MEDICAL POLICY

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Medical Policy Title	**Continuous Passive Motion Device in the Home Setting**
Policy Number	**1.01.02**
Current Effective Date	**October 22, 2026**
Next Review Date	**October 2027**

Our medical policies are guides to evaluate technologies or services for medical necessity. Criteria are established through the assessment of evidence based, peer-reviewed scientific literature, and national professional guidelines. Federal and state law(s), regulatory mandates and the member's subscriber contract language are considered first in the determination of a covered service.
(Link to Product Disclaimer)

POLICY STATEMENT(S)

I. A continuous passive motion (CPM) device is **medically appropriate** in the home setting for **ANY** of the following:

   A. Individuals with limited postoperative mobility;

   B. Individuals with the inability to comply with rehabilitation exercises;

   C. Individuals being treated with non-weight bearing rehabilitation;

   D. Total knee arthroplasty (TKA) or equivalent open knee surgery;

   E. Anterior cruciate ligament (ACL) reconstruction;

   F. Open reduction and internal fixation (ORIF) of tibial plateau or distal femur fractures involving the knee joint;

   G. Surgical release of arthrofibrosis/adhesive capsulitis or manipulation under anesthesia of the knee until the member is participating in an active physical therapy (PT) program.

II. Use of the CPM device beyond 21 days post-operatively or 21 days after manipulation under anesthesia is considered **not medically necessary**.

III. CPM as an adjunct to conventional physical therapy for any other indication (e.g., rotator cuff, metacarpophalangeal or temporomandibular joint) is considered **not medically necessary**.

IV. CPM using stationary cycling (e.g., ROMTech PortableConnect Adaptive Telemed Technology) as an adjunct to conventional physical therapy is considered **not medically necessary**.

RELATED POLICIES

Not Applicable

POLICY GUIDELINE(S)

Not Applicable

DESCRIPTION

The physical therapy restoration of joint range of motion (ROM) following surgery or trauma focuses both on passive motion to restore mobility and on active exercises to restore strength. Passive motion, a treatment component of joint rehabilitation, may be performed by a physical therapist or accomplished with a CPM device. A CPM device keeps a joint in motion (e.g., flexion, extension) without patient assistance and is thought to improve recovery by stimulating the healing of articular tissues and the circulation of synovial fluid; reducing local edema; and preventing adhesion, joint stiffness or contractures, or cartilage degeneration. The use of the device may be initiated in the immediate postoperative period and then continued at home for a variable period of time. A unit is used to set the variable ROM and speed. The initial settings are increased as tolerated and depending on joint stability.

Stationary cycling devices allow for therapeutic movement to begin within one day of surgery. Treatment plans utilizing these devices include three (3) to five (5) home therapy sessions per day for three (3) to six (6) weeks. The telemedicine capabilities of the device allow for monitoring of the patient's progress by the physician during rehabilitation after knee surgery.

SUPPORTIVE LITERATURE

Although published studies on the use of continuous passive motion (CPM) devices show some inconsistency, there is evidence that CPM, when used as an adjunct to standard physical therapy immediately following total knee arthroplasty (TKA), anterior cruciate ligament (ACL) reconstruction, or open reduction and internal fixation (ORIF) of tibial plateau or distal femur fractures involving the knee joint, can improve net health outcomes beyond those achieved with physical therapy (PT) alone. (Milne 2003; Lenssen 2008; Herbold 2014). Efficacy in the early postoperative period has been cited as a reason to support the continued use of these devices in the non-acute care hospital or home setting following early discharge. However, when compared to PT, combined with CPM failed to significantly improve range of motion (ROM) of the knees and patient's satisfaction. In addition, CPM treatment significantly increased the cost of hospitalization. (Jia 2024)

There is a wide range of studies assessing the use of CPM for other musculoskeletal indications. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome, including, congenital talipes equinovarus (Gray 2012 and 2014; Bina 2020), distal radial fracture (Handoll 2006; Shirzadi 2020) flexor tendon injuries (Peters 2021), metacarpophalangeal joint arthroplasty (Massy-Westropp 2008), preventing venous thromboembolism (VTE) in patients after TKA (He 2014), rotator cuff repair (Lastayo 1998; Garafalo 2010; Du Plessis 2011).

Adhesive Capsulitis of the Shoulder

Baradaran et al (2023) conducted a systematic review of CPM compared to physical therapy (PT) in patients with primary adhesive capsulitis. A total of five studies were included in the meta-analysis; however, the conclusions were limited by heterogeneity. The authors concluded that CPM may be slightly effective in the short-term, but that long-term efficacy is still unknown.

Elbow Contracture Release

O'Driscoll et al (2022) conducted a prospective, single center randomized controlled trial to evaluate the safety and effectiveness of CPM compared to PT for rehabilitation after arthroscopic elbow

contracture release with ulnar nerve decompression. Patients (n=51) who were undergoing arthroscopic release of elbow contracture were randomized to receive rehabilitation involving either CPM (n=24) or physical therapy (PT) (n=27). Postoperatively, patients in the CPM group (n=24) received a continuous brachial plexus block for 48 hours. CPM was performed in the hospital for three days, followed by a CPM home-setting program for up to four weeks. Patients in the PT group were discharged on the day of surgery, attended supervised PT sessions for three days, and attended PT sessions three times per week for four weeks. At one (1) year, CPM was superior to PT regarding the range of motion, with an estimated treatment difference of 9-degrees ($p = 0.007$). Similarly, the use of CPM led to a greater range of motion at 6 weeks and 3 months than PT. The percentage of lost motion recovered at 1 year was higher in the CPM group (51%) than in the PT group (36%) ($p = 0.01$). The probability of restoring a functional range of motion at 1 year was 62% higher in the CPM group than in the PT group ($p = 0.04$). Passive range of motion (PROM) scores were similar in the two groups at all time points, except for a difference in the American Shoulder and Elbow Surgeons (ASES) elbow function subscale, in favor of CPM, at 6 weeks. The use of CPM decreased swelling and reduced the loss of flexion strength, flexion endurance, and grip strength on day 3, with no between-group differences thereafter.

Wang et al (2024) noted that the optimal duration for postoperative CPM therapy is unclear. In a retrospective study, researchers investigated the impact of different durations of CPM rehabilitation training on functional recovery (e.g., range of motion, pain, and functional scores) following elbow arthroscopic contracture release over a 1-year follow-up period. A total of 50 case records were analyzed. Results showed that both 3- and 5-month CPM durations led to significantly better outcomes than 1 month, including improved elbow flexion-extension and higher scores on metric scales. However, no additional benefit was observed by extending CPM beyond 3 months. The authors concluded that a 3-month CPM regimen is sufficient for patients with higher functional demands, offering an evidence-based recommendation for optimizing postoperative rehabilitation without unnecessary prolongation of therapy. The authors concluded that, to address study limitations, future research should consider the use of prospective RCTs.

Femoral Fracture

Olasinde et al (2023) reported the results of a randomized trial that compared CPM to PT in patients who underwent retrograde femoral nailing for femoral fracture. 88 participants were randomized to CPM or conventional PT, each for 2 hours daily. Knee stiffness at weeks 1, 2, and 6 were significantly lower among patients who received CPM compared to patients who received conventional PT (all $p<.0001$). Pain scores were significantly lower for the first 7 days in the CPM group, and total arc of motion gained postoperatively was also significantly larger at postoperative weeks 1, 2, and 6 (all $p<.05$). Interpretation of these results is limited because the duration of the intervention was not clearly stated.

Humeral Fracture

Tille et al (2024) conducted an RCT to evaluate a CPM after plate osteosynthesis of proximal humeral fractures. A total of 95 patients were enrolled with 48 assigned to CPM and 47 without. PT was provided for all patients starting on day 7 postoperatively. CPM was utilized 2 to 3 times daily for 6 weeks after surgery. After 6 weeks, there was a significantly better range of motion for forward

flexion (90-degree with CPM vs. 80-degree in control; p=.035), adduction (30-degree with CPM vs. 30-degree with control; p=.049), and abduction (80-degree with CPM vs. 70-degree with control; p=.048) in the CPM group. There was no difference in other planes of motion. At 3 and 12 months of follow-up, the results between treatment groups were similar. The authors concluded that CPM results in a slightly better functional range of motion 6 weeks after surgery and could therefore be an asset towards faster rehabilitation especially in vulnerable patient groups with early return to work or high functional demand. However, the beneficial results are not sustained over time and do not seem to translate in the patient's perception since the PROMs do not differ between treatment groups.

Stroke

CPM has been studied to aid recovery of motor skills following stroke. Two small, randomized trials have reported mixed results with different CPM devices in combination with PT or occupational therapy compared to PT or occupational therapy alone in patients who have experienced stroke, including a statistically non-significant trend toward improvement for the outcome of shoulder joint stability and significant improvements in wrist extension range of motion, manual dexterity, and global symptoms related to upper extremity movement.

Lynch et al (2005) randomized 35 patients to daily sessions of use of a shoulder joint CPM device (25 minutes) or to daily group therapy sessions consisting of self-directed shoulder range of motion for poststroke rehabilitation. All patients also received standard poststroke therapy for 3.5 hours a day. After 20 days of therapy, there was a trend for greater shoulder joint stability in the CPM group (n=17; p=.06) compared with the control group (n=15). No statistically significant differences were found for measures of motor impairment. This trial had a small sample size and short follow-up period, suggesting it may have had inadequate power to detect important differences in key outcomes.

Kuo et al (2022) conducted a randomized, single-blind crossover study to compare the effects of using an Internet of things (IoT)-assisted tenodesis-induced-grip exoskeleton robot (TIGER) and task-specific motor training (TSMT) as home programs for the upper-limb (UL) functions of patients with chronic stroke. A total of 18 patients, aged 20 to 79 years, with mild to severe arm-hand impairment following unilateral stroke were randomized (at least 6 months post-stroke) to undergo home-based therapy sessions twice daily, 5 days per week for 4 weeks, consisting of either task-specific motor training with an occupational therapist or home-based therapy with a robotic exoskeleton system combining CPM and robot-assisted gripping exercises. All patients received standard-of-care occupational therapy and PT for 2 hours per week. Crossover occurred following a 12-week washout. Patients initially assigned to the robotic exoskeleton intervention followed by task-specific motor training experienced significantly greater improvement in wrist extension range of motion at the end of treatment compared to those who received interventions in the opposite order. Assessments of manual dexterity and motor performance of the upper extremity were significantly improved following exoskeleton therapy, whereas no significant differences in these measures were noted following task-specific motor training. A significantly greater proportion of patients reported improvements in global symptoms after exoskeleton therapy (77%) than after task-specific motor training (11%).

Tibial Head Fracture (THF)

Kabst et al (2022) conducted a prospective, nonblinded, controlled single-center trial of 60 patients who had been surgically treated for THF at a single-center in Germany. Patients were randomized into two groups of 30 patients each (CPM group and non-CPM group). CPM and conventional physical therapies started on the first postoperative day in both groups. Whereas the CPM group intensified its training with an additional CPM therapy for 21 days after discharge, the non-CPM group received conventional physical therapy only. Follow-up points were set for 6 weeks and 6 months post-operatively. While no statistically significant differences were observed in knee extension between groups at either follow-up point, the CPM group demonstrated significantly better outcomes in certain quality-of-life measures at six months post-surgery. However, when comparing progress from six weeks to six months, the non-CPM group showed slightly greater improvements in knee function and quality of life. Notably, reoperation was required in five patients (four from the non-CPM group and one from the CPM group). Study limitations included a 15% attrition rate at six months, short-term follow-up, single-center design, small sample size, and an imbalance in gender distribution favoring women in the CPM group.

PROFESSIONAL GUIDELINE(S)

American Academy of Orthopaedic Surgeons (AAOS)

- In 2015, the AAOS issued a clinical practice guideline on surgical management of osteoarthritis of the knee, stating that there is “Strong evidence supports that CPM after knee arthroplasty (KA) does not improve outcomes (Strength of Recommendation: Strong Evidence)”.
- In 2022, the AAOS’s clinical practice guideline for the surgical management of knee arthritis does not support routine postoperative CPM.

American Physical Therapy Association (APTA)

- In 2020, the APTA published a clinical practice guideline on physical therapist management of total knee arthroplasty (Jette 2020). The guideline states “Physical therapists should NOT use CPMs for patients who have undergone primary, uncomplicated TKA. (Evidence Quality: High; Recommendation Strength: Moderate).”

International Consensus Meeting (ICM)

- In 2022 the ICM brought together experts to generate practical recommendations for venous thromboembolism (VTE) prophylaxis across all types of orthopedic procedures. The ICM-VTE delegates issued an evidence-based recommendation:
- With 95% agreement, there is no conclusive evidence that CPM reduces the risk of VTE following knee surgery.

National Institute for Health and Care Excellence (NICE)

- The 2022 guideline for rehabilitation after traumatic injury recommends starting a personalized program of physical rehabilitation (e.g., weight-bearing exercises and gait training) as soon as possible. For people with lower limb injuries, include targeted weight-bearing exercises to progress the person’s function. Passive stretches are recommended once weight-bearing can begin.

REGULATORY STATUS

The U.S. Food and Drug Administration (FDA) regulates CPM as medical devices. All CPM including related components require FDA approval before marketing and use in the United States to ensure they are safe and effective for human use. Refer to the FDA Medical Device website. Available from: https://www.fda.gov/medical-devices [accessed 2026 Sep 17]

The FDA lists the most serious type of medical device recalls as well as early alert communications about corrective actions being taken by companies that the FDA believes are likely to be the most serious type of recalls. Available from: https://www.fda.gov/medical-devices/medical-device-safety/medical-device-recalls-and-early-alerts Medical Device Recalls | FDA [accessed 2026 Sept 17]

CODE(S)

- Codes may not be covered under all circumstances.
- Code list may not be all inclusive (AMA and CMS code updates may occur more frequently than policy updates).
- (E/I)=Experimental/Investigational
- (NMN)=Not medically necessary/appropriate

CPT Codes

Code	Description
Not Applicable	

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HCPCS Codes

Code	Description
E0935	Continuous passive motion exercise device for use on the knee only
E0936 (NMN)	Continuous passive motion exercise device for use other than knee
E1399 (*NMN)	Durable medical equipment, miscellaneous *NMN when specified as CMP using stationary cycling

ICD10 Codes

Code	Description
Multiple Codes	

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SEARCH TERMS

Not Applicable

CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

Durable Medical Equipment (NCD 280.1) [accessed 2026 Aug 11]

PRODUCT DISCLAIMER

- Services are contract dependent; if a product does not cover a service, medical policy criteria do not apply.
- If a commercial product (including an Essential Plan or Child Health Plus product) covers a specific service, medical policy criteria apply to the benefit.
- If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.
- If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.
- If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service, please refer to the Medicaid Product coverage line.

POLICY HISTORY/REVISION

Committee Approval Dates

06/16/99, 09/05/01, 11/21/02, 09/18/03, 06/17/04, 04/21/05, 06/22/06, 08/23/07, 10/23/08, 08/27/09, 08/26/10, 08/25/11, 10/25/12, 08/22/13, 08/28/14, 08/27/15, 10/27/16, 10/26/17, 08/23/18, 08/22/19, 08/20/20, 10/28/21, 10/20/22, 10/19/23, 10/17/24, 10/16/25, 10/22/26

Date	Summary of Changes
10/22/26	• Annual review; policy intent unchanged.
10/16/25	• Annual review, policy intent unchanged.
01/01/25	• Summary of changes tracking implemented.
06/16/99	• Original effective date