Continuous Passive Motion in the Home Setting
Corporate Medical Policy

File name: Continuous Passive Motion in the Home Setting
File code: UM. DME.11
Last Review: 05/2016
Next Review: 05/2017
Effective Date: 10/01/2016

Description/Summary

Physical therapy (PT) of joints following surgery focuses both on passive motion to restore mobility and active exercises to restore strength. While passive motion can be administered by a therapist, continuous passive motion (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. CPM has been most thoroughly investigated in the knee, particularly after total knee arthroplasty (TKA) or ligamentous or cartilage repair, but acceptance of its use in the knee joint has created interest in extrapolating this experience to other weight-bearing joints (ie, hip, ankle, metatarsals) and non-weight-bearing joints (ie, shoulder, elbow, metacarpals, interphalangeal joints). Use of CPM in stroke and burn patients is also being explored.

The device used for the knee moves the joint (eg, flexion/extension), without patient assistance, continuously for extended periods of time (ie, up to 24 h/d). An electrical power unit is used to set the variable range of motion (ROM) and speed. The initial settings for ROM are based on a patient’s level of comfort and other factors that are 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 the past 10 to 20 years, hospital lengths of stay have progressively shortened, and in some cases, surgical repair may be done either as an outpatient or with a length of stay of 1 to 2 days. As a result, there has been a considerable shift in the rehabilitation regimen, moving from an intensive in-hospital program to a less intensive outpatient program. Therefore, some providers may want patients to continue CPM in the home as a means of duplicating the services offered with a longer (7-day) hospital stay. The focus of the current review is to examine the literature regarding home use of CPM as it is currently being prescribed postoperatively. The most important comparisons will be treatment outcomes of CPM when used alone or in addition to conventional PT, compared with conventional PT alone.
Policy

Coding Information
Click the links below for attachments, coding tables & instructions.
Attachment I - HCPCS Code Table & Instructions

When a service may be considered medically necessary

1. Use of continuous passive motion (CPM) in the home setting may be considered medically necessary as an adjunct to physical therapy in the following situations:
   - Under conditions of low postoperative mobility or inability to comply with rehabilitation exercises following a total knee arthroplasty (TKA) or TKA revision. This may include patients with complex regional pain syndrome (reflex sympathetic dystrophy); extensive arthrofibrosis or tendon fibrosis; or physical, mental, or behavioral inability to participate in active physical therapy.
   - During the non-weight-bearing rehabilitation period following intra-articular cartilage repair procedures of the knee (eg, microfracture, osteochondral grafting, autologous chondrocyte implantation, treatment of osteochondritis dissecans, repair of tibial plateau fractures).
   - During the non-weight-bearing rehabilitation period following anterior cruciate ligament (ACL) repair.

When a service is considered not medically necessary

2. Use of continuous passive motion (CPM) in the home setting may be considered not medically necessary as an adjunct to physical therapy for all other conditions is considered not medically necessary.

Policy Guidelines

This policy only addresses CPM in the home setting (ie, not the hospital setting).

Following total knee arthroplasty (TKA), continuous passive motion (CPM) in the home setting will be allowable for up to 17 days after surgery while patients are immobile or unable to bear weight.

Following intra-articular cartilage repair procedures of the knee, CPM in the home setting will be allowable for up to 6 weeks during non-weight-bearing rehabilitation.

Rationale

This evidence review was originally created in November 1996. Literature review updates of the MEDLINE database, focusing on randomized trials of continuous passive motion (CPM) used in the home setting, were performed periodically through January 29, 2016. Most studies identified focused on the use of CPM for the knee. Therefore,
the first sections focus on different surgical procedures for the knee, followed by an examination of CPM for other joints.

**Total Knee Arthroplasty**

**Early Postoperative In-Hospital Setting**

The original evidence review was based on a 1997 TEC Assessment that concluded CPM met the TEC criteria as an adjunct to physical therapy (PT) in patients undergoing total knee arthroplasty (TKA). Early studies of CPM machines focused on their use in the hospital setting, in which the impact on length of stay was frequently considered a key clinical outcome, and so the TEC Assessment did not specifically examine the place of service of CPM or the length of time that the CPM machines were used. For example, a critical study identified in the TEC Assessment was a randomized controlled trial (RCT) by McInnes et al that examined the use of CPM initiated in the immediate postoperative period and continued throughout the 7-day hospital stay. At 6 weeks postoperatively, the most salient difference between groups was an increased incidence of arthrofibrosis requiring manipulation in the non-CPM group.

Efficacy in the early postoperative period has been cited as a reason to support the continued use of these devices in the home setting following early discharge. CPM after TKA was the subject of a 2003 Cochrane review. This review reported that CPM combined with PT significantly increased active knee flexion and decreased length of stay. However, the analysis suggests that the benefits of CPM in a hospital setting may be small and only short term. This Cochrane review was updated in 2010 and again in 2014. The updated review included 24 RCTs with 1445 participants and examined short-term (<6 weeks), medium-term (6 weeks to 6 months), and long-term (>6 months) effects of CPM. Most of the included studies examined short-term effects. CPM was applied for 1.5 to 24 hours a day, over 1 to 17 days. The review found that there was moderate-quality evidence indicating that CPM increases passive and active knee flexion range of motion (ROM; mean difference, 2°), but the effects were too small to be clinically worthwhile. Low-quality evidence indicated that CPM does not have clinically important short-term effects on pain (-0.4 points on a 10-point scale), and moderate-quality evidence indicated that CPM does not have clinically important medium-term effects on function or quality of life. Very low-quality evidence indicated that CPM may reduce the need for manipulation under anesthesia (25 fewer manipulations per 1000; risk ratio, 0.3), and low-quality evidence suggested that CPM reduced the risk of adverse events (13 fewer adverse events per 1000, risk ratio, 0.9). The review concluded that CPM does not have clinically important effects on active knee flexion ROM, pain, function, or quality of life to justify its routine use. It may reduce the risk of manipulation under anesthesia and risk of adverse events, although the quality of evidence supporting these findings was very low and low, respectively. A 2014 Cochrane review that included 11 RCTs found no evidence that CPM reduced venous thromboembolism after TKA.

Yashar et al reported on a trial that randomly assigned 178 patients undergoing TKA to CPM immediately in the postoperative period or to CPM 1 day after surgery. A small but statistically significant improvement in flexion was found at the time of discharge among those started on immediate CPM, but this difference did not persist at 4 weeks. MacDonald et al reported on a randomized trial focusing on immediate postoperative versus no postoperative CPM in a group of patients undergoing TKA.
Patients received a maximum of 24 hours with CPM. There were no differences between the treatment groups for ROM, length of stay, or analgesic requirements. In a trial reported by Pope et al, 53 patients were randomly assigned to either 1 of 2 different schedules of CPM (both for 48 hours) or no CPM. The use of CPM was not associated with improved long-term function or ROM.10 Kumar et al randomly assigned 73 patients who had undergone TKA to receive either CPM in the immediate postoperative period or a protocol of early passive flexion referred to as the “drop and dangle” technique.11 Patients assigned to this protocol were discharged from the hospital 1 day earlier and also had a statistically better extension range of 2.8° at 6 months compared with the CPM group.

Other RCTs have found that 2 to 4 hours of daily CPM in the hospital after TKA does not improve postoperative outcomes at discharge or follow-up.12-15 For example, Bruun-Olsen et al randomly assigned 63 patients undergoing TKA to receive active PT exercises with or without CPM to assess whether there was short-term benefit on pain or function.12 In both groups, exercises were performed daily for 30 minutes, starting 1 day after surgery and continuing until discharge at 1 week. For the experimental group, CPM was provided for 4 hours on the day of surgery, followed by 6 hours daily in addition to therapist-guided exercises. Blinded assessment at 1 week and 3 months after surgery showed similar results for pain and function in the 2 groups; at 1 week, both groups had visual analog scale (VAS) pain ratings of 40 and flexion scores that were within 2° of each other. Functional testing at 3 months showed no benefit of adjunctive CPM. The lack of improvement with CPM noted in these studies may be due to the practice of permitting patients to mobilize or commence flexion immediately following surgery.14 A 2014 study of 150 patients undergoing TKA found no benefit of CPM when used over a 2-day postoperative hospital stay.15

**Inpatient Rehabilitation Hospital Setting**

In a 2014 RCT by Herbold et al, 141 TKA patients were assigned to either daily conventional therapy lasting 3 hours or daily CPM for 2 hours throughout their inpatient rehabilitation stay.16 After an average length of stay of 8 days for both groups, there were no significant differences between the CPM and no CPM groups for active ROM, Timed Up and Go test, knee girth, Functional Independence Measure scores, ambulation device at discharge, or on the self-reported Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

A retrospective comparative study by the same group evaluated use of CPM in 61 matched pairs of patients admitted to a rehabilitation hospital.17 Outcomes following use of CPM were compared with those from a cohort of 61 inpatients who also had poor initial ROM, defined as less than 75° of active knee flexion at the time of admission, and matched for postoperative day at admission, age, length of stay, and Health Insurance Prospective Payment System (HIPPS) code. Use of CPM (2 h/d) was determined primarily by the referring physician and was used in 29% of the pool of 633 patients who had poor initial ROM. Average length of stay was 7.85 days. There were no significant differences in outcomes at discharge, including knee flexion or extension, discharge to the community, need for home care services, need for an assistive device, or functional scores on the HIPPS.

Chen et al randomly assigned 51 patients in an inpatient rehabilitation service who had undergone TKA to receive conventional active PT or PT plus CPM.18 Referral to the
rehabilitation center was made 5 to 6 days after surgery, and most had received CPM as part of the initial hospitalization. Knee flexion was the principal outcome. No significant difference was noted in passive ROM between the 2 groups, as measured on admission, on the third and seventh days, and at the time of discharge (8 days after admission). Thus, the use of CPM in the rehabilitation hospital offered no added benefit.

**Home Setting**
A study by Worland et al was the only controlled study identified that compared the use of CPM with active PT in the home setting. In this study, 80 patients undergoing TKA were randomly assigned to receive, at discharge, home CPM (3 h/d for 10 days) or active PT, as offered by professional physical therapists. Most studies have examined CPM as an adjunct to active PT; therefore, this study is unique in that CPM is proposed as an alternative to PT. At 2 weeks, knee flexion was similar in the 2 groups, but a flexion contracture was noted in 1 patient in the CPM group. At 6 months, no differences were found in knee scores or knee flexion.

In another RCT, 60 patients with limited flexion ROM (<80°) at the time of hospital discharge were assigned to standard PT alone or in combination with CPM in the home (4 h/d) until assessment on postoperative day 17.20 Blinded assessment showed a trend for an increase in ROM for the CPM group (eg, 89° vs 84°, respectively, p=0.07), with no differences in function between the groups, as measured by the Knee Society Score (function subscore 43 vs 40, respectively) or the WOMAC difficulty score (49 vs 45, respectively). No differences were observed between groups in ROM or function at the 6-week or 3-month assessment. In addition, no differences were observed for the secondary outcome measures (perceived effect, medication use, satisfaction with treatment, adherence) at either of the assessment times.

**Section Summary: Total Knee Arthroplasty**
Numerous RCTs have been performed comparing CPM as an adjunct with PT for patients undergoing TKA. Early trials generally used CPM in the inpatient setting and are less relevant to today’s practice patterns of shorter hospital stays followed by outpatient rehabilitation. Some of these trials report an improvement in ROM for patients receiving CPM, but these improvements are short term, of small magnitude, and of uncertain clinical significance. Those RCTs that specifically evaluated CPM in the home setting did not show improved outcomes with CPM. No RCTs were identified that evaluated CPM in patients with low mobility or inability to comply with PT.

**Intra-Articular Cartilage Repair of the Knee**
Although no RCTs were identified that compared health outcomes with or without the use of CPM, CPM is apparently routinely used as a part of the rehabilitation protocol for as long as 6 weeks when weight bearing is restricted following autologous chondrocyte implantation (ACI).21-23 Basic research supports the use of CPM to obtain greater healing of articular cartilage of full-thickness defects that penetrate the subchondral bone compared with either immobilization or intermittent mobilization.24,25

In 2010, Fazalare et al published a systematic review of CPM following knee cartilage defect surgery.26 The review found that CPM had been used following ACI, microfracture, and osteochondral autografts in numerous studies in the previous 5
years. Four level III (cohort) studies with 262 patients were identified that specifically compared CPM with no CPM; no RCTs were identified. Procedures in these 4 studies included microfracture, periosteal transplant of the patella, and high tibial osteotomy with either diagnostic arthroscopy or abrasion arthroplasty. CPM regimens ranged from 6 days to 8 weeks. Heterogeneity in the studies and outdated surgical techniques limited conclusions from these trials. The review concluded that those studies examining clinical outcomes of CPM did not allow a definitive conclusion of efficacy. The review cites several studies in which other outcomes (eg, histologic outcomes on follow-up biopsies) favor CPM.

Another systematic review by Howard et al evaluated CPM and other postoperative practices after knee cartilage repair.27 This review cites several basic science studies that appear to support CPM. The authors identified 2 clinical studies, both of which were nonrandomized comparative studies. In 1 study, there were no differences between groups in clinical or functional outcomes at an average follow-up of 4.2 years. In the other study, the CPM group had greater improvement in grading of the cartilage lesion.

Other Musculoskeletal Conditions Requiring Physical Therapy

Intra-Articular Knee Fractures
Hill et al randomized 40 patients with intra-articular fractures of either the proximal part of the tibia or the distal end of the femur to standardized PT with or without the use of CPM for 48 hours postoperatively.28 At the 48-hour assessment, the CPM group had significantly greater knee flexion (43° difference, p<0.005). However, 6 of 20 patients were unable to tolerate CPM, and there was no benefit to adding 48 hours of CPM when assessed at any of the follow-up visits (2, 6, 12, 24 weeks).

Anterior Cruciate Ligament Repair
The literature review did not identify any RCTs of CPM in the home setting after repair of the anterior cruciate ligament (ACL). Therefore, the studies of CPM after ACL repair in the immediate postoperative period may possibly be relevant to the home setting for patients who are discharged following a shorter hospital stay. The 1997 TEC Assessment concluded that CPM in the immediate postoperative period as an adjunct to conventional PT offered no demonstrable advantage over conventional PT alone.1 In a 2008 systematic review of ACL reconstruction rehabilitation, Wright et al discussed 6 RCTs on CPM that had been published before 1996; no RCTs published after the 1997 TEC Assessment were identified.29 The review found no substantial advantage for CPM use and concluded that CPM for ACL rehabilitation could not be justified. Wright et al also noted that most current ACL rehabilitation protocols initiate early motion within the first postoperative week.

Rotator Cuff
Passive shoulder motion has been studied after shoulder surgery, particularly after repair of the rotator cuff. In 2011, Du Plessis et al published a systematic review of CPM following rotator cuff repair, with a literature review performed in 2009.30 Three RCTs with a total of 113 patients were included in the review. A meta-analysis could not be conducted due to heterogeneity in populations studied, in outcome measurements and tools, and in interventions and comparisons. Two of the RCTs included in this review were the studies by Lastayo et al and Raab et al discussed
The third study included in the systematic review was a German-language report that found a significant reduction of 12 days in the time to reach 90° abduction compared with a PT control group, with no significant difference in pain between the 2 groups.

The 2 RCTs included in the systematic review were small. Lastayo et al reported the results of a trial that randomly assigned 31 patients undergoing rotator cuff repair to 1 of 2 types of postoperative management: a 4-week home program of CPM (average, 3 h/d) or manual passive elevation and rotation exercises.31 No significant difference in outcomes was observed between the 2 approaches. Raab et al conducted a trial that randomly assigned 26 patients to undergo postoperative PT alone or in combination with CPM.32 Patients were evaluated with preoperative and 3-month postoperative shoulder scores that incorporated pain, function, muscle strength, and ROM. A statistically significant improvement was found in the subscore of ROM for those receiving CPM, although there was no significant improvement in overall shoulder score in the CPM group compared with the control group. Both of these RCTs were likely underpowered to show differences on important clinical outcomes.

In 2010, Garofalo et al reported another randomized study on the effects of CPM after rotator cuff repair.33 All 100 patients underwent passive self-assisted ROM exercise, with additional use of CPM in roughly half of the patients for 2 hours per day (4 sessions at 30 minutes each) for 4 weeks. The physical therapist–supervised exercises included pendulum movements and progressive passive abduction, forward flexions, and external rotation. Otherwise, the shoulder was immobilized in a sling brace for 4 weeks after surgery. From the 5th to the 28th week, all patients underwent the same PT protocol. ROM and VAS ratings for pain were measured at 2.5, 6, and 12 months by an independent examiner. When comparisons were made between the group that received CPM and the group that did not, VAS ratings were slightly better at 2.5-month follow-up (7.5 vs 9.1), but not at the 6-month (0.5 vs 0.6) or 12-month (0.2 vs 0.2, all respectively) evaluations. Use of pain medication was not examined. ROM was significantly better in the group of patients who used CPM versus those who did not at 2.5-month follow-up (eg, forward flexion of 133.0 vs 120.7) and 6 months (158.1 vs 151.7), but not at 12 months (165.2 vs 158.0, all respectively).

Section Summary: Rotator Cuff
Three small RCTs of CPM following rotator cuff surgery have been identified in the English-language literature. Two of these trials report short-term improvements in ROM for patients undergoing CPM, and 1 reports a short-term reduction in pain. None of the trials reported long-term improvements or 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 after shoulder surgery, and so the optimal comparison for CPM is not clear.

Hip
One pilot study examined the use of CPM of the hip in patients with osteoarthritis in the absence of surgical intervention.34 In this uncontrolled study, CPM was used for 1.2 to 7.6 hours daily for a 12-week trial. While improvements were noted in the patients’ assessment of pain, a controlled trial is needed to validate this treatment effect, particularly in comparison with a program of regular walking.
Adhesive Capsulitis of the Shoulder
Dundar et al compared CPM with PT in a randomized trial of 57 patients with adhesive capsulitis (frozen shoulder). CPM or PT was provided for 1 hour a day (5 d/wk) for 4 weeks. Pain and function were similar in the 2 groups at baseline, with VAS scores for pain ranging from 5.44 (at rest) to 6.34 (with movement). Assessments at baseline, 4, and 12 weeks showed improvements in pain and function for both groups. However, CPM resulted in better pain reduction than PT (at rest, 47% vs 25%; with movement, 35% vs 21%; and at night, 36% vs 19%, all respectively). There were no differences between groups in ROM or functional ability. This study provides modest support for the inclusion of CPM in a PT program for this patient population.

Stroke
CPM has also been studied as a means to aid recovery of motor skills following stroke. One study randomly assigned 35 patients to daily sessions of CPM (25 minutes) or daily group therapy sessions consisting of self-range of motion for poststroke rehabilitation. All patients also received standard poststroke therapy for 3.5 hours a day. Following 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 study is limited by the small sample size and the short follow-up period.

Elbow
Postoperative management of open elbow contracture release with CPM was assessed in a matched cohort study by Lindenhovius et al. Sixteen patients who had used CPM after open contracture release and 16 patients who had not used CPM after surgery were matched for age, gender, diagnosis, ROM, and radiographic appearance. Improvements in ROM did not differ between groups for either early (range, 4-10 months) or final (range, 11-56 months) evaluations.

Hand
The 1997 TEC Assessment reviewed a multicenter study of CPM in patients who had undergone flexor tendon repair, and found that data were inadequate to permit scientific conclusions about its application. Ring et al conducted a randomized study that examined the role of CPM in patients undergoing silicone interposition arthroplasty of the metacarpophalangeal joints secondary to rheumatoid arthritis. Patients were randomly assigned to receive either a 6-week protocol of CPM (10 hands [40 joints]) or the standard dynamic splint protocol (15 hands [60 joints]). The study did not show better outcomes in the CPM group. A retrospective study using chart review compared 15 patients who had received CPM after tenolysis with 21 who did not. The patients who received CPM improved total active motion by 40 degrees (17 degrees to 177 degrees), while patients who did not receive CPM improved total active motion by 32 degrees (152 degrees to 184 degrees); however, this difference was not statistically significant.

Foot
One study compared CPM versus immobilization following surgical treatment of idiopathic club foot in 37 infants (50 feet). The infants were randomly assigned to CPM (4 h/d) or casting during days 10 to 42 following surgery. Blinded analysis showed improvements in the Dimeglio club foot score with CPM (from 9.7 to 3.1) that were significantly greater than in the control group (from 10.3 to 4.2) through 12 months (97% follow-up). Between 12 and 18 months, this trend reversed and by 48 months
after surgery, there was no significant difference between the 2 groups. Another study reported low compliance with this treatment.41

Back
A randomized trial evaluated a specific CPM device for treatment of chronic low back pain in 36 patients.42 Although patients treated with the device appeared to have improved outcomes on a numeric rating scale of back pain compared to waiting-list controls, the study has significant methodologic problems. Patients who received other treatments were excluded, a large number of subjects dropped out, and control patients did not receive any conservative management.

Ongoing and Unpublished Clinical Trials
A search of ClinicalTrials.gov in January 2016 did not identify any ongoing or unpublished trials that would likely influence this review.

Summary of Evidence
The evidence for continuous passive motion (CPM) in individuals who have total knee arthroplasty (TKA) requiring physical therapy (PT) includes randomized clinical trials (RCTs), case series, and systematic reviews. 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 the 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 to standard PT. There were no studies evaluating CPM in patients who cannot perform standard PT. The evidence is insufficient to determine the effects of the technology on health outcomes.

The evidence for CPM in individuals who have intra-articular cartilage repair of the knee includes nonrandomized studies, case series, and studies with nonclinical outcomes (eg, histology). Relevant outcomes are symptoms and functional outcomes. Systematic reviews of CPM for this indication cite studies reporting better histologic outcomes in patients following CPM. A few studies have reported clinical outcomes, but inadequacies of these studies do not permit conclusions of efficacy. The evidence is insufficient to determine the effects of the technology on health outcomes.

The evidence for CPM in individuals who have other musculoskeletal conditions requiring PT includes RCTs for some conditions and only case series for others. Relevant outcomes are symptoms and functional outcomes. Three small RCTs of CPM after rotator cuff surgery showed some evidence that CPM after rotator cuff repair of the shoulder improves short-term pain and range of motion; however, the studies were not of high quality, and the small differences in outcomes may not be clinically important. Two of these trials reported short-term improvements in range of motion for patients undergoing CPM, and 1 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 comparison for CPM is unclear. For other conditions, RCTs do not exist; case series did not show efficacy of CPM or had
important methodologic flaws. The evidence is insufficient to determine the effects of the technology on health outcomes.

SUPPLEMENTAL INFORMATION

Clinical Input Received From 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.

2010 Input
In response to requests, input was received from 2 physician specialty societies and 5 academic medical centers while this policy was under review in 2010. Overall, clinical input supported the use of continuous passive motion (CPM) under conditions of low postoperative mobility or inability to comply with rehabilitation exercises following a TKA or TKA revision or during the non-weight-bearing rehabilitation period following intra-articular cartilage repair procedures of the knee. Support was limited for use of CPM in joints other than the knee, or in situations/conditions other than those described in this policy.

2008 Input
In response to requests, input was received from 1 physician specialty society and 2 academic medical centers while this policy was under review in 2008. The 3 reviewers interpreted the existing literature as providing support for 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
Clinical practice guidelines from the French Physical Medicine and Rehabilitation Society conclude that evidence is not sufficient to recommend substituting CPM for other rehabilitation techniques aimed at early mobilization after TKA.43 The evidence review found no positive effect of CPM over intermittent early mobilization, at short- or long-term follow-up.

Reference Resources

1. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). Continuous Passive Motion as an Adjunct to Physical Therapy for Joint Rehabilitation. TEC Assessments. 1997;Volume 12(Tab 20).


45. Blue Cross Blue Shield Association (BCBSA) MPRM 1.01.10, reviewed 03/2016.

Document Precedence
Blue Cross and Blue Shield of Vermont (BCBSVT) Medical Policies are developed to provide clinical guidance and are based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. The applicable group/individual contract and member certificate language determines benefits that are in effect at the time of service. Since medical practices and knowledge are constantly evolving, BCBSVT reserves the right to review and revise its medical policies periodically. To the extent that there may be any conflict between medical policy and contract language, the member’s contract language takes precedence.

Audit Information
BCBSVT reserves the right to conduct audits on any provider and/or facility to ensure compliance with the guidelines stated in the medical policy. If an audit identifies instances of non-compliance with this medical policy, BCBSVT reserves the right to recoup all non-compliant payments.
Administrative and Contractual Guidance

Benefit Determination Guidance

Prior approval is required and benefits are subject to all terms, limitations and conditions of the subscriber contract.

An approved referral authorization for members of the New England Health Plan (NEHP) is required. A prior approval for Access Blue New England (ABNE) members is required. NEHP/ABNE members may have different benefits for services listed in this policy. To confirm benefits, please contact the customer service department at the member’s health plan.

Federal Employee Program (FEP): Members may have different benefits that apply. For further information please contact FEP customer service or refer to the FEP Service Benefit Plan Brochure. It is important to verify the member’s benefits prior to providing the service to determine if benefits are available or if there is a specific exclusion in the member’s benefit.

Coverage varies according to the member’s group or individual contract. Not all groups are required to follow the Vermont legislative mandates. Member Contract language takes precedence over medical policy when there is a conflict. If the member receives benefits through an Administrative Services Only (ASO) group, benefits may vary or not apply. To verify benefit information, please refer to the member’s employer benefit plan documents or contact the customer service department. Language in the employer benefit plan documents takes precedence over medical policy when there is a conflict.

Policy Implementation/Update information

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/2005</td>
<td>Reviewed and updated with additional clinical criteria.</td>
</tr>
<tr>
<td>01/2007</td>
<td>Reviewed and updated with change in description and clarification of criteria. Reviewed and approved by the BCBSVT Clinical Advisory Committee March 2007.</td>
</tr>
<tr>
<td>11/2007</td>
<td>Updated with minor wording changes.</td>
</tr>
<tr>
<td>04/2010</td>
<td>Updated to mirror BCBSA Medical Policy, but preserving individual consideration for rehabilitation failure requiring repeat surgery.</td>
</tr>
<tr>
<td>01/2011</td>
<td>Reviewed and updated with additional clinical criteria, clarification of existing criteria. Minor wording changes</td>
</tr>
<tr>
<td>02/2014</td>
<td>ICD-10 remediation only. RLJ</td>
</tr>
<tr>
<td>02/2015</td>
<td>Adopted BCBSA medical policy for CPM (#1.01.10). Added previous ACL repair as medically appropriate use of CPM. Diagnosis code table removed. No longer diagnosis driven. PA still required. RLG.</td>
</tr>
<tr>
<td>05/2016</td>
<td>Reviewed and updated references; minor wording changes.</td>
</tr>
</tbody>
</table>

Eligible providers

Qualified healthcare professionals practicing within the scope of their license(s).
Attachment I

**HCPCS Coding Table & Instructions**

<table>
<thead>
<tr>
<th>Code Type</th>
<th>Number</th>
<th>Description</th>
<th>Policy Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>E0935</td>
<td>Continuous passive motion exercise device for use on knee only</td>
<td>Prior Approval Required</td>
</tr>
<tr>
<td>HCPCS</td>
<td>E0936</td>
<td>Continuous passive motion exercise device for use other than knee</td>
<td>Prior Approval Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The following codes will be considered as medically necessary when applicable criteria have been met.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type of Service</td>
<td>Durable Medical Equipment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Place of Service</td>
<td>Home, Outpatient</td>
</tr>
</tbody>
</table>