

<b>1.01.10 Continuous Passive Motion in the Home Setting</b>	
<b>Original Policy Date:</b> June 8, 1994	<b>Effective Date:</b> May 1, 2021
<b>Section:</b> 1.0 Durable Medical Equipment	<b>Page:</b> Page 1 of 17

**Policy Statement**

Use of continuous passive motion (CPM) in the home setting may be considered **medically necessary** as an adjunct to physical therapy in **either** of the following situations:

- I. Under conditions of low postoperative mobility or inability to comply with rehabilitation exercises following a [total knee arthroplasty \(TKA\) or TKA revision](#)
- II. During the non-weight-bearing rehabilitation period following [articular cartilage repair](#) procedures of the knee (e.g., microfracture, osteochondral grafting, autologous chondrocyte implantation, treatment of osteochondritis dissecans, repair of tibial plateau fractures)

Use of continuous passive motion (CPM) in the home setting for all other conditions is considered **investigational**.

**NOTE:** Refer to [Appendix A](#) to see the policy statement changes (if any) from the previous version.

**Policy Guidelines**

The current policy only addresses CPM in the home setting (i.e., not the hospital setting).

Following total knee arthroplasty, CPM in the home setting will be allowable for up to 17 days after surgery while patients are immobile or unable to bear weight. This may include patients with complex regional pain syndrome (reflex sympathetic dystrophy [RSD]); extensive arthrofibrosis or tendon fibrosis; or physical, mental, or behavioral inability to participate in active physical therapy.

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

**Coding**

There are specific HCPCS codes for the CPM device as listed below:

- **E0935:** Continuous passive motion exercise device for use on knee only
- **E0936:** Continuous passive motion exercise device for use other than knee

**Description**

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

**Related Policies**

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

**Benefit Application**

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the

contract language will control. 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.

Some state or federal mandates (e.g., Federal Employee Program [FEP]) prohibits plans from denying Food and Drug Administration (FDA)-approved technologies as investigational. In these instances, plans may have to consider the coverage eligibility of FDA-approved technologies on the basis of medical necessity alone.

## Regulatory Status

Continuous passive motion devices are considered class 1 devices by the U.S. Food and Drug Administration and are exempt range of motion 510(k) requirements. This classification does not require submission of clinical data on efficacy but only notification of the Food and Drug Administration prior to marketing. Food and Drug Administration product code: BXB.

## Rationale

### 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, continuous passive motion devices have also been used. Continuous passive motion 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. Continuous passive motion has been investigated primarily in the knee, particularly after total knee arthroplasty or ligamentous or cartilage repair. Acceptance of its use in the knee joint has created interest in continuous passive motion use 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 continuous passive motion in stroke and burn patients is also being explored.

The device used for the knee moves the joint (e.g., flexion and extension) without patient assistance, continuously for extended periods of time (i.e., up to 24 h/d). An electrical power unit is used to set the variable range of motion and speed. The initial settings for range of motion are based on a patient's level of comfort and other factors assessed intraoperatively. The range of motion is increased by 3 to 5 per day, as tolerated. The speed and range of motion 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 1 to 2 days. As a result, there has been a considerable shift in the rehabilitation regimen, moving range of motion an intensive in-hospital program to a less intensive outpatient program. Some providers may want patients to continue continuous passive motion in the home setting as a means of duplicating services offered with a longer (7-day) hospital stay.

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

### Literature Review

Evidence reviews assess the clinical evidence to determine whether the use of technology improves the net health outcome. Broadly defined, health outcomes are the length of life, quality of life, and ability to function including benefits and harms. Every clinical condition has

specific outcomes that are important to patients and managing the course of that condition. Validated outcome measures are necessary to ascertain whether a condition improves or worsens; and whether the magnitude of that change is clinically significant. The net health outcome is a balance of benefits and harms.

To assess whether the evidence is sufficient to draw conclusions about the net health outcome of technology, two domains are examined: the relevance, and quality and credibility. To be relevant, studies must represent one or more intended clinical use of the technology in the intended population and compare an effective and appropriate alternative at a comparable intensity. For some conditions, the alternative will be supportive care or surveillance. The quality and credibility of the evidence depend on study design and conduct, minimizing bias and confounding that can generate incorrect findings. The randomized controlled trial (RCT) is preferred to assess efficacy; however, in some circumstances, nonrandomized studies may be adequate. RCTs are rarely large enough or long enough to capture less common adverse events and long-term effects. Other types of studies can be used for these purposes and to assess generalizability to broader clinical populations and settings of clinical practice.

### Total Knee Arthroplasty Early Postoperative In-Hospital Setting Review of Evidence

#### Systematic Reviews

This evidence review was informed by a Blue Cross Blue Shield Association Technology Evaluation Center (TEC) Assessment (1997) that concluded continuous passive motion met the TEC criteria as an adjunct to physical therapy (PT) in patients undergoing total knee arthroplasty.<sup>1</sup> Early studies of continuous passive motion 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 point of service or the length of time continuous passive motion devices were used. A critical study identified in the TEC Assessment was an RCT by McInnes et al (1992) that compared use of continuous passive motion initiated in the immediate postoperative period and continued through the 7-day hospital stay with standard rehabilitation alone.<sup>2</sup> At 6 weeks postoperatively, the most salient difference between groups was an increased incidence of arthrofibrosis requiring manipulation in the non-continuous passive motion group.

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. continuous passive motion after total knee arthroplasty was the subject of a 2003 Cochrane review.<sup>3</sup> Reviewers reported that continuous passive motion combined with PT significantly increased active knee flexion and decreased length of stay. However, the analysis suggested the benefits of continuous passive motion in a hospital setting may be small and only short-term.<sup>4</sup> This Cochrane review was updated in 2010 and again in 2014.<sup>5,6</sup> The updated review included 24 RCTs with 1,445 participants and examined short-term (<6 weeks), medium-term (6 weeks to 6 months), and long-term (>6 months) effects of continuous passive motion. Most selected studies examined short-term effects. continuous passive motion was applied for 1.5 to 24 hours a day, over 1 to 17 days. A summary of findings is provided in Table 1.

**Table 1. 2014 Cochrane Review Findings on Continuous Passive Motion**

Findings	QOE
continuous passive motion increases passive and active knee flexion range of motion (mean difference, 2), but the effects were too small to be clinically relevant	Moderate
continuous passive motion does not have clinically important short-term effects on pain (-0.4 points on a 10-point scale)	Low
continuous passive motion does not have clinically important medium-term effects on function or quality of life	Moderate

Findings	QOE
continuous passive motion may reduce the need for manipulation under anesthesia (25 fewer manipulations per 1000; RR=0.3)	Very low
continuous passive motion reduced the risk of adverse events (13 fewer adverse events per 1000, RR=0.9)	Low

Adapted from Harvey et al (2014).<sup>5</sup> continuous passive motion: continuous passive motion; QOE: quality of evidence; RR: relative risk.

Another 2014 Cochrane systematic review, which included 11 RCTs, found no evidence that continuous passive motion reduced venous thromboembolism after total knee arthroplasty.<sup>7</sup>

### Randomized Controlled Trials

Yashar et al (1997) randomized 178 patients undergoing total knee arthroplasty to continuous passive motion immediately postsurgery or to continuous passive motion 1 day postsurgery.<sup>8</sup> A small but statistically significant improvement in flexion was found at the time of discharge among those started on immediate continuous passive motion but this difference did not persist at four weeks. MacDonald et al (2000) reported on a randomized trial comparing immediate postoperative continuous passive motion with no continuous passive motion for 120 patients after total knee arthroplasty.<sup>9</sup> Patients received a maximum of 24 hours with continuous passive motion. There were no differences between treatment groups in range of motion, length of stay, or analgesic requirements. In a trial reported by Pope et al (1997), 53 patients were randomized to 1 of 2 schedules of continuous passive motion (both for 48 hours) or to no continuous passive motion.<sup>10</sup> The use of continuous passive motion was not associated with improved long-term function or range of motion. Kumar et al (1996) randomized 73 patients who had undergone total knee arthroplasty to continuous passive motion immediately postsurgery or to a protocol of early passive flexion, referred to as the “drop and dangle” technique.<sup>11</sup> Patients assigned to passive flexion were discharged range of motion the hospital one day earlier and also had a statistically better extension range of 2.8 at 6 months than the continuous passive motion group.

Other RCTs have found that 2 to 4 hours of daily continuous passive motion in the hospital after total knee arthroplasty did not improve postoperative outcomes at discharge or follow-up.<sup>12-15</sup> In one trial, Bruun-Olsen et al (2009) randomized 63 patients undergoing total knee arthroplasty to active PT exercises with or without continuous passive motion to assess any short-term benefit on pain or function.<sup>12</sup> 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, continuous passive motion was administered for 4 hours on the day of surgery, followed by 6 hours daily in addition to therapist-guided exercises. Blinded assessments 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 pain ratings of 40 and flexion scores within 2 of each other. Functional testing at 3 months showed no benefit of adjunctive continuous passive motion. The lack of improvement with continuous passive motion in these studies might have been attributable to patients mobilizing or commencing flexion immediately following surgery.<sup>14</sup> A 2014 study of 150 patients undergoing total knee arthroplasty found no benefit of continuous passive motion when used over a 2-day postoperative hospital stay.<sup>15</sup>

### Non-Acute Care Hospital Setting

In a RCT, Herbold et al (2014) assessed 141 total knee arthroplasty patients assigned to daily conventional therapy lasting 3 hours or daily continuous passive motion for 2 hours throughout their inpatient rehabilitation stay.<sup>16</sup> After an average length of stay of eight days, there were no significant differences between the continuous passive motion and no continuous passive motion groups for active range of motion, 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 scores.

In 2000, Chen et al (2000) randomized 51 patients in an inpatient rehabilitation service who had undergone total knee arthroplasty to conventional active physical therapy or to physical therapy plus continuous passive motion.<sup>17</sup> Referral to the rehabilitation center was made 5 to 6 days after surgery, and most had received continuous passive motion as part of the initial

hospitalization. Knee flexion was the principal outcome. No significant differences were noted in passive range of motion between the 2 groups, as measured on admission, on the third and seventh days, and at the time of discharge (8 days postadmission). Thus, the use of continuous passive motion in the rehabilitation hospital offered no added benefit.

In a 2012 retrospective comparative study, the same group as the Herbold et al RCT evaluated the use of continuous passive motion in 61 matched pairs of patients admitted to a rehabilitation hospital.<sup>18</sup> Outcomes following use of continuous passive motion were compared with those range of motion a cohort of 61 inpatients who also had poor initial range of motion, 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 code. Use of continuous passive motion (2 h/d) was determined primarily by the referring physician and used in 29% of the pool of 633 patients who had poor initial range of motion. 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 Health Insurance Prospective Payment System.

### Home Setting

A study by Worland et al (1998) compared the use of continuous passive motion with active physical therapy in the home setting. At discharge, they randomized 80 patients undergoing total knee arthroplasty to home continuous passive motion (3 h/d for 10 days) or to active physical therapy.<sup>19</sup> Most studies have examined continuous passive motion as an adjunct to active physical therapy, while this study proposed continuous passive motion as an alternative to physical therapy. At 2 weeks, knee flexion was similar in both groups but a flexion contracture was noted in 1 patient in the continuous passive motion group. At 6 months, no differences were found in knee scores or knee flexion.

In another RCT, Lenssen et al (2008) evaluated 60 patients with limited flexion range of motion (<80) at the time of hospital discharge who were assigned to standard physical therapy alone or physical therapy plus continuous passive motion in the home (4 h/d) until assessment on postoperative day 17.<sup>20</sup> Blinded assessment showed a trend for increased range of motion for the continuous passive motion group (e.g., 89 vs 84, respectively,  $p=0.07$ ), with no differences in function between groups, as measured by the Knee Society Score (function subscore 43 vs 40, respectively) and the Western Ontario and McMaster Universities Osteoarthritis Index difficulty score (49 vs 45, respectively). No differences were observed between groups in range of motion 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 compared continuous passive motion as adjunctive therapy with physical therapy for patients undergoing total knee arthroplasty. Most trials used continuous passive motion 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 reported improvements in range of motion for patients receiving continuous passive motion but these improvements were short-term, of small magnitude, and of uncertain clinical significance. The RCTs that specifically evaluated continuous passive motion in the non-acute care hospital setting or home setting did not show improved outcomes with continuous passive motion.

### Articular Cartilage Repair of the Knee

#### Review of Evidence

Although no RCTs were identified comparing health outcomes with or without the use of continuous passive motion, continuous passive motion is routinely used as part of the rehabilitation protocol for as long as 6 weeks when weight-bearing is restricted following autologous chondrocyte implantation.<sup>21,22,23</sup> Basic research supports the use of continuous passive motion to facilitate greater healing of articular cartilage of full-thickness defects that



penetrate the subchondral bone compared with either immobilization or intermittent mobilization.<sup>24,25</sup>

Fazalare et al (2010) published a systematic review of continuous passive motion after knee cartilage defect surgery.<sup>26</sup> Reviewers found that continuous passive motion had been used following autologous chondrocyte implantation, microfracture, and osteochondral autografts in numerous studies in the previous 5 years. Four level III (cohort) studies with 262 patients were identified that compared continuous passive motion with no continuous passive motion; no RCTs were identified. Procedures in these 4 studies included microfracture, periosteal transplant of the patella, and high tibial osteotomy with diagnostic arthroscopy or abrasion arthroplasty. continuous passive motion regimens ranged range of motion 6 days to 8 weeks. Heterogeneity in the studies and outdated surgical techniques limited conclusions drawn range of motion these trials. Clinical outcomes did not permit a definitive conclusion of efficacy of continuous passive motion. However, reviewers cited several studies in which other outcomes (e.g., histologic outcomes on follow-up biopsies) did favor continuous passive motion.

Another systematic review by Howard et al (2010) evaluated continuous passive motion and other postoperative practices after knee cartilage repair.<sup>27</sup> Reviewers cited several basic science studies using animal models that appear to support continuous passive motion. They identified 2 clinical studies, both of which were retrospective nonrandomized comparative studies. In 1 study (n=43), there were no differences between groups in clinical or functional outcomes at an average follow-up of 4.2 years. In the other study (n=77), patients in the continuous passive motion group (n=46) had greater improvement in grading of the cartilage lesion compared with patients who did not have access to continuous passive motion (n=31).

### **Section Summary: Articular Cartilage Repair of the Knee**

Current evidence on use of continuous passive motion to facilitate knee rehabilitation after articular cartilage repair includes systematic reviews. These reviews reported methodologic issues with available cohort studies and a paucity of studies assessing clinical application of continuous passive motion to knee rehabilitation.

## **Other Musculoskeletal Conditions Requiring Physical Therapy Review of Evidence**

### **Articular Knee Fractures**

Hill et al (2014) randomized 40 patients with articular fractures of either the proximal part of the tibia or the distal end of the femur to standardized physical therapy with or without continuous passive motion for 48 hours postoperatively.<sup>28</sup> At the 48-hour assessment, the continuous passive motion group had significantly greater knee flexion (43 difference,  $p < 0.005$ ). However, 6 of 20 patients were unable to tolerate continuous passive motion and there was no benefit to adding 48 hours of continuous passive motion when assessed at any of the follow-up visits (2, 6, 12, 24 weeks).

### **Anterior Cruciate Ligament Repair**

This literature review did not identify any RCTs of continuous passive motion in the home setting after repair of the anterior cruciate ligament. However, the studies of continuous passive motion after anterior cruciate ligament repair in the immediate postoperative period may be relevant to the non-acute care hospital or home setting for patients discharged following a shorter hospital stay. The TEC Assessment (1997) concluded that continuous passive motion as an adjunct to conventional PT in the immediate postoperative period after anterior cruciate ligament repair offered no demonstrable advantage over conventional physical therapy alone.<sup>1</sup> In a systematic review of anterior cruciate ligament reconstruction rehabilitation, Wright et al (2008) discussed 6 RCTs on continuous passive motion published before 1996; no RCTs published after the 1997 TEC Assessment were identified.<sup>29</sup> Reviewers found no substantial advantage for continuous passive motion use and concluded that continuous passive motion for anterior cruciate ligament rehabilitation could not be justified. Wright et al (2008) also noted

that most current anterior cruciate ligament rehabilitation protocols initiate early motion within the first postoperative week.

### Rotator Cuff Repair

Du Plessis et al (2011) published a systematic review of continuous passive motion following rotator cuff repair.<sup>30</sup> Three RCTs were included, though meta-analysis could not be conducted due to heterogeneity across trials. Two of the RCTs, by Lastayo et al (1998) and Raab et al (1996) are discussed below.<sup>31,32</sup> The third trial was a German-language report by Michael et al (2005) that found a significant reduction of 12 days in the time to reach 90 abduction compared with the physical therapy control group, with no significant difference in pain between the 2 groups.<sup>33</sup>

The trial by Lastayo et al (1998) randomized 31 patients undergoing rotator cuff repair to a 4-week home program of continuous passive motion (average, 3 h/d) or to manual passive elevation and rotation exercises.<sup>31</sup> No significant difference in outcomes was observed between the two approaches. Previously, Raab et al (1996) had randomized 26 patients to postoperative physical therapy alone or to physical therapy plus continuous passive motion.<sup>32</sup> Patients were evaluated with preoperative and 3 month postoperative shoulder scores that included pain, function, muscle strength, and range of motion. A statistically significant improvement was found in range of motion for those receiving continuous passive motion, although there was no significant improvement in overall shoulder score between groups. Both of these RCTs were likely under powered to show differences on important clinical outcomes.

Garofalo et al (2010) reported on a randomized trial assessing the effects of continuous passive motion after rotator cuff repair.<sup>34</sup> During weeks 1 to 4 post surgery, all 100 patients underwent passive self-assisted range of motion exercise, with half of the patients also receiving continuous passive motion for 4, 30-minute sessions per day. The physical therapist-supervised exercises included pendulum movements and progressive passive abduction, forward flexion, and external rotation. When patients were not exercising, the shoulder was immobilized in a sling brace. Range of motion weeks 5 to 28 post surgery, all patients underwent the same physical therapy protocol. range of motion and visual analog scale ratings for pain were measured at 2.5, 6, and 12 months by an independent examiner. Between groups, visual analog scale ratings were slightly better for patients who received continuous passive motion 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) assessments, all respectively. Range of motion was significantly better in the group receiving continuous passive motion versus those who did not at 2.5-month follow-up (e.g., forward flexion, 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.

### Subsection Summary: Rotator Cuff Repair

Three RCTs of continuous passive motion following rotator cuff surgery were identified in the English-language literature. Two of these trials reported short-term improvements in range of motion for patients undergoing continuous passive motion, and one reported a short-term reduction in pain. None 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 comparator for continuous passive motion is not clear.

### Hip Osteoarthritis

One older pilot study (1999) examined the use of continuous passive motion in patients with hip osteoarthritis in the absence of surgical intervention.<sup>35</sup> In this uncontrolled study, continuous passive motion was used for 1.2 to 7.6 hours daily during the 12-week trial. While improvements were noted in patients' pain assessments, a controlled trial is needed to validate this treatment effect, particularly compared with a program of regular walking.

### Adhesive Capsulitis of the Shoulder

Dundar et al (2009) compared continuous passive motion with physical therapy in a randomized trial of 57 patients with adhesive capsulitis (frozen shoulder).<sup>36</sup> Continuous passive motion or physical therapy was provided for 1 hour a day (5 d/wk) for 4 weeks. Pain and function levels were similar in the 2 groups at baseline, with visual analog scale scores for pain ranging range of motion 5.44 (at rest) to 6.34 (with movement). Assessments at baseline, 4, and 12 weeks showed reductions in pain and improvements in function levels for both groups. However, continuous passive motion resulted in greater pain reduction than physical therapy (at rest, 47% vs 25%; with movement, 35% vs 21%; at night, 36% vs 19%, all respectively). There were no differences between groups in range of motion or function. This trial provided modest support for the inclusion of continuous passive motion in a physical therapy regimen for this patient population.

An RCT by Ekim et al (2016) compared continuous passive motion (n=20) with physical therapy (n=21) for the treatment of adhesive capsulitis in patients who had diabetes.<sup>37</sup> Continuous passive motion or physical therapy was provided for 1 hour a day (5 d/wk) for 4 weeks. All patients received electrotherapy and after the 4-week initial treatment phase, were instructed to continue with an 8-week at home exercise program. Outcome measures were pain (at rest, in motion, at night) and range of motion (active and passive). Pain decreased significantly in both treatment groups, though patients in the continuous passive motion group reported a larger improvement in pain scores than those in the physical therapy group. Range of motion improved significantly in both treatment groups as well. Patients in the continuous passive motion group reported larger improvements in abduction and flexion measures than patients in the continuous passive motion group, while external and internal rotation improvements were similar across groups.

### Elbow Contracture

Postoperative management of open elbow contracture release with continuous passive motion was assessed in a matched cohort study by Lindenhovius et al (2009).<sup>38</sup> Sixteen patients who had used continuous passive motion after open contracture release and 16 patients who had not were matched by age, sex, diagnosis, range of motion, and radiographic appearance. Improvements in range of motion did not differ between groups at the early (range, 4-10 months) and the final (range, 11-56 months) evaluations.

### Hand Repair

In 1997, the TEC Assessment reviewed a multicenter study of continuous passive motion in patients who had undergone flexor tendon repair, and found the data inadequate to permit scientific conclusions about continuous passive motion application.<sup>1</sup>

Ring et al (1998) conducted a randomized trial that examined the role of continuous passive motion in patients undergoing silicone interposition arthroplasty of the metacarpophalangeal joints secondary to rheumatoid arthritis.<sup>39</sup> Patients were randomized to a 6-week protocol of continuous passive motion (10 hands [40 joints]) or to a standard dynamic splint protocol (15 hands [60 joints]). The trial did not show better outcomes in the continuous passive motion group.

In 2008, a retrospective chart review compared 15 patients who had received continuous passive motion after tenolysis with 21 who did not.<sup>40</sup> Patients who received continuous passive motion improved total active motion by 40 (range, 137-177), while patients who did not improved total active motion by 32 (range, 152-184); this difference was not statistically significant.

### Foot Repair

One study (2005) has compared continuous passive motion with immobilization following surgical treatment of idiopathic club foot in 37 infants (50 feet).<sup>41</sup> The infants were randomized to continuous passive motion (4 h/d) or to casting during days 10 to 42 following surgery. Blinded analysis showed improvements in the Dimeglio Clubfoot Score with continuous passive motion (range of motion 9.7 to 3.1) that were significantly greater than those in the control group (range



of motion 10.3 to 4.2) through 12 months (97% follow-up). Between 12 and 18 months, this trend reversed and by 48 months post surgery, there was no significant difference between groups. Another study (2007) by the same group reported low compliance with this treatment.<sup>42</sup>

### Back Pain

An RCT by Gavish et al (2015) evaluated a continuous passive motion device for treatment of chronic low back pain in 36 patients.<sup>43</sup> Although patients treated with the device appeared to have improved outcomes on a numeric rating scale of back pain compared with waiting-list controls, the trial had 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.

### Section Summary: Other Musculoskeletal Conditions Requiring Physical Therapy

There is a wide range of studies assessing the use of continuous passive motion for musculoskeletal conditions other than total knee arthroplasty and knee cartilage repair. Three small RCTs of continuous passive motion after rotator cuff surgery showed some evidence that continuous passive motion after this shoulder surgery improved short-term pain and range of motion; 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 range of motion for patients undergoing continuous passive motion, 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 physical therapy regimen following shoulder surgery such that the optimal treatment comparator for continuous passive motion is unclear. Two small RCTs compared continuous passive motion with conventional physical therapy for treatment of adhesive capsulitis. One of the trials focused on diabetic patients with adhesive capsulitis. Both reported comparable improvements in range of motion and functional ability between treatment groups. For other musculoskeletal conditions, RCTs do not exist; case series either did not show efficacy of continuous passive motion or had important methodologic flaws.

### Stroke

#### Review of Evidence

Continuous passive motion has been studied as a means to aid recovery of motor skills following stroke. One study (2005) randomized 35 patients to daily sessions of continuous passive motion (25 minutes) or to daily group therapy sessions consisting of self-directed range of motion for poststroke rehabilitation.<sup>44</sup> 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 continuous passive motion group ( $n=17$ ,  $p=0.06$ ) 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.

#### Section Summary: Stroke

A small randomized trial has reported a trend toward improvement for the outcome of shoulder joint stability with continuous passive motion but shows no statistical difference between continuous passive motion plus physical therapy and physical therapy alone. This trial was small and treatment lasted only 20 days.

#### Summary of Evidence

For individuals who have total knee arthroplasty who receive continuous passive motion in the home setting, the evidence includes randomized controlled trials (RCTs), case series, and systematic reviews. Relevant outcomes are symptoms and functional outcomes. Early trials generally used continuous passive motion 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 continuous passive motion after total knee arthroplasty, recent studies have

suggested that institutional and home use of continuous passive motion has no benefit compared with standard physical therapy (PT). There were no studies evaluating continuous passive motion in patients who could not perform standard PT. 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 continuous passive motion 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. Relevant outcomes are symptoms and functional outcomes. Systematic reviews of continuous passive motion for this indication have cited studies reporting better histologic outcomes in patients following continuous passive motion. 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 total knee arthroplasty or knee cartilage repair requiring PT who receive continuous passive motion in the home setting, the evidence includes RCTs for some conditions and case series for others. Relevant outcomes are symptoms and functional outcomes. Three small RCTs of continuous passive motion after rotator cuff surgery showed some evidence that continuous passive motion after this shoulder surgery improved short-term pain and range of motion; 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 range of motion for patients undergoing continuous passive motion, 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 continuous passive motion is unclear. Two small RCTs compared continuous passive motion with conventional PT for treatment of adhesive capsulitis. One of the trials focused on diabetic patients with adhesive capsulitis. Both reported comparable improvements in range of motion and functional ability between treatment groups. For other musculoskeletal conditions, RCTs do not exist; case series either did not show efficacy of continuous passive motion 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 continuous passive motion in the home setting, the evidence includes a small RCT. Relevant outcomes are symptoms and functional outcomes. This trial reported a trend toward improved shoulder joint stability but no statistical difference between continuous passive motion plus PT and PT alone. The trial was small and treatment lasted only 20 days. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

### **Supplemental Information**

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

### **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 from Blue Cross Blue Shield Association, input was received range of motion 2 physician specialty societies and 1 academic medical center in 2016. Input considered continuous passive motion (continuous passive motion) 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 continuous passive motion after knee arthroplasty does not improve outcomes.

### **2010 Input**

In response to requests from Blue Cross Blue Shield Association, input was received range of motion 2 physician specialty societies and 5 academic medical centers in 2010. Overall, input supported the use of continuous passive motion under conditions of low postoperative mobility or inability to comply with rehabilitation exercises after total knee arthroplasty or total knee arthroplasty revision or during the non-weight-bearing rehabilitation period following articular cartilage repair procedures of the knee. Support was limited for use of continuous passive motion in joints other than the knee or in situations or conditions other than those described in this evidence review.

### **2008 Input**

In response to requests from Blue Cross Blue Shield Association, input was received range of motion 1 physician specialty society and 2 academic medical centers in 2008. The 3 reviewers interpreted the existing literature as supporting the use of continuous passive motion for the knee for at least 7 days post operatively, whether in the hospital or home, and suggested that longer use of continuous passive motion would be warranted for special conditions.

### **Practice Guidelines and Position Statements**

Guidelines or position statements will be considered for inclusion in 'Supplemental Information' 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 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.<sup>45</sup> The AAOS identified 2 high-quality studies and 5 moderate-quality studies that evaluated the use of continuous passive motion. In one high-quality study, continuous passive motion was used for about 2 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."

### **French Physical Medicine and Rehabilitation Society**

In 2007, clinical practice guidelines range of motion the French Physical Medicine and Rehabilitation Society concluded that evidence is not sufficient to recommend substituting continuous passive motion for other rehabilitation techniques aimed at early mobilization after total knee arthroplasty.<sup>46</sup> The evidence review did not find a positive effect of continuous passive motion over intermittent early mobilization, at short- or long-term follow-up.

### **U.S. Preventive Services Task Force Recommendations**

Not applicable.

### **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."<sup>47</sup>.

### Ongoing and Unpublished Clinical Trials

Some currently unpublished trials that might influence this review are listed in Table 2.

**Table 2. Summary of Key Trials**

NCT No.	Trial Name	Actual Enrollment	Completion Date
<b>Unpublished</b>			
NCT01420887	Preservation of Joint Function Using Postoperative Continuous Passive Motion (continuous passive motion): A Pilot Study	60	May 2020

NCT: national clinical trial.

## References

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.
2. McInnes J, Larson MG, Daltroy LH, et al. A controlled evaluation of continuous passive motion in patients undergoing total knee arthroplasty. *JAMA*. Sep 16 1992; 268(11): 1423-8. PMID 1512910
3. Milne S, Brosseau L, Robinson V, et al. Continuous passive motion following total knee arthroplasty. *Cochrane Database Syst Rev*. 2003; (2): CD004260. PMID 12804511
4. Brosseau L, Milne S, Wells G, et al. Efficacy of continuous passive motion following total knee arthroplasty: a metaanalysis. *J Rheumatol*. Nov 2004; 31(11): 2251-64. PMID 15517640
5. Harvey LA, Brosseau L, Herbert RD. Continuous passive motion following total knee arthroplasty in people with arthritis. *Cochrane Database Syst Rev*. Feb 06 2014; (2): CD004260. PMID 24500904
6. Harvey LA, Brosseau L, Herbert RD. Continuous passive motion following total knee arthroplasty in people with arthritis. *Cochrane Database Syst Rev*. Mar 17 2010; (3): CD004260. PMID 20238330
7. He ML, Xiao ZM, Lei M, et al. Continuous passive motion for preventing venous thromboembolism after total knee arthroplasty. *Cochrane Database Syst Rev*. Jul 29 2014; (7): CD008207. PMID 25069620
8. Yashar AA, Venn-Watson E, Welsh T, et al. Continuous passive motion with accelerated flexion after total knee arthroplasty. *Clin Orthop Relat Res*. Dec 1997; (345): 38-43. PMID 9418619
9. MacDonald SJ, Bourne RB, Rorabeck CH, et al. Prospective randomized clinical trial of continuous passive motion after total knee arthroplasty. *Clin Orthop Relat Res*. Nov 2000; (380): 30-5. PMID 11064970
10. Pope RO, Corcoran S, McCaul K, et al. Continuous passive motion after primary total knee arthroplasty. Does it offer any benefits?. *J Bone Joint Surg Br*. Nov 1997; 79(6): 914-7. PMID 9393903
11. Kumar PJ, McPherson EJ, Dorr LD, et al. Rehabilitation after total knee arthroplasty: a comparison of 2 rehabilitation techniques. *Clin Orthop Relat Res*. Oct 1996; (331): 93-101. PMID 8895624
12. Bruun-Olsen V, Heiberg KE, Mengshoel AM. Continuous passive motion as an adjunct to active exercises in early rehabilitation following total knee arthroplasty - a randomized controlled trial. *Disabil Rehabil*. 2009; 31(4): 277-83. PMID 18608367
13. Denis M, Moffet H, Caron F, et al. Effectiveness of continuous passive motion and conventional physical therapy after total knee arthroplasty: a randomized clinical trial. *Phys Ther*. Feb 2006; 86(2): 174-85. PMID 16445331

14. Leach W, Reid J, Murphy F. Continuous passive motion following total knee replacement: a prospective randomized trial with follow-up to 1 year. *Knee Surg Sports Traumatol Arthrosc.* Oct 2006; 14(10): 922-6. PMID 16489477
15. Boese CK, Weis M, Phillips T, et al. The efficacy of continuous passive motion after total knee arthroplasty: a comparison of three protocols. *J Arthroplasty.* Jun 2014; 29(6): 1158-62. PMID 24412145
16. Herbold JA, Bonistall K, Blackburn M, et al. Randomized controlled trial of the effectiveness of continuous passive motion after total knee replacement. *Arch Phys Med Rehabil.* Jul 2014; 95(7): 1240-5. PMID 24685389
17. Chen B, Zimmerman JR, Soulen L, et al. Continuous passive motion after total knee arthroplasty: a prospective study. *Am J Phys Med Rehabil.* Sep-Oct 2000; 79(5): 421-6. PMID 10994883
18. Herbold JA, Bonistall K, Blackburn M. Effectiveness of continuous passive motion in an inpatient rehabilitation hospital after total knee replacement: a matched cohort study. *PM R.* Oct 2012; 4(10): 719-25. PMID 22959052
19. Worland RL, Arredondo J, Angles F, et al. Home continuous passive motion machine versus professional physical therapy following total knee replacement. *J Arthroplasty.* Oct 1998; 13(7): 784-7. PMID 9802665
20. Lenssen TA, van Steyn MJ, Crijns YH, et al. Effectiveness of prolonged use of continuous passive motion (CPM), as an adjunct to physiotherapy, after total knee arthroplasty. *BMC Musculoskelet Disord.* Apr 29 2008; 9: 60. PMID 18442423
21. Browne JE, Anderson AF, Arciero R, et al. Clinical outcome of autologous chondrocyte implantation at 5 years in US subjects. *Clin Orthop Relat Res.* Jul 2005; (436): 237-45. PMID 15995447
22. Farr J. Autologous chondrocyte implantation improves patellofemoral cartilage treatment outcomes. *Clin Orthop Relat Res.* Oct 2007; 463: 187-94. PMID 17960681
23. Rosenberger RE, Gomoll AH, Bryant T, et al. Repair of large chondral defects of the knee with autologous chondrocyte implantation in patients 45 years or older. *Am J Sports Med.* Dec 2008; 36(12): 2336-44. PMID 18725654
24. Nugent-Derfus GE, Takara T, O'Neill JK, et al. Continuous passive motion applied to whole joints stimulates chondrocyte biosynthesis of PRG4. *Osteoarthritis Cartilage.* May 2007; 15(5): 566-74. PMID 17157538
25. Salter RB. The biologic concept of continuous passive motion of synovial joints. The first 18 years of basic research and its clinical application. *Clin Orthop Relat Res.* May 1989; (242): 12-25. PMID 2650945
26. Fazalare JA, Griesser MJ, Siston RA, et al. The use of continuous passive motion following knee cartilage defect surgery: a systematic review. *Orthopedics.* Dec 01 2010; 33(12): 878. PMID 21162503
27. Howard JS, Mattacola CG, Romine SE, et al. Continuous Passive Motion, Early Weight Bearing, and Active Motion following Knee Articular Cartilage Repair: Evidence for Clinical Practice. *Cartilage.* Oct 2010; 1(4): 276-86. PMID 26069559
28. Hill AD, Palmer MJ, Tanner SL, et al. Use of Continuous Passive Motion in the Postoperative Treatment of Intra-Articular Knee Fractures. *J Bone Joint Surg Am.* Jul 16 2014; 96(14): e118. PMID 25031380
29. Wright RW, Preston E, Fleming BC, et al. A systematic review of anterior cruciate ligament reconstruction rehabilitation: part I: continuous passive motion, early weight bearing, postoperative bracing, and home-based rehabilitation. *J Knee Surg.* Jul 2008; 21(3): 217-24. PMID 18686484
30. Du Plessis M, Eksteen E, Jenneker A, et al. The effectiveness of continuous passive motion on range of motion, pain and muscle strength following rotator cuff repair: a systematic review. *Clin Rehabil.* Apr 2011; 25(4): 291-302. PMID 20943710
31. Lastayo PC, Wright T, Jaffe R, et al. Continuous passive motion after repair of the rotator cuff. A prospective outcome study. *J Bone Joint Surg Am.* Jul 1998; 80(7): 1002-11. PMID 9698005



32. Raab MG, Rzeszutko D, O'Connor W, et al. Early results of continuous passive motion after rotator cuff repair: a prospective, randomized, blinded, controlled study. *Am J Orthop (Belle Mead NJ)*. Mar 1996; 25(3): 214-20. PMID 8775698
33. Michael JW, Konig DP, Imhoff AB, et al. [Efficiency of a postoperative treatment after rotator cuff repair with a continuous passive motion device (CPM)]. *Z Orthop Ihre Grenzgeb*. Jul-Aug 2005; 143(4): 438-45. PMID 16118760
34. Garofalo R, Conti M, Notarnicola A, et al. Effects of one-month continuous passive motion after arthroscopic rotator cuff repair: results at 1-year follow-up of a prospective randomized study. *Musculoskelet Surg*. May 2010; 94 Suppl 1: S79-83. PMID 20383685
35. Simkin PA, de Lateur BJ, Alquist AD, et al. Continuous passive motion for osteoarthritis of the hip: a pilot study. *J Rheumatol*. Sep 1999; 26(9): 1987-91. PMID 10493681
36. Dundar U, Toktas H, Cakir T, et al. Continuous passive motion provides good pain control in patients with adhesive capsulitis. *Int J Rehabil Res*. Sep 2009; 32(3): 193-8. PMID 19011582
37. Ekim AA, Inal EE, Gonullu E, et al. Continuous passive motion in adhesive capsulitis patients with diabetes mellitus: A randomized controlled trial. *J Back Musculoskelet Rehabil*. Nov 21 2016; 29(4): 779-786. PMID 27002662
38. Lindenhovius AL, van de Luijngaarden K, Ring D, et al. Open elbow contracture release: postoperative management with and without continuous passive motion. *J Hand Surg Am*. May-Jun 2009; 34(5): 858-65. PMID 19362791
39. Ring D, Simmons BP, Hayes M. Continuous passive motion following metacarpophalangeal joint arthroplasty. *J Hand Surg Am*. May 1998; 23(3): 505-11. PMID 9620192
40. Schwartz DA, Chafetz R. Continuous passive motion after tenolysis in hand therapy patients: a retrospective study. *J Hand Ther*. Jul-Sep 2008; 21(3): 261-6; quiz 267. PMID 18652971
41. Zeifang F, Carstens C, Schneider S, et al. Continuous passive motion versus immobilisation in a cast after surgical treatment of idiopathic club foot in infants: a prospective, blinded, randomised, clinical study. *J Bone Joint Surg Br*. Dec 2005; 87(12): 1663-5. PMID 16326882
42. Kasten P, Geiger F, Zeifang F, et al. Compliance with continuous passive movement is low after surgical treatment of idiopathic club foot in infants: a prospective, double-blinded clinical study. *J Bone Joint Surg Br*. Mar 2007; 89(3): 375-7. PMID 17356153
43. Gavish L, Barzilay Y, Koren C, et al. Novel continuous passive motion device for self-treatment of chronic lower back pain: a randomised controlled study. *Physiotherapy*. Mar 2015; 101(1): 75-81. PMID 25280603
44. Lynch D, Ferraro M, Krol J, et al. Continuous passive motion improves shoulder joint integrity following stroke. *Clin Rehabil*. Sep 2005; 19(6): 594-9. PMID 16180594
45. American Academy of Orthopaedic Surgeons. Surgical management of osteoarthritis of the knee: Evidence-based clinical practice guideline. Rosemont, IL: AAOS; 2015.
46. Postel JM, Thoumie P, Missaoui B, et al. Continuous passive motion compared with intermittent mobilization after total knee arthroplasty. Elaboration of French clinical practice guidelines. *Ann Readapt Med Phys*. May 2007; 50(4): 244-57. PMID 17412445
47. Center for Medicare & Medicaid. National Coverage Decision (NCD) for Durable Medical Equipment Reference List (280.1). 2005; <https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=190&bc=AgAAQAAAAAAA&ncdver=2>. Accessed January 20, 2021.
48. Blue Cross Blue Shield Association. Medical Policy Reference Manual, No. 1.01.10 (March 2021).

## Documentation for Clinical Review

### Please provide the following documentation:

- History and physical and/or consultation report including:
  - Operative report(s)
  - Treatment plan including length of time for CPM use
  - Reason for needing CPM in the home

- o Physical therapy report if applicable

## Coding

This Policy relates only to the services or supplies described herein. Benefits may vary according to product design; therefore, contract language should be reviewed before applying the terms of the Policy.

The following codes are included below for informational purposes. Inclusion or exclusion of a code(s) does not constitute or imply member coverage or provider reimbursement policy. Policy Statements are intended to provide member coverage information and may include the use of some codes for clarity. The Policy Guidelines section may also provide additional information for how to interpret the Policy Statements and to provide coding guidance in some cases.

Type	Code	Description
CPT®	None	
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

## Policy History

This section provides a chronological history of the activities, updates and changes that have occurred with this Medical Policy.

Effective Date	Action
06/08/1994	New Policy Adoption
02/24/1999	Policy Revision
04/05/2007	BCBSA Medical Policy adoption
06/26/2009	Policy Revision with title change from Continuous Passive Motion for Rehabilitation Following Joint Surgery to Continuous Passive Motion (CPM) in the Home Setting
01/11/2013	Policy revision without position change
09/30/2014	Policy title change from Continuous Passive Motion (CPM) in the Home Setting Policy revision with position change
11/01/2016	Policy revision without position change
07/01/2017	Policy revision without position change
03/01/2018	Policy revision without position change
09/01/2018	Policy revision without position change
05/01/2019	Policy revision without position change
05/01/2020	Annual review. Policy statement, guidelines and literature updated.
05/01/2021	Annual review. Policy statement and literature updated.

## Definitions of Decision Determinations

**Medically Necessary:** Services that are Medically Necessary include only those which have been established as safe and effective, are furnished under generally accepted professional standards to treat illness, injury or medical condition, and which, as determined by Blue Shield, are: (a) consistent with Blue Shield medical policy; (b) consistent with the symptoms or diagnosis; (c) not furnished primarily for the convenience of the patient, the attending Physician or other provider; (d) furnished at the most appropriate level which can be provided safely and

effectively to the patient; and (e) not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of the Member's illness, injury, or disease.

**Investigational/Experimental:** A treatment, procedure, or drug is investigational when it has not been recognized as safe and effective for use in treating the particular condition in accordance with generally accepted professional medical standards. This includes services where approval by the federal or state governmental is required prior to use, but has not yet been granted.

**Split Evaluation:** Blue Shield of California/Blue Shield of California Life & Health Insurance Company (Blue Shield) policy review can result in a split evaluation, where a treatment, procedure, or drug will be considered to be investigational for certain indications or conditions, but will be deemed safe and effective for other indications or conditions, and therefore potentially medically necessary in those instances.

### Prior Authorization Requirements (as applicable to your plan)

Within five days before the actual date of service, the provider must confirm with Blue Shield that the member's health plan coverage is still in effect. Blue Shield reserves the right to revoke an authorization prior to services being rendered based on cancellation of the member's eligibility. Final determination of benefits will be made after review of the claim for limitations or exclusions.

Questions regarding the applicability of this policy should be directed to the Prior Authorization Department at (800) 541-6652, or the Transplant Case Management Department at (800) 637-2066 ext. 3507708 or visit the provider portal at [www.blueshieldca.com/provider](http://www.blueshieldca.com/provider).

*Disclaimer: This medical policy is a guide in evaluating the medical necessity of a particular service or treatment. Blue Shield of California may consider published peer-reviewed scientific literature, national guidelines, and local standards of practice in developing its medical policy. Federal and state law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over medical policy and must be considered first in determining covered services. Member contracts may differ in their benefits. Blue Shield reserves the right to review and update policies as appropriate.*

**Appendix A**

POLICY STATEMENT	
BEFORE <i>Red font: Verbiage removed</i>	AFTER <i>Blue font: Verbiage Changes/Additions</i>
<p><b>Continuous Passive Motion in the Home Setting 1.01.10</b></p> <p><b>Policy Statement:</b>                      Use of continuous passive motion (CPM) in the home setting may be considered <b>medically necessary</b> as an adjunct to physical therapy in <b>either</b> of the following situations:</p> <ul style="list-style-type: none"> <li>• Under conditions of low postoperative mobility or inability to comply with rehabilitation exercises following a <a href="#">total knee arthroplasty (TKA) or TKA revision</a></li> <li>• During the non-weight-bearing rehabilitation period following <a href="#">articular cartilage repair</a> procedures of the knee (e.g., microfracture, osteochondral grafting, autologous chondrocyte implantation, treatment of osteochondritis dissecans, repair of tibial plateau fractures)</li> </ul> <p>Use of continuous passive motion (CPM) in the home setting for all other conditions is considered <b>not medically necessary</b>.</p>	<p><b>Continuous Passive Motion in the Home Setting 1.01.10</b></p> <p><b>Policy Statement:</b>                      Use of continuous passive motion (CPM) in the home setting may be considered <b>medically necessary</b> as an adjunct to physical therapy in <b>either</b> of the following situations:</p> <ol style="list-style-type: none"> <li>I. Under conditions of low postoperative mobility or inability to comply with rehabilitation exercises following a <a href="#">total knee arthroplasty (TKA) or TKA revision</a></li> <li>II. During the non-weight-bearing rehabilitation period following <a href="#">articular cartilage repair</a> procedures of the knee (e.g., microfracture, osteochondral grafting, autologous chondrocyte implantation, treatment of osteochondritis dissecans, repair of tibial plateau fractures)</li> </ol> <p>Use of continuous passive motion (CPM) in the home setting for all other conditions is considered <b>investigational</b>.</p>