-cost locations such as the patient's home.”[2]

2. Tucker AL. Remote Patient Monitoring and Care Coordination. In: Rheuban K, Krupinski EA. eds. *Understanding Telehealth*. McGraw-Hill; Accessed October 27, 2020. https://accessmedicine-mhmedical-com.rmuohp.proxy.liblynxgateway.com/content.aspx?bookid=2217&sectionid=187795106

EXAMPLES OF RPM

Examples of RPM include:

- Pulse oxygenation saturation levels (patients with COPD, other types of lung disease)
- Weights on a scale (obese and heart failure patients)
- Blood pressure readings (hypertensive patients)
- Blood sugar readings (diabetics)
- Heart rate (arrythmias)
- EKG (arrythmias/heart disease)
- Peak Flows
- Medication adherence
- Nocturnal oxygen saturation
- PT/INR (coumadin patients)
- Photographs (wounds, rashes, retinas, etc)

RPM CAN BE USED TO DETERMINE RESPONSE TO TREATMENT THERAPY

Typically, without using RPM technology, healthcare providers often rely on incomplete data to see if clinical interventions are effective.

Providers typically depend on sporadic checks of physiological variables at home or, oftentimes, only in office as well as unreliable patient reports.

RPM can provide more data. The more data there is for each value, the better informed the provider can be on the effects of therapy and the need for adjustments.

RPM CAN BE USED TO INCREASE DIAGNOSTIC YIELD

Many times, data is needed to make a definitive clinical diagnosis.

Rarely checked parameters may miss the bulk of data on a given patient, which may lead to an inaccurate diagnosis.

With RPM, getting more readings out of range can lead to new or more accurate diagnoses.

RPM CAN BE USED TO IMPROVE OUTCOMES

RPM can be used to improve patient outcomes by controlling disease states more accurately.

For example:

- CHF
- Glycemic Control – reduces the risk of complications in diabetics
- HTN control
- COPD/Asthma

RPM CAN BE USED TO IMPROVE PATIENT SATISFACTION

- By staying connected with their provider between visits patients feel more “cared for.”
- Can also increase patients’ sense of well-being
- Improve patient compliance
- Improve the patient-provider relationship
- Can make patients more loyal and more likely to stay in the practice

THE EVOLUTION OF RPM

RPM has expanded rapidly over the past several years.

In 2018, there was only 1 CPT code for MD's that applied to RPM.

As of the recording of this course (November 2020), there are over 5 CPT codes for Qualified Healthcare Provider's (MD's, PA's, and NP's).

RPM REIMBURSEMENT

- The initial enrollment of RPM requires it be ordered by a billable healthcare provider:
  Either an MD, PA, or an NP

- All conditions with digital devices that track physiological parameters qualify for RPM reimbursement.

RPM CPT CODES

Information from the chart on the next slide was obtained from RPM Healthcare.[5]

Reimbursement rates are based on national averages as of August 2020. Please note that reimbursement rates and CPT codes change over time.

5. RPM Healthcare. Understanding the RPM CPT Codes: Which Are They And What Do They Cover? Accessed August 15, 2020. https://rpmhealthcare.com/understanding-the-rpm-cpt-codes/

RPM CPT CODES

Codes (for 2020)	Reimbursement (per patient)	Requirement
99453	$21 (per instance)	Patient device set up (one time). Provides reimbursement for the set-up of the device with the patient (i.e., downloading of an app and connect to the digital device so that it is ready to go home with the patient).
99454	$69 (every 30 days)	Remote monitoring of physiologic data with device. This is for the provision of the platform itself and tracking the visual data.
99457	$54 (monthly)	20 min patient review and communication by MD/PA/NP, QHCP's or clinical staff.
99458	$42 (monthly)	Additional 20 minutes of patient review and communication by MD/PA/NP, QHCP's or clinical staff (anyone from the practice).
99091	$59 (monthly)	30 minutes patient review and communication by MD/PA/NP or QHCP's. This is a hybrid payment between 20 and 40 minutes.

5. RPM Healthcare. Understanding the RPM CPT Codes: Which Are They And What Do They Cover? Accessed August 15, 2020. https://rpmhealthcare.com/understanding-the-rpm-cpt-codes/

ARTIFICIAL INTELLIGENCE IN TELEHEALTH

Artificial intelligence (AI) technology has been around for decades and has been used in various industries.[6]

-Analyze medical information
-Detect patterns with speed and computed accuracy
-Discover patterns in the outputs of medical procedures can lead to optimization and prediction of impending problems.
Examples: RPM, wearable devices, robotics

“A natural progression from human-to-human interaction in telehealth is the development of computer-based generation and understanding of conversation to enable computer-to-human interaction. Online therapeutic and health counseling interventions have long acknowledged the utility of the technology that allows for variations between human-guided, patient-guided, and computer-guided approaches” [7]

6.Trends in telemedicine utilizing artificial intelligence. Accessed November 11, 2020
https://aip.scitation.org/doi/pdf/10.1063/1.5023979
7.Role of Artificial Intelligence within the Teleheath Domain. Accessed November 11,2020. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6697552/

ARTIFICIAL INTELLIGENCE IN TELEHEALTH

Automated conversational interactions and virtual bots may offer:

- Reminders and motivational messages e.g., for medication, nutrition, and exercise
- Outline condition checks and health maintenance
- Answering of health queries and provide health information and education to certain populations
- Provide a personalized means to address social isolation and/or provide engagement in community
- Act as an intermediary between multiple caregivers or service agencies [7]

7.Role of Artificial Intelligence within the Teleheath Domain. Accessed November 11,2020. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6697552/

ARTIFICIAL INTELLIGENCE IN TELEHEALTH

According to WHO eHealth observatory survey, AI in the telemedicine field is directly supplementing innovations in these areas:

- Tele-radiology
- Tele-pathology
- Tele-dermatology
- Tele-psychiatry [8]

As technology improves, we anticipate many more to come.

8. AI in Telemedicine: Augmenting Healthcare Services In 2020. Accessed November 11,2020. https://aithority.com/ait-featured-posts/ai-in-telemedicine/

COURSE EXAM

Must obtain 70% to pass and receive credit for the course.

COURSE EXAM

QUESTION 1:

True or False.

The purpose of RPM is to make money for physicians.

[redacted]

COURSE EXAM

QUESTION 2:

The Definition of RPM is:

A. A discipline in which patient are not next to the clinician but in a remote location, like home, and where clinical variables are being monitored. RPM is an extension of telehealth into a patient's home.
B. The use of video conferencing to provide face-to-face visits with patients from a remote location.
C. The capture and sending of patient information to be interpreted or reviewed at a later time (i.e., a photo, x-ray, or CT Scan).

[redacted]

COURSE EXAM

QUESTION 3:

Who can order RPM for a patient:

A. A medical doctor
B. A physician assistant
C. A nurse practitioner
D. All of the above

[redacted]

COURSE EXAM

QUESTION 4:

RPM has the potential to do which of the following:

A. Determine response to treatment therapy
B. Increase diagnostic yield
C. Improve patient outcomes
D. All of the above

[redacted]

COURSE EXAM

QUESTION 5:

True or False.

Remote Patient Monitoring is not a billable service.

[redacted]

COURSE EXAM

QUESTION 6:

True or False.

All of the following are examples of RPM:

- Monitoring a COPD patient’s pulse oxygenation saturation.
- Tracking weights on a scale for heart failure patients.
- Tracking blood pressure readings for a patient with hypertension.
- Tracking a diabetic’s blood sugar readings.

[redacted]

COURSE EXAM

QUESTION 7:

Medical devices utilized for RPM must meet which of the following requirements:
A. Be FDA approved or cleared
B. Be HIPAA compliant
C. Both of the above

[redacted]

COURSE EXAM

QUESTION 8:

RPM can be used to achieve which of the following:

A. Provide clinicians with more data to make a more accurate diagnosis.
B. Improve the patient-provider relationship.
C. Determine how a patient's blood sugar responds to their new insulin.
D. All of the above.

[redacted]

COURSE EXAM

QUESTION 9:

True or False.

RPM and Store-And-Forward are the same thing.

[redacted]

COURSE EXAM

QUESTION 10:

True or False.

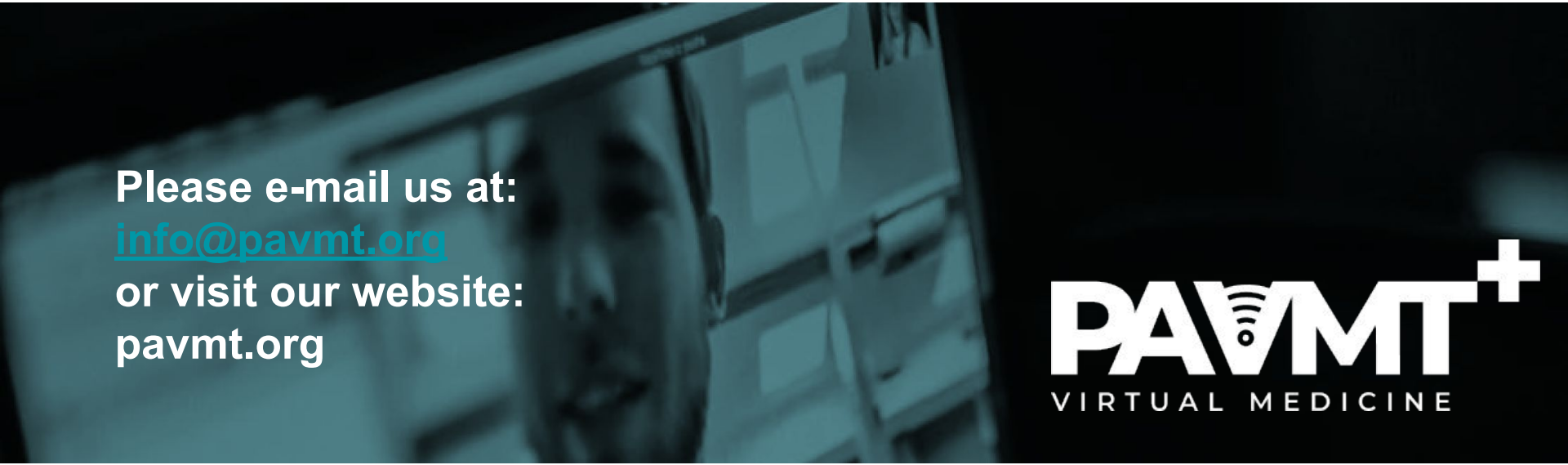
RPM and synchronous telehealth mean the same thing.

[redacted]

[redacted]

COURSE SURVEY

QUESTIONS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