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MEDICAL POLICY – 1.01.540

Continuous Passive Motion in the Home Setting

BCBSA Ref. Policy: 1.01.10

Effective Date:	Jun. 1, 2026
Last Revised:	May 12, 2026
Replaces:	N/A

RELATED MEDICAL POLICIES:

7.01.48	Autologous Chondrocyte Implantation for Focal Articular Cartilage Lesions
7.01.607	Autografts and Allografts in the Treatment of Focal Articular Cartilage Lesions

Select a hyperlink below to be directed to that section.

∞ Clicking this icon returns you to the hyperlinks menu above.

Introduction

A continuous passive motion (CPM) device moves or flexes a joint. This movement is done without the individual's help. A continuous passive motion device has been used most often after certain knee surgeries to allow the knee joint to slowly bend. Using CPM was very common; however, newer studies show that it does not improve the outcomes of knee surgery except in some complex knee surgeries, or when people have prolonged bed rest due to some other problem after knee replacement. Continuous passive motion usually starts in the hospital. For those who need it at home after knee surgery it is usually covered for 21 days. There are a number of high-quality studies showing that CPM is effective for specific types of knee surgery. There are not enough high-quality studies to show how effective CPM is for other joints. This policy describes when CPM is considered medically necessary.

Note: The Introduction section is for your general knowledge and is not to be taken as policy coverage criteria. The rest of the policy uses specific words and concepts familiar to medical professionals. It is intended for providers. A provider can be a person, such as a doctor, nurse, psychologist, or dentist. A provider also can be a place where medical care is given, like a hospital, clinic, or lab. This policy informs them about when a service may be covered.

Policy Coverage Criteria

This policy addresses CPM only in the home setting.

Procedure	Medical Necessity

Total knee arthroplasty (TKA) or TKA revision	**The use of continuous passive motion (CPM) in the home setting following a total knee arthroplasty or total knee arthroplasty revision may be considered medically necessary as an adjunct to physical therapy in the following situations:**
	• The member is unable to ambulate or comply with rehabilitation exercises. Examples include:
	  ○ Complex regional pain syndrome (reflex sympathetic dystrophy)
	  ○ Extensive arthrofibrosis or tendon fibrosis
	  ○ Physical, mental, or behavioral inability to participate in active physical therapy
	• Following TKA or TKA revision, CPM in the home setting will be allowable for up to 21 days after surgery while individuals are immobile or unable to bear weight

Articular cartilage repair, such as: • **Microfracture** • **Osteochondral grafting** • **Autologous chondrocyte implantation** • **Treatment of osteochondritis dissecans** • **Repair of tibial plateau fractures**	**The use of CPM following articular cartilage repair (see list of examples to the left) may be considered medically necessary as an adjunct to physical therapy in the following situations:** • During the non-weight-bearing rehabilitation period • For up to 6 weeks maximum
Other conditions	**The use of CPM in the home setting for all other conditions not listed in this medical policy is considered not medically necessary.**

Procedure	Investigational
Use of devices or systems with remote monitoring	**Use of devices or systems featuring continuous passive motion with remote monitoring or adaptive capabilities is considered investigational. (e.g. ROMTech PortableConnect)**

Documentation Requirements

The individual's medical records submitted for review for all conditions should document that medical necessity criteria are met. The record should include the following:

- Documentation of the type of knee surgery member had undergone and that member can't bear weight after surgery.
- For total knee replacement or total knee revision, additional documentation of the following:
  - That member is unable to comply with physical therapy because of certain conditions. Examples include:
    - Complex regional pain syndrome (reflex sympathetic dystrophy)
    - Extensive arthrofibrosis or tendon fibrosis
    - Physical, mental, or behavioral inability to participate in active physical therapy

Coding

Code	Description
HCPCS	
E0935	Continuous passive motion exercise device for use on knee only
E0936	Continuous passive motion exercise device for use other than knee
E1399	Durable medical equipment, miscellaneous

Related Information

Telerehabilitation systems may offer continuous passive motion physical intervention with telehealth conferencing interfaces, remote monitoring, and remote adjustment. Evidence on these devices is limited in quality. Remote monitoring rehabilitative systems are typically reported with HCPCS E1399 as currently there is no specific code.

Benefit Application

When offered in the home setting, continuous passive motion may be adjudicated under durable medical equipment benefits. In other settings, continuous passive motion may be adjudicated as a form of physical therapy.

Evidence Review

Description

Continuous passive motion (CPM) devices are used to keep a joint in motion without individual assistance. CPM is being evaluated for treatment and postsurgical rehabilitation of the upper- and lower-limb joints and for a variety of musculoskeletal conditions.

Background

Physical therapy of joints following surgery focuses both on passive motion to restore mobility and on active exercises to restore strength. While passive motion can be administered by a therapist, CPM devices have also been used. CPM is thought to improve recovery by stimulating the healing of articular tissues and the circulation of synovial fluid; reducing local edema; and preventing adhesions, joint stiffness or contractures, or cartilage degeneration.[1] CPM has been investigated primarily in the knee, particularly after total knee arthroplasty (TKA) or ligamentous or cartilage repair. Acceptance of its use in the knee joint has created interest in CPM for other weight-bearing joints (i.e., hip, ankle, metatarsals) as well as non-weight-bearing joints (i.e., shoulder, elbow, metacarpals, interphalangeal joints). Use of CPM in stroke and burn individuals is also being explored.

The device used for the knee moves the joint (e.g., flexion and extension) without individual assistance, continuously for extended periods of time (i.e., up to 24 hours/day)[1]. An electrical power unit is used to set the variable range of motion (ROM) and speed. The initial settings for ROM are based on an individual's level of comfort and other factors assessed intraoperatively. The ROM is increased by 3° to 5° per day, as tolerated. The speed and ROM can be varied, depending on joint stability. The use of the device may be initiated in the immediate postoperative period and then continued at home for a variable period of time.

Over time, hospital lengths of stay have progressively shortened, and in some cases surgical repair is done as an outpatient or with a length of stay of one to two days.[2] As a result, there has been a considerable shift in the rehabilitation regimen, moving range of motion from an intensive in-hospital program to a less intensive outpatient program. Some providers may want individuals to continue CPM in the home setting as a means of duplicating the services offered with a longer (7-day) hospital stay.

The focus of the current policy is to examine the literature on the use of CPM in the home setting as it is currently being prescribed postoperatively. The relevant comparisons are treatment outcomes of CPM when used alone or with physical therapy, compared with physical therapy alone.

Summary of Evidence

For individuals who have TKA who receive CPM in the home setting, the evidence includes randomized controlled trials (RCTs), retrospective studies, case series, and systematic reviews. The relevant outcomes are symptoms and functional outcomes. Early trials generally used CPM in the inpatient setting and are less relevant to today's practice patterns of short hospital stays followed by outpatient rehabilitation. Current postoperative rehabilitation protocols differ considerably from when the largest body of evidence was collected, making it difficult to apply available evidence to the present situation. For use of CPM after TKA, recent studies have suggested that institutional and home use of CPM has no benefit compared with standard physical therapy (PT). There were no studies evaluating CPM in individuals who could not perform standard PT. The generalizability of a study comparing home continuous passive therapy with a remote monitoring telerehabilitation system to standard physical therapy is limited by methodological concerns. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have articular cartilage repair of the knee who receive CPM in the home setting, the evidence includes nonrandomized studies, case series, and studies with nonclinical outcomes (e.g., histology), and systematic reviews of these studies. The relevant outcomes are symptoms and functional outcomes. Systematic reviews of CPM for this indication have cited studies reporting better histologic outcomes in individuals following CPM. A few studies have reported clinical outcomes, but inadequacies of these studies do not permit conclusions on efficacy. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have musculoskeletal conditions other than TKA or knee cartilage repair requiring PT who receive CPM in the home setting, the evidence includes systematic reviews and/or RCTs for some conditions and case series for others. The relevant outcomes are symptoms and functional outcomes. Three small RCTs of CPM after rotator cuff surgery showed some evidence that CPM after this shoulder surgery improved short-term pain and ROM; however, the trials were not high quality, and the small differences in outcomes may not be clinically important. Two trials reported short-term improvements in ROM for individuals undergoing CPM, and one reported a short-term reduction in pain. None reported long-term improvements, and there are no reported benefits in functional status. Therefore, the clinical significance of the short-term improvements reported is uncertain. In addition, there is uncertainty about the optimal PT regimen following shoulder surgery such that the optimal treatment comparator for CPM is unclear. A systematic review and two small RCTs compared CPM with conventional PT for treatment of adhesive capsulitis. The systematic review concluded that CPM may be effective in the short-term. One of the trials focused on diabetic individuals with adhesive capsulitis. Both reported comparable improvements in ROM and functional ability between treatment groups. Although no RCTs of continuous passive motion in the home setting after repair of the anterior cruciate ligament were identified, indirect evidence from RCTs conducted in the inpatient immediate postoperative setting following anterior cruciate ligament repair indicated no additional benefit with continuous passive motion compared to conventional PT. One small RCT in humeral fractures also found short-term benefits of continuous passive motion, but by 3 months there was no significant difference between groups. For other musculoskeletal conditions, RCTs do not exist; case series either did not show efficacy of CPM or had important methodologic flaws. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have had a stroke requiring PT who receive CPM in the home setting, the evidence includes two small RCTs. The relevant outcomes are symptoms and functional outcomes. These trials reported mixed results; one RCT indicated a non-significant trend toward improvement in shoulder joint stability with continuous passive motion and PT relative to PT alone, while the other indicated significant improvement in functional outcomes related to wrist movement and global upper extremity movement symptoms with continuous passive motion plus conventional therapy relative to conventional therapy alone. Both trials were small, and treatment lasted only 20 days in the shoulder joint study. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Additional Information

2010 Input

For patients unable to tolerate exercise regimens following total knee arthroplasty, continuous passive motion is an alternative modality. However, there is no evidence to support its use in this situation. Clinical input obtained in 2010 supports the use of continuous passive motion under conditions of low postoperative mobility or inability to comply with rehabilitation exercises following a total knee arthroplasty or total knee arthroplasty revision.

2016 Input

Despite a lack of published evidence, clinical input obtained in 2016 supports the use of continuous passive motion after articular cartilage repair of the knee.

Ongoing and Unpublished Clinical Trials

Some currently ongoing and unpublished trials that might influence this review are listed in **Table 1**.

Table 1. Summary of Key Trials

NCT No.	Trial Name	Planned Enrollment	Completion Date
Ongoing			
NCT06997679	Effects of Continuous Passive Movements Versus Intermittent Compression in Patients With Post ACL Reconstruction Surgery	50	Feb 2026

NCT: national clinical trial

Clinical Input Range of Motion Physician Specialty Societies and Academic Medical Centers

While the various physician specialty societies and academic medical centers may collaborate with and make recommendations during this process, through the provision of appropriate reviewers, input received does not represent an endorsement or position statement by the physician specialty societies or academic medical centers, unless otherwise noted.

2016 Input

In response to requests, input was received from two physician specialty societies and one academic medical center while this policy was under review in 2016. Input considered CPM medically necessary as an adjunct to physical therapy during the non-weight-bearing rehabilitation period following articular cartilage repair procedures of the knee. One reviewer referred to the American Academy of Orthopaedic Surgery (2015) guidelines on the surgical management of osteoarthritis of the knee, which concluded that there was strong evidence that CPM after knee arthroplasty does not improve outcomes.

2010 Input

In response to requests, input was received from two physician specialty societies and five academic medical centers while this policy was under review in 2010. Overall, input supported the use of CPM under conditions of low postoperative mobility or inability to comply with rehabilitation exercises after TKA or TKA revision or during the non-weight-bearing rehabilitation period following articular cartilage repair procedures of the knee. Support was limited for use of CPM in joints other than the knee, or in situations or conditions other than those described in this policy.

2008 Input

In response to requests, input was received from one physician specialty society and two academic medical centers while this policy was under review in 2008. The three reviewers interpreted the existing literature supporting the use of CPM for the knee for at least 7 days postoperatively, whether in the hospital or home, and suggested that longer use of CPM would be warranted for special conditions.

Practice Guidelines and Position Statements

The purpose of the following information is to provide reference material. Inclusion does not imply endorsement or alignment with the policy conclusions.

Guidelines or position statements will be considered for inclusion if they were issued by, or jointly by, a US professional society, an international society with US representation, or National Institute for Health and Care Excellence (NICE). Priority will be given to guidelines that are informed by a systematic review, include strength of evidence ratings, and include a description of management of conflict of interest.

American Physical Therapy Association

In 2020, the American Physical Therapy Association (APTA) published a clinical practice guideline on physical therapists' management of patients undergoing total knee arthroplasty.[57] The APTA identified four high-quality studies, six moderate-quality studies, and two low-quality studies evaluating the effect of continuous passive motion devices on knee flexion and extension, range of motion, and need for manipulation under anesthesia, with moderate-quality studies indicating benefit with continuous passive motion contradicted by high-quality studies indicating no significant difference. Meta-analyses did not indicate a significant impact of continuous passive motion on function or hospital length of stay. The APTA concluded that "physical therapists should NOT use CPMs [continuous passive motion devices] for patients who have undergone primary, uncomplicated TKA [total knee arthroplasty]."

American Academy of Orthopaedic Surgeons

In 2015, the American Academy of Orthopaedic Surgeons (AAOS) published evidence-based guidelines on the surgical management of osteoarthritis of the knee.[58] The AAOS identified two high-quality studies and five moderate-quality studies that evaluated the use of CPM. In one high-quality study, CPM was used for about two weeks after discharge. The AAOS concluded that, “the combined results provide strong evidence that the surgical outcomes for those who used continuous passive motion are not better than for those who did not use continuous passive motion.” The 2022 update to the AAOS guidelines, which replaces the 2015 version, does not address use of continuous passive motion.[59]

Medicare National Coverage

In 2005, the Centers for Medicare & Medicaid Services issued a national coverage determination on durable medical equipment reference, which stated:

> Continuous passive motion devices are devices covered for patients who have received a total knee replacement. To qualify for coverage, use of the device must commence within 2 days following surgery. In addition, coverage is limited to that portion of the 3-week period following surgery during which the device is used in the patient's home. There is insufficient evidence to justify coverage of these devices for longer periods of time or for other applications.[60]

Regulatory Status

CPM devices are considered class I devices by the US Food and Drug Administration (FDA) and are exempt from 510(k) requirements. This classification does not require submission of clinical data on efficacy but only notification of the FDA prior to marketing.

The telerehabilitation and remote monitoring features of rehabilitation systems such as ROMTech PortableConnect system are noninvasive and exempt from premarket notification requirements.[3] Use of the ROMTech PortableConnect system is often coupled with digitally transmitted measures of knee extension and flexion captured with the ROMTech AccuAngle goniometer. The ROMTech PortableConnect device features an adaptive pedal technology that offers active, active-assisted, and resistance modes in addition to passive motion.

FDA product code: BXB.

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History

Date	Comments
08/11/15	New Policy. Add to Durable Medical Equipment section. In the Policy Guidelines, plan specific language allows using the device for up to 21 days. Literature current through June 3, 2015.
06/01/16	Annual Review, approved May 10, 2016. References 27 and 42 added. Policy statements unchanged.
10/01/16	Interim Update, approved September 13, 2016. Clinical input reviewed; reference 43 added. Policy statements unchanged.
03/24/17	Policy moved into new format; no change to policy statements.
06/01/17	Annual Review, approved May 2, 2017. Policy updated with literature review through January 25, 2017; reference 36 added. Removed HCPCS code E1399. Policy statements unchanged.
07/01/17	Interim Review, approved June 22, 2017. The word "intra-" removed from the second bullet point of the first policy statement and from the text. Policy statements otherwise unchanged; rewritten for improved clarity.
05/01/18	Annual Review, approved April 18, 2018. Policy updated with literature review through January 2018; reference 33 added. Policy statements unchanged.
06/01/19	Annual Review, approved May 7, 2019. Policy updated with literature review through January 2019; no references added. Policy statements unchanged.
04/01/20	Delete policy, approved March 10, 2020. This policy will be deleted effective July 2, 2020, and replaced with InterQual criteria for dates of service on or after July 2, 2020.
07/02/20	Delete policy.
11/01/20	Policy reinstated effective February 5, 2021; approved October 13, 2020. Policy updated with literature review through January, 2020; no references added. Policy statements unchanged.
06/01/21	Annual Review, approved May 4, 2021. Policy updated with literature review through December 13, 2020; no references added.
06/01/22	Annual Review, approved May 9, 2022. Policy updated with literature review through December 20, 2021; no references added. Policy statements unchanged.
06/01/23	Policy renumbered, approved May 9, 2023, from 1.01.10 Continuous Passive Motion in the Home Setting to 1.01.540 Continuous Passive Motion in the Home Setting. Policy updated with literature review through January 10, 2023; references added. Minor editorial refinements to policy statements; intent unchanged. Changed the wording from "patient" to "individual" throughout the policy for standardization.

Date	Comments
06/01/24	Annual Review, approved May 13, 2024. Policy updated with literature review through January 17, 2024; references added. Policy statements unchanged.
08/01/25	Annual Review, approved July 7, 2025. Policy updated with literature review through March 19, 2025; reference added. Policy statements unchanged.
11/07/25	Minor update. Replaced related policy 7.01.78 Osteochondral Autografts in the Treatment of Articular Cartilage Lesions with 7.01.607 Autografts and Allografts in the Treatment of Focal Articular Cartilage Lesions.
06/01/26	Annual Review, approved May 12, 2026. Policy updated with literature review through January 7, 2026; references added. Added policy statement that use of devices or systems featuring continuous passive motion with remote monitoring or adaptive capabilities is considered investigational. Other policy statements unchanged. Added HCPCS code E1399 to policy.

Scope: Medical policies are systematically developed guidelines that serve as a resource for Company staff when determining coverage for specific medical procedures, drugs or devices. Coverage for medical services is subject to the limits and conditions of the member benefit plan. Members and their providers should consult the member benefit booklet or contact a customer service representative to determine whether there are any benefit limitations applicable to this service or supply. This medical policy does not apply to Medicare Advantage.