Clinical UM Guideline

Subject: Remote Therapeutic and Physiologic Monitoring Services

Guideline #: CG-MED-91 **Publish Date:** 01/30/2025

Status: Reviewed **Last Review Date:** 08/08/2024

Description

Remote *therapeutic* monitoring (RTM) refers to the remote monitoring and management of therapy services, for example, monitoring of respiratory or musculoskeletal status, and medication and therapy adherence and response. RTM involves remote managing and collection of non-physiological patient data.

Remote *physiologic* monitoring (RPM) refers to the monitoring of physiological data, for example, weight, blood pressure, pulse oximetry, respiratory flow rate, as well as associated physiologic monitoring treatment management services.

For examples of RTM and RPM platforms/devices or related documents, please see Table 1 below.

Clinical Indications

Medically Necessary:

Remote **therapeutic** monitoring (RTM) in a non-healthcare setting is considered **medically necessary** when clinical records document the rationale for monitoring including **ALL** of the following:

1. RTM is clinically appropriate, in terms of type, quantity, frequency, extent, site and duration and is considered effective for the individual's illness, injury or disease and in accordance with generally accepted standards of medical practice*; **and**
2. RTM data is being regularly assessed to detect acute changes in clinical status and prompt intervention; **and**
3. RTM is not primarily for the convenience of the individual, physician, caregiver, or other health care provider; **and**
4. The individual is at risk of clinically significant changes in medical status which warrant enhanced monitoring based on current status and instability of the underlying clinical condition; **and**
5. The individual is unable to access regularly scheduled outpatient clinical care or therapeutic monitoring is required between visits due to potential changes in medical status; **and**
6. Monitoring is reasonably likely to prevent avoidable deterioration in the clinical condition and/or other adverse events relating to the underlying clinical condition.

Remote **physiologic** monitoring (RPM), in a non-healthcare setting is considered **medically necessary** when clinical records document the rationale for monitoring including **ALL** of the following:

1. RPM involves an FDA-recognized medical device that directly measures member physiologic data (for example, sphygmomanometer, pulse oximeter, heart rate monitor, glucometer, thermometer, weight scale, respiratory flow rate monitor) used to develop and manage a treatment plan related to a chronic and/or acute health illness or condition; **and**
2. RPM is clinically appropriate, in terms of type, quantity, frequency, extent, site and duration and is considered appropriate for the individual's illness, injury or disease and in accordance with generally accepted standards of medical practice*; **and**
3. RPM data is being assessed to detect acute changes in clinical status and prompt intervention; **and**
4. RPM is not primarily for the convenience of the individual, physician, caregiver, or other health care provider; **and**
5. The individual is at risk of clinically significant changes in medical status which warrant enhanced monitoring based on current status and instability of the underlying clinical condition; **and**
6. The individual is unable to access regularly scheduled outpatient clinical care or physiological monitoring is required between visits due to potential changes in medical status; **and**
7. Monitoring is reasonably likely to prevent avoidable deterioration in the clinical condition and/or other adverse events relating to the underlying clinical condition.

Not Medically Necessary:

RTM or RPM is considered **not medically necessary** when similar services are being provided concurrently, for example, home health services.

RTM or RPM is considered **not medically necessary** when the criteria above have not been met.

*Generally accepted standards of medical practice means standards that are based on credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community, physician specialty society recommendations and the views of physicians practicing in relevant clinical settings.

Coding

The following codes for treatments and procedures applicable to this guideline are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

When services may be Medically Necessary when criteria are met:

CPT

	Remote Therapeutic Monitoring
98975	Remote therapeutic monitoring (eg, therapy adherence, therapy response, digital therapeutic intervention); initial set-up and patient education on use of equipment
98976	Remote therapeutic monitoring (eg, therapy adherence, therapy response, digital therapeutic intervention); device(s) supply for data access or data transmissions to support monitoring of respiratory system, each 30 days
98977	Remote therapeutic monitoring (eg, therapy adherence, therapy response, digital therapeutic intervention); device(s) supply for data access or data transmissions to support monitoring of musculoskeletal system, each 30 days
98978	Remote therapeutic monitoring (eg, therapy adherence, therapy response, digital therapeutic intervention); device(s) supply for data access or data transmissions to support monitoring of cognitive behavioral therapy, each 30 days
98980	Remote therapeutic monitoring treatment management services, physician or other qualified health care professional time in a calendar month requiring at least one interactive communication with the patient or caregiver during the calendar month; first 20 minutes
98981	Remote therapeutic monitoring treatment management services, physician or other qualified health care professional time in a calendar month requiring at least one interactive communication with the patient or caregiver during the calendar month; each additional 20 minutes
	Remote Physiological Monitoring
99453	Remote monitoring of physiologic parameter(s) (eg, weight, blood pressure, pulse oximetry, respiratory flow rate), initial; setup and patient education on use of equipment
99454	Remote monitoring of physiologic parameter(s) (eg, weight, blood pressure, pulse oximetry, respiratory flow rate), initial; device(s) supply with daily recording(s) or programmed alert(s) transmission, each 30 days
99457	Remote physiologic monitoring treatment management services, clinical staff/physician/other qualified health care professional time in a calendar month requiring interactive communication with the patient/caregiver during the month; first 20 minutes
99458	Remote physiologic monitoring treatment management services, clinical staff/physician/other qualified health care professional time in a calendar month requiring interactive communication with the patient/caregiver during the month; each additional 20 minutes

ICD-10 Diagnosis

All diagnoses

When services are Not Medically Necessary:
For the procedure codes listed above when criteria are not met or for situations designated in the Clinical Indications section as not medically necessary.

Discussion/General Information

Remote therapeutic monitoring (RTM) treatment management services are provided when a physician or other qualified healthcare professional uses the results of RTM to manage an individual’s chronic condition under a specific treatment plan. The service must be ordered by a physician or other qualified healthcare professional. RTM services involve “general medicine” collection of data (that is: non-physiological patient data), for example monitoring of medication and therapy adherence, or

respiratory or musculoskeletal status. RTM has the potential to prevent avoidable deterioration in the clinical condition in individuals at risk of clinically significant changes in medical status, thereby preventing rehospitalizations, or urgent care and emergency room visits.

In contrast, remote physiologic monitoring (RPM) involves monitoring of physiological data only. RPM services involve data from monitoring devices which have the capability to transmit clinical data for physician review and for the intended use of managing the individual's condition using these results under a specific treatment plan. This enables the clinician, the individual being treated, or both, to respond and adjust treatment regimens in a more immediate way than what would be possible with, for example, routine clinic visits. Some RPM systems may be designed with automated voice response software to give instructions to the monitored individual; others may alert health professionals and/or the individual being monitored to clinical values outside an acceptable range and, in other systems, a health professional may respond immediately. Home-based technologies enable healthcare professionals to monitor physiological (for example, blood pressure [BP]) and psychological (for example, depression and mood) variables more routinely than is possible through face-to-face office visits. It has been reported that ambulatory BP monitoring is more predictive of clinical outcomes than office BPs, and its use leads to improved BP control. These technologies change the communication channel between the provider and the treated individual, in order to minimize barriers to care and improve delivery of medical services. The increased surveillance, support, and enhanced communication afforded by remote technology have significant potential to improve the individual's attention to, and adherence with, disease treatment and to facilitate patient-provider communication.

A large and diverse number of monitoring devices are currently cleared by the U.S. Food and Drug Administration (FDA) and on the market with remote technology monitoring capabilities. The device used must be a medical device as defined by the FDA. Remote technology services require a live, interactive communication between the physician and the monitored individual or caregiver. Data transmission must be accomplished using a HIPAA-compliant network, with sufficient bandwidth and screen resolution to permit adequate interaction with the individual being treated and assessment of behavioral and physical features. The system must maintain a log of connections, with time, date, and duration. The applicable codes are specific to initial device set-up, the individual's education on its use, daily recordings and the professional's time in communication with the monitored individual. RTM currently deals with musculoskeletal and respiratory systems (for system status, therapy adherence [such as inhaler use], and therapy response). Additional indications for this type of monitoring is anticipated in future (for example for hypertension [HTN], heart failure [HF], and diabetes mellitus [DM]). It is purported that RTM can help physicians to protect individuals at risk of heart attack or stroke; improve BP management; and identify hypertensive crisis and HF exacerbations, which may enable early intervention. Home monitoring devices automatically upload readings to the online portal for the provider to monitor between office visits while the individual is out of the office thereby enabling faster response times when an abnormal value is picked up by the monitoring device.

The Agency for Healthcare Research and Quality (AHRQ) conducted a research project between September 13, 2007 and August 31, 2011 entitled, Digital Healthcare Research using Health Information Technology to Improve Ambulatory Chronic Disease Care. This project was designed to test strategies for clinician use of health information technology (HIT) in ambulatory settings to improve outcomes through more effective clinical decision support, medication management, or care delivery. The initiative encouraged consideration of the role of workflow and effective use of clinical alerts and reminders, with an emphasis on prevention and chronic illness management. Medication management was a particular focus, as medication therapy is a significant source of medical errors, cost, and missed opportunities for health care coordination, and HIT can be a potent intervention to address these issues.

The study took place in the primary care practices of the Department of Family and Community Medicine (FCM) and the Division of General Internal Medicine (GIM) of the Department of Internal Medicine at the University of Missouri Health System (UMHC). This project sought to leverage collaborative efforts between the University of Missouri (MU) Department of Family and Community Medicine and its electronic medical record (EMR) vendor, the Cerner Corporation, to create new tools and functionalities to improve chronic disease care.

In 2005, FCM Department leaders began to collaborate with the Cerner Corporation to develop an enhanced ambulatory HIT system to support chronic disease care. Of multiple proposed components, several were anticipated within the time frame of the proposed evaluation including:

- Condition summary screens which were specially designed dashboards, accessible from a tab within the electronic record, that included key information needed for managing that condition, such as blood pressure (BP) readings in diabetes mellitus (DM), as well as indicators of whether quality metrics were being achieved for that particular individual;
- Easily accessible condition algorithms outlining standard care management;
- Electronic templates for creating visit notes, that would facilitate data acquisition for performance reports; and
- Performance reports on chronic condition quality indicators (for example, having a glycohemoglobin during the past year in subjects with DM) for those participants assigned to individual providers as well as the entire practice, including a list of subjects with out-of-range values.

Additionally, tied to this effort, the Health System planned introduction of a web-based participant interface, IQ Health, to enhance connectivity and secure communication between trial participants and clinicians. It was anticipated to enable individuals to access information in their electronic health record, to upload clinical data and to verify medications. It was anticipated that "smart" devices that could directly upload readings, such as BP and blood glucose, would interface with IQ Health to upload data

directly into the electronic health record. For those without internet access, the “smart” devices would be able to upload data over an ordinary phone line. Diabetes performance reports were phased in at 10 UMHC primary care practices. In 3 practices, a portal for secure communications was implemented. A trial of home monitoring of blood glucose and BP occurred in 108 participants.

Multiple studies included: a usability study of a diabetes dashboard; a quasi-experimental study of two kinds of performance reports distributed in a factorial design for one year; a qualitative analysis of differences between clinics with different patterns of performance; surveys of interest and experience with the participant web portal; testing accuracy and response to individuals electronically reporting medication inconsistencies; and a randomized trial of 3-months of home monitoring of BP and BP with electronic reporting. Results showed that the diabetes dashboard was efficient and improved accuracy. A composite measure improved in practices able to access performance information in the electronic record. Practices improving in the second year showed strong leadership, sharing of information, and exhibited adaptive reserve. Initial use of the participant portal was relatively limited; however, physicians felt better about its impact after use. In-home medication reconciliation was potentially limited by incomplete information from trial participants and failure to update records by providers. Home monitoring did not improve outcomes, but qualitative findings pointed to important implementation principles. The investigators concluded that the effectiveness study of use of remote monitoring did not demonstrate an impact on clinical outcomes but did lead to the identification of important themes that will inform practices who are considering a remote monitoring intervention for individuals with chronic illness. Such practices need to understand the capabilities and limitations of the technology. Additionally, they should seek independent references to evaluate the vendor’s performance on technical troubleshooting. Practices should design and understand the workflow and consider protocols for the flow of information. Additionally, the human side of the equation, patient-provider relationships, remained a crucial component of working with remote monitoring data. Buy-in by all participants appears important. Lastly, integration of the data transmission system with the EMR and electronic personal health record is key to the intervention’s sustainability in real practices (Mehr, 2011).

Additional indications for RTM and RPM have been reported in limited studies. In 2011 Kohler and colleagues enrolled 710 participants with stable chronic HF in New York Heart Association (NYHA) functional class II or III HF with a left ventricular ejection fraction (LVEF) of ≤ 35% and a history of HF decompensation within the previous 2 years or with a LVEF ≤ 25%. Trial participants were randomly assigned (1:1) to remote monitoring or usual care. Remote telemedical management used portable devices for electrocardiogram (ECG), BP, and body weight measurements connected to a personal digital assistant that sent automated encrypted transmission via cell phones to the telemedical centers. The primary end point was death from any cause. The first secondary end point was a composite of cardiovascular death and hospitalization for HF. Baseline characteristics were similar between the RTM (n=354) and control (n=356) groups. Of those participants assigned to RTM, 287 (81%) were at least 70% compliant with daily data transfers and no break for > 30 days (except during hospitalizations). The median follow-up was 26 months (minimum 12), and was 99.9% complete. The authors concluded that, compared with usual care, RTM had no significant effect on all-cause mortality (hazard ratio [HR], 0.97; 95% confidence interval [CI], 0.67 to 1.41; p=0.87) or on cardiovascular death or HF hospitalization (HR, 0.89; 95% CI, 0.67 to 1.19; p=0.44).

Extended results of the above trial (the telemedical interventional management in patients with HF II [TIM-HF2] randomized trial) were reported by Koehler and colleagues in 2020. TIM-HF2 was a prospective, randomized, multicenter trial done in 43 hospitals, 60 cardiology practices, and 87 general practitioners’ offices in Germany. Trial participants included those with HF, in NYHA functional class II or III HF who had been hospitalized for HF within 12 months before randomization. Trial participants were randomly assigned to either the RPM intervention or usual care. At the final study visit (main trial), the RPM intervention was stopped and the 1-year extended follow-up period started, which lasted 1 year. The primary outcome was percentage of days lost due to unplanned cardiovascular hospitalizations and all-cause mortality. Analyses were done using the intention-to-treat principle. Results at 1 year post RPM intervention showed that, compared with usual care, a structured RPM intervention done over 12-months reduced the percentage of days lost, due to unplanned cardiovascular hospitalizations and all-cause death. However, when data from the main trial and the extended follow-up period were combined, the percentage of days lost due to unplanned cardiovascular hospitalization or all-cause death was significantly less in those allocated to the RPM group (382 [50%] of 765; weighted mean 9.28%; 95% CI, 7.76-10.81) than in the usual care group (398 [51%] of 773; 11.78%; 95% CI, 10.08-13.49; ratio of weighted average 0.79; 95% CI, 0.62-1.00; p=0.0486). The positive effect of RPM intervention on morbidity and mortality over the course of the main trial was no longer observed 1 year after stopping the RPM intervention. However, because the TIM-HF2 trial was not powered to show significance during the extended follow-up period, these results are considered preliminary and require further research.

In 2021 Dawson and colleagues conducted a prospective, randomized controlled trial to assess whether home 30-day telemonitoring after discharge for individuals at high risk of readmission would reduce readmissions or mortality. A total of 1380 participants (mean [SD] age, 66 [14] years; 722 [52.3%] men and 658 [47.7%] women) participated in this study; participants were defined as high risk for readmission based on criteria assessed during hospitalization, including payer source, poor health literacy, lack of social support or the inability to self-care, an admission within the previous 12 months, emergent admission, a hospitalization of greater than 5 days, or history of a major medical comorbid condition (DM, myocardial infarction, stroke, peripheral artery disease, congestive heart failure (CHF), chronic obstructive pulmonary disease, substance abuse, depression, acute delirium, receiving dialysis, previous or active cancer, end-stage liver disease, or human immunodeficiency virus [HIV]). They compared 30-day readmission rates and mortality for those who received home telemonitoring versus standard care between November 1, 2014, and November 30, 2018, in two tertiary care hospitals. The intervention group received home-installed equipment to measure BP, heart rate, pulse oximetry, weight if HF was present, and glucose if DM was present. Results

were transmitted daily and reviewed by a nurse; changes in vital signs outside a preset range, determined by a standard protocol provided by the device company, triggered an alert for the nurse. Both groups received standard care. Using a modified intention-to-treat analysis, the risk of readmission or death within 30 days among those at high readmission risk was 23.7% (137/578) in the control group and 18.2% (87/477) in the telemonitoring group (absolute risk difference, -5.5% [95% CI, -10.4 to -0.6%]; relative risk, 0.77 [95% CI, 0.61 to 0.98]; p=0.03). Emergency department visits occurred within 30 days after discharge in 14.2% (81/570) in the control group and 8.6% (40/464) in the telemonitoring group (absolute risk difference, -5.6% [95% CI, -9.4 to -1.8%]; relative risk, 0.61 [95% CI, 0.42 to 0.87]; p=0.005). The authors concluded that 30 days of post discharge telemonitoring may reduce readmissions of high-risk individuals but further study is needed (NCT02136186; Dawson, 2021).

In a 2023 randomized trial by Patel and colleagues, the authors collected data regarding readmission rates 30 days following hospital discharge. Approximately 20% of individuals discharged from the hospital will be readmitted within 30 days. The primary conditions for admission included acute myocardial infarction or coronary heart disease, chronic obstructive pulmonary disease, CHF, DM, and pneumonia. In this study, primary outcome was hospital readmission or death within 30 days of discharge. For those assigned to the smartphone arm, the application tracked physical activity patterns. Participants in the wearable device arm wore the device which tracked physical activity patterns in addition to sleep patterns. The authors evaluated whether there were differences based on the type of RPM device used and participants were randomly assigned to gathering data via smartphone (n=250) or via wearable device (n=250). For those in the smartphone group, there were 46 participants (18.4%) readmitted to the hospital and 1 participant death (0.4%). In the wearable device arm, there were 33 participants (13.2%) readmitted to the hospital and 2 participant (0.8%) deaths. The authors concluded that prediction of 30 day hospital readmission improved with RPM on activity patterns after hospital discharge.

Additional small studies of impact of RTM and RPM yielded similar results. Most investigators agree that additional study is needed to inform clinical decisions about which populations will potentially benefit most from RTM and RPM. Given that currently published studies have generally shown that RTM and/or RPM provides no additional clinical benefit over usual care, use of RTM and/or RPM may be appropriate for individuals who are unable to access regularly scheduled outpatient clinical care for chronic conditions that are typically managed using evidence-based coordinated care strategies (for example, HF or chronic kidney disease).

Several RTM platforms are commercially available, including mymobility® and Persona IQ® The Smart Knee™. In summary, these programs are not considered in accordance with generally accepted standards of medical practice.

Mymobility (paired with an Apple Watch) is a program designed to assist individuals before and after joint replacement surgeries, particularly hip and knee replacements. The wearable technology provides educational and exercise content. Passive data is collected and can be communicated with a provider’s office via text messaging-like application. A 2021 study by Crawford and colleagues (2021a) reported results of a multicenter randomized controlled trial to evaluate the use of a smartphone-based system for primary total knee arthroplasty and partial knee arthroplasty. The objective was to determine the non-inferiority of the smartphone system comparted to a traditional in-person rehabilitation model. There were 244 participants in the control group and 208 participants in the treatment group. Outcomes were assessed using 90-day knee range of movement, EuroQoL five-dimension five-level score, Knee Injury and Osteoarthritis Outcome Score for Joint Replacement (KOO S JR) score, 30-day single leg stance (SLS) time, Time up and Go (TUG) time, and need for manipulation under anaesthesia (MUA). For the 90-day range of movement, there were no significant differences between the control group and the treatment group (121° [SD 11.7°]) and 121°; p = 0.559, respectively. The 90-day mean SLS time was 22.7 seconds in the control group and 24.3 seconds in the treatment group. Mean KOOS JR scores were 73.6 (SD 13.4) in the control group and 70.4 (SD 12.6) in the treatment group. Mean TUG time in the control group was 10.1 seconds and 9.3 seconds in the treatment group. There were 9 participants in the control group and 4 participants in the treatment group who required MUA. The authors conclude the smartphone-based system demonstrated non-inferiority when compared to traditional care models. However, lack of standardization of traditional care and short-term follow-up of 90 days may not allow for generalizability.

Another 2021 study by Crawford and colleagues (2021b) evaluated outcomes of a smartphone-based exercise management system after total hip arthroplasty. In this randomized, multicenter study, the authors report on 198 participants who received standard of care following total hip arthroplasty and 167 participants who received the smartphone-based management system following total hip arthroplasty. Outcomes included 90-day hip range of motion, the Hip disability and Osteoarthritis Outcome Score (HOOS, JR), health-related quality-of-life EuroQol five-dimension five-level score (EQ-5D-5L), SLS test, and the TUG test. At the 90-day assessment, there were no significant differences in mean hip flexion between the control group (101° [SD 10.8°]) and the treatment group (100° [SD 11.3°]). Mean HOOS, JR scores revealed no significant differences between the control group (73.0 [SD 13.8) and the treatment group (73.6 [SD 13.0]). The mean 30-day SLS time was 22.9 seconds in the control group and 20.7 seconds in the treatment group. Mean TUG time was 11.8 seconds in the control group and 11.9 seconds in the treatment group. Physical therapy use data was available for 125 participants. For those who did not attend physical therapy, 84.5% (71/84) had ≥ 75% compliance (reported exercises performed on days for which it was assigned). For those who attended physical therapy, 63.4% (26/41) had ≥ 75% compliance (reported exercises performed on days when it was assigned). Lack of information regarding preoperative functional testing could lead to influence about postoperative functional assessments. Also, variations in standard of care across multiple centers and variations involving surgical protocols, operative approaches, implant usage and postoperative care pathways may not allow for generalizability.

The Persona IQ is a knee implant which captures kinematic data metrics including functional knee range of motion, step count, and sampled average walking speed. This is accomplished by a tibial stem extension which is attached to the tibial plate of the Persona Knee System. The implant provides functional capacity data which is transmitted through the mymobility platform. A 2023 analysis by Yocum and colleagues assessed and reported the correlations between gait kinematics, patient-reported outcomes, and knee range of motion. There were 130 participants who received the Persona IQ total knee implant. Patient-reported outcomes were assessed at baseline and 6 weeks postoperatively. Gait kinematics were recorded daily using the sensor in the knee implant. There were five participants who required additional intervention postoperatively which included cortisone injections and manipulation under anesthesia due to poor range of motion. There were 98 (75.4%) participants with Veterans RAND 12 (VR-12) physical scores and/or KOOS Jr. data available at both baseline and 6-weeks. The KOOS Jr. scores improved from baseline (48 ± 13.3) to 6-weeks (66.5 ± 12.1) postoperatively. The postoperative VR-12 physical health scores (38.7 ± 8) were higher compared to baseline (35.7 ± 9). The VR-12 mental health scores were decreased six-weeks after surgery (53.8 ± 10.2), compared to baseline (56.1 ± 9.2, p = 0.023). Baseline preoperative extension (6.1° ± 8.1°) and flexion (94.7° ± 15.6°) range of motion improved to 0.5° ± 1.6° and 122.7° ± 9.4°, respectively. Of the 130 participants, 6 (4.6%) did not have qualified step count data and 3 (2.3%) did not have walking speed, cadence, stride length, tibial range of motion or knee range of motion data available during the gait analysis period. The average qualified step count during this time was 2800 ± 2380 steps/day, with an average walking speed of 0.58 ± 0.14 m/s. Participants had an average cadence of 87.5 ± 9.7 steps/min and stride length of 0.70 ± 0.17 m. These results are based on a single center, single surgeon utilizing one specific implant, in one geographic area which may limit generalizability across multiple populations. Further study is necessary.

Table 1. Examples of RTM and RPM platforms/devices (not an all-inclusive list) (Return to Description)

Device Name (or class)	**Device Developer**	**Therapeutic and/or Physiologic monitoring with this device is reasonably likely to prevent avoidable deterioration in the clinical condition and/or adverse events relating to the underlying condition.**
AVIVO® Mobile Patient Management System	Medtronic Inc.	See MED.00134
Bodyport™ Cardiac Scale	Bodyport Inc.,	See MED.00134
CardioMEMS™ HF System	Abbott	See MED.00115
Continuous Glucose Monitoring Devices: For example: Dexcom G5/6/7; Eversense Continuous Glucose Monitoring System; FreeStyle Libre Flash Glucose Monitoring System; Freestyle Libre 2/3		See CG-DME-42
Cordella™ PA Pressure Sensor System	Endotronix, Inc.	See MED.00115
CureSight™	NovaSight	See CG-MED-102
Embrace2	Empatica, Inc.	See MED.00130
ForeseeHome™ device	Notal Vision	See MED.00131
Kinesia™	Great Lakes NeuroTechnologies	See MED.00101
HeartPOD System	Abbott Laboratories	See SURG.00128
Luminopia	Luminopia, Inc.	See CG-MED-102
mymobility®	Zimmer Biomet	No
Persona IQ® The Smart Knee™	Zimmer Biomet	No
Promote LAP System	Abbott	See SURG.00128
RevitalVision	RevitalVision	See CG-MED-102
ROMTech AccuAngle®	ROMTech	See DME.00047
ROMTech PortableConnect®	ROMTech	See DME.00047
Sensoria Health Diabetic Foot Ulcer Boot	Sensoria Health	See DME.00047
SPEAC® System	Brain Sentinel, Inc.	See MED.00130
Tremorometer®	FlexAble Systems, Inc.	See MED.00101
µ-Cor™ Heart Failure and Arrhythmia Management System	ZOLL® Medical Corporation	See MED.00134
V-LAP System	Vectorious Medical Technologies	See SURG.00128
VitalConnect Platform/VitalPatch®	VitalConnect	See MED.00134
ZOE Fluid Status Monitor	Noninvasive Medical Technologies, Inc.	See MED.00134
Definitions		

An interactive communication: Is defined as a real-time, two-way communication between physician and the individual being monitored and treated.

Digital cognitive behavioral therapy: Refers to a form of psychotherapy that integrates theories of cognition and learning with a range of evidence-based treatment techniques and approaches (for example, cognitive restructuring, motivational interviewing, behavioral modification). These services represents the collection of data, related to signs, symptoms, and functions of a therapeutic response, either by objective device-generated integrated data or subjective inputs reported by the monitored individual. These data are reflective of therapeutic responses that provide a functionally integrative representation of the current clinical status of the individual. These services could be used to treat a variety of conditions, such as insomnia, irritable bowel syndrome, substance use disorder, depression, and post traumatic stress disorder (PTSD).

Non-healthcare setting: Refers to the location of healthcare delivery as occurring outside of a hospital, clinic, or equivalent reimbursement setting, for example, “Hospital Care at Home” programs are considered a healthcare setting.

Remote therapeutic monitoring (RTM): Refers to the remote monitoring and management of therapy services, for example, monitoring of respiratory or musculoskeletal status, and medication and therapy adherence and response. RTM involves remote managing and collection of non-physiological patient data.

Remote physiologic monitoring (RPM): Refers to the monitoring of physiological data only. Data may derive from devices used to collect clinical data and transmit the data to the physician for interpretation and management of the individual’s condition (examples are weight scales, BP machines, pulse oximetry devices). RPM refers to use of these monitoring devices for longer than 16 days.

References

Peer Reviewed Publications:

1. ClinicalKey. Chang A, Ragupathi L, Whellan D. Disease management and telemedicine in heart failure. In: Felker G, Mann D. Heart Failure: A Companion to Braunwald's Heart Disease. 4th ed. Elsevier; 2020:674-686. Available at; http://www.clinicalkey.com. Accessed on June 11, 2024.
2. Crawford DA, Duwelius PJ, Sneller MA, et al. 2021 Mark Coventry Award: Use of a smartphone-based care platform after primary partial and total knee arthroplasty: a prospective randomized controlled trial. Bone Jt J. 2021a;103-B(6 Supple A):3-12.
3. Crawford DA, Lombardi AV, Berend KR, et al. Early outcomes of primary total hip arthroplasty with use of a smartphone-based care platform: a prospective randomized controlled trial. Bone Jt J. 2021b;103-B(7 Supple B):91-97.
4. Dawson NL, Hull BP, Vijapura P, et al. Home telemonitoring to reduce readmission of high-risk patients: a modified intention-to-treat randomized clinical trial. Gen Intern Med. 2021; 36(11):3395-3401.
5. Koehler F, Winkler S, Schieber M, et al. Impact of remote telemedical management on mortality and hospitalizations in ambulatory patients with chronic heart failure: the telemedical interventional monitoring in heart failure study. Circulation. 2011; 123(17):1873-1880.
6. Koehler F, Koehler K, Deckwart O, et al. Efficacy of telemedical interventional management in patients with heart failure (TIM-HF2): a randomized, controlled, parallel-group, unmasked trial. Lancet. 2018; 392(10152):1047-1057.
7. Koehler F, Koehler K, Prescher S, et al. Mortality and morbidity 1 year after stopping a remote patient management intervention: extended follow-up results from the telemedical interventional management in patients with heart failure II (TIM-HF2) randomized trial. Lancet Digit Health. 2020; 2(1):e16-e24.
8. Koehler F, Winkler S, Schieber M, et al. Telemedical interventional monitoring in heart failure, a randomized, controlled intervention trial investigating the impact of telemedicine on mortality in ambulatory patients with heart failure: study design. Eur J Heart Fail. 2010; 12(2):1354-1362.
9. Koehler F, Winkler S, Schieber M, et al. Telemedicine in heart failure: prespecified and exploratory subgroup analyses from the TIM-HF trial. Int J Cardiol. 2012; 161(3):143-150.
10. Patel MS, Volpp KG, Small DS, et al. Using remotely monitored patient activity patterns after hospital discharge to predict 30 day hospital readmission: a randomized trial. Sci Rep. 2023; 13(1):8258.
11. Yocum D, Elashoff B, Verta P, et al. Patient reported outcomes do not correlate to functional knee recovery and range of motion in total knee arthroplasty. J Orthop. 2023; 43:36-40.

Government Agency, Medical Society, and Other Authoritative Publications:

1. Mayo Clinic. Home Telemonitoring in Patients at High Risk for Readmission. NCT02136186. Last updated November 10, 2020. Available at: https://clinicaltrials.gov/ct2/show/NCT02136186. Accessed on June 11, 2024.
2. Mehr DR, Wakefield D, Caligiuri F, et al. Using Health Information Technology (HIT) to Improve Ambulatory Chronic Disease Care. Agency for Healthcare Research and Quality (AHRQ) Grant ID: HS017035. Inclusive Dates: 9/13-2007-8/31/11. Available at: https://digital.ahrq.gov/sites/default/files/docs/publication/r18hs017035-mehr-final-report-2011.pdf. Accessed on June 11, 2024.
3. Stegmann T, Koehler K, Wachter R, et al. Heart failure patients with atrial fibrillation benefit from remote patient management: insights from the TIM-HF2 trial. ESC Heart Fail. 2020; 7(5):2516-2526.

Websites for Additional Information

1. American Heart Association. Heart failure. Available at: https://www.heart.org/en/health-topics/heart-failure. Accessed on June 11, 2024.
2. American Heart Association. High blood pressure. Available at: https://www.heart.org/en/health-topics/high-blood-pressure. Accessed on June 11, 2024.

Index

Remote physiologic monitoring (RPM)
Remote therapeutic monitoring (RTM)
Telehealth
Telemedicine

History

Status	Date	Action
	01/30/2025	Updated Coding section with 01/01/2025 CPT changes, revised descriptors for 98975, 98976, 98977, 98978.
Reviewed	08/08/2024	Medical Policy & Technology Assessment Committee (MPTAC) review. Revised Description, Discussion/General Information, References, Websites for Additional Information, and Index sections.
	02/21/2024	Revised Table 1 in Discussion/General Information section. Revised Description section.
Reviewed	08/10/2023	MPTAC review. Updated Discussion/General Information and References sections.
	12/28/2022	Updated Coding section with 01/01/2023 CPT changes; added 98978, revised descriptors for 98975, 98976, 98977.
New	08/11/2022	MPTAC review. Initial document development.
