Osteoarthritis of the Knee: Selected Treatments

Number: 0673

Policy

*Please see amendment for Pennsylvania Medicaid at the end of this CPB.

Aetna considers arthroscopic debridement medically necessary for persons presenting with mild-to-moderate (Outerbridge classification I and II) osteoarthritis with knee pain plus mechanical symptoms due to loose bodies and meniscal tears.

Aetna considers arthroscopic partial meniscectomy medically necessary for traumatic meniscal tears. Aetna considers arthroscopic partial meniscectomy experimental and investigational for degenerative meniscal tears.

Aetna considers the following interventions experimental and investigational because the effectiveness of these approaches has not been established:

- Arthroscopic debridement for persons with osteoarthritis presenting with knee pain only or with severe osteoarthritis (Outerbridge classification III or IV*)
- Arthroscopic lavage
- Cryotherapy

Policy History

Last Review 07/28/2016
Effective: 09/26/2003
Next Review: 07/27/2017

Definitions

Additional Information

Clinical Policy Bulletin Notes
• Intra-articular injections of infra-patellar fat pad-derived mesenchymal stem cell
• Patellar denervation
• Patellofemoral replacement (arthroplasty)
• Percutaneous calcium phosphate injections

Notes:

*The most commonly used instrument to classify the severity of osteoarthritis in study patients was the Outerbridge scale. The Outerbridge scale classifies the articular degeneration of the knee by compartment in four grades. Grade I refers to softening or blistering of the articular cartilage. Grade II describes fragmentation or fissuring in an area less than 1 cm, while those with an area greater than 1 cm are considered Grade III. Finally, Grade IV refers to cartilage erosion down to the bone.


Background
Osteoarthritis (OA) is a non-inflammatory degenerative joint disease that occurs mainly in middle-aged and older individuals. Osteoarthritis of the knee occurs when the elastoviscous properties of the synovial fluid in the knee joint becomes diminished, resulting in less protection and shock absorption. Osteoarthritis of the knee is often characterized by pain that frequently requires medical and/or surgical
intervention. In general, the pain associated with OA develops gradually, although sudden onset is also possible. The joint may become stiff and swollen, making it difficult to bend or straighten the knee. Pain and swelling are worse in the morning or after a period of inactivity. Pain may also increase after activities such as walking, stair climbing or kneeling. The pain may often cause a feeling of weakness in the knee, resulting in a "locking" or "buckling". Many arthritic patients note that changes in the weather also affect the degree of pain from arthritis.

Based on the criteria of the American College of Rheumatology (Altman et al, 1986), a diagnosis of OA of the knee can be rendered if patients experience knee pain and at least 5 of the following:

- Bony enlargement
- Bony tenderness
- Crepitus (noisy, grating sound) on active motion
- Erythrocyte sedimentation rate (ESR) less than 40 mm/hr
- Less than 30 minutes of morning stiffness
- No palpable warmth of synovium
- Over 50 years of age
- Rheumatoid factor less than 1:40 titer (agglutination method)
- Synovial fluid signs.

The severity of OA is often described according to the Outerbridge scale, which classifies the articular degeneration of the knee by compartment in 4 grades: (i) Grade I refers to softening or blistering of the articular cartilage, (ii) Grade II describes fragmentation or fissuring in an area less than 1 cm, (iii) Grade III describes fragmentation or fissuring in an area greater than 1 cm, and (iv) Grade IV refers to cartilage erosion down to the bone.

Treatment of mild symptomatic OA entails patient education, non-pharmacological approaches such as exercises, lifestyle modifications, and use of supportive devices, as well as
pharmacotherapies including non-opioid oral and topical analgesics. In patients who are unresponsive to this regimen, the use of non-steroidal anti-inflammatory drugs (NSAIDs) is appropriate. Intra-articular injections of steroids or viscosupplementation may be used for patients who fail conservative management. Patients with severe symptomatic OA of the knee may require surgical intervention, e.g., arthroscopic surgery, osteotomy, abrasion arthroplasty, subchondral penetration procedures, and laser/thermal chondroplasty.

Arthroscopy involves direct visualization of the joint by a videofiberoptic device. Arthroscopic lavage and/or debridement is often recommended when medical therapy fails to reduce osteoarthritic knee pain and improve functioning. Lavage entails either large or small volume saline irrigation of the knee. Debridement covers many types of arthroscopic surgery and may include but is not limited to variable amounts of the following treatments: partial synovectomy, decompression and resection of plicae/adipose tissue, partial meniscectomy, chondroplasty, loose body removal, and/or osteophyte removal. In clinical practice, debridement is generally performed with low volume lavage or washout. The available evidence supporting the use of arthroscopic surgery for the treatment of symptomatic OA of the knee is largely retrospective and lacks validated health-related quality-of-life measures. In this regard, the reports by Baumgaertner and colleagues (1990), Ogilvie-Harris and Fitsialos (1991), Yang and Nisonson (1995), as well as Jackson and Dieterichs (2003) were case series studies, while that by Fond et al (2002) was a cohort observational study.

In contrast, findings of many randomized controlled studies indicate that arthroscopic lavage and/or debridement did not result in pain relief and improvement of functioning. Gibson et al (1992) studied the effect of arthroscopic lavage and debridement of the osteoarthritic knee. A total of 20 patients were randomly assigned to receive (i) lavage, or (ii) debridement. The primary outcome was objective evaluation
of thigh muscle function in the affected quadriceps compared to that of the non-affected quadriceps before and after operation. There was some improvement in quadriceps isokinetic torque at 6 and 12 weeks after joint lavage but not after debridement. However, neither method significantly relieved patients' symptoms.

In a multi-center, randomized, controlled study, Ravaud et al (1999) assessed the effectiveness of joint lavage and intra-articular steroid injection, alone and in combination, in the treatment of patients with symptomatic knee OA. A total of 98 patients were randomly assigned to 4 treatment groups: (i) intra-articular placebo (1.5 ml of 0.9 % normal saline), (ii) intra-articular corticosteroids (3.75 mg of cortivazol in 1.5 ml), (iii) joint lavage and intra-articular placebo, and (iv) joint lavage and intra-articular corticosteroid. Outcome measures including severity of pain (100-mm visual analog scale [VAS]), global status (100-mm VAS), and Lequesne's functional index were evaluated at baseline, week 1, week 4, week 12, and week 24. There was no interaction between steroid injection and joint lavage. Patients who had undergone joint lavage had significantly improved pain VAS scores at week 24 (p < 0.020). In contrast, corticosteroid injection had no long-term effect (p < 0.313); corticosteroid injection was associated with a decrease in pain only at week 1 (p < 0.003) and week 4 (p < 0.020). However, there was no significant improvement in function at week 4 regardless of the assigned treatment as indexed by Lequesne's functional index.

In a multi-center, randomized, controlled study, Kalunian and associates (2000) examined if visually-guided arthroscopic irrigation is an effective therapeutic intervention in patients with early knee OA. A total of 90 patients were randomly assigned in a double-blind fashion to receive (i) arthroscopic irrigation with 3,000 ml of saline (treatment group), or (ii) the minimal amount of irrigation (250 ml) needed to perform arthroscopy (placebo group). The primary outcome variable was aggregate Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score. The study did not
demonstrate an effect of irrigation on arthritis severity as measured by aggregate WOMAC scores, the primary outcome variable. The mean change in aggregate WOMAC score at 12 months was 15.5 (95 % confidence interval [CI]: 7.7 to 23.4) for the full irrigation group compared to 8.9 (95 % CI: 4.9 to 13.0) for the minimal irrigation group (p < 0.10).

In a prospective, randomized, placebo-controlled trial to determine whether a placebo effect might play a role in arthroscopic treatment of OA of the knee (Moseley et al, 1996), 5 subjects were randomized to a placebo arthroscopy group, 3 subjects were randomized to an arthroscopic lavage group, and 2 subjects were randomized to a standard arthroscopic debridement group. Patients who received the placebo surgery reported decreased frequency, intensity, and duration of knee pain. They also thought that the procedure was worthwhile and would recommend it to family and friends. Thus, there may be a significant placebo effect for arthroscopic treatment of osteoarthritis of the knee. The authors concluded that a larger study is needed to evaluate fully the effectiveness of an arthroscopic procedure for this condition. Recent evidence published in the New England Journal of Medicine (Moseley et al, 2002) confirms this earlier finding that arthroscopic lavage and/or debridement in patients with OA of the knee without other specific indications is no better than placebo surgery.

Moseley and colleagues (2002) carried out a randomized, placebo-controlled study to examine the effectiveness of arthroscopy for OA of the knee. A total of 180 patients with knee OA were randomly assigned to receive (i) arthroscopic debridement, (ii) arthroscopic lavage, or (iii) placebo surgery. Patients in the placebo group received skin incisions and underwent a simulated debridement without insertion of the arthroscope. Patients and assessors of outcome were blinded to the treatment-group assignment. Outcomes were assessed at multiple points over a 24-month period with the use of 5 self-reported scores -- 3 on scales for pain and 2 on scales for function -- and 1 objective test of walking and stair climbing. A total of 165 patients completed the trial. At no point did either
of the intervention groups report less pain or better function than the placebo group. For example, mean (+/- SD) scores on the Knee-Specific Pain Scale (range of 0 to 100, with higher scores indicating more severe pain) were similar in the placebo, lavage, and debridement groups: 48.9 +/- 21.9, 54.8 +/- 19.8, and 51.7 +/- 22.4, respectively, at 1 year (p < 0.14 for the comparison between placebo and lavage; p < 0.51 for the comparison between placebo and debridement) and 51.6 +/- 23.7, 53.7 +/- 23.7, and 51.4 +/- 23.2, respectively, at 2 years (p < 0.64 and p < 0.96, respectively). Furthermore, the 95 % CIs for the differences between the placebo group and the intervention groups exclude any clinically meaningful difference. These researchers concluded that for patients with OA of the knee, the outcomes after arthroscopic lavage or arthroscopic debridement were no better than those after a placebo procedure.

In view of the findings of Moseley and associates, advocates of arthroscopic lavage and debridement suggest that may be these procedures are effective in subgroups of patients with knee OA including those at the early stages of OA, those with normal alignment as well as those with mechanical symptoms. However, Moseley and co-workers stated that they have performed an extensive subgroup analysis and did not find any differences to support the claim that outcomes of arthroscopic surgery for OA of the knee may be related to the severity of arthritis or alignment (Wray et al, 2002).

In a sham-controlled, randomized, double-blinded study, Bradley et al (2002) evaluated the effectiveness of tidal irrigation (TI) in comparison with a well-matched sham irrigation (SI) procedure as a treatment for OA of the knee. A total of 180 patients with knee OA were randomized to receive TI or SI, with clinical follow-up over the ensuing 12 months. The primary outcomes of interest were changes in pain and function, as measured by the WOMAC. Patients and the nurse assessor were blinded, and success of blinding was assessed. Although the study groups were otherwise comparable, the baseline WOMAC pain and physical functioning scores were
higher (worse) in the SI group. After adjustment for baseline, there were no differences between the effects of SI and TI. Blinding was successful with approximately 90% of SI and TI patients stating that they had received the TI procedure. The authors concluded that the improvement of these patients with knee OA following TI was due to a placebo effect.

Dervin and colleagues (2003) prospectively evaluated a cohort of patients (n = 126) with OA of the knee who were selected for arthroscopic debridement and determined which clinical criteria favor a sustained improvement in health-related quality of life after 2 years of follow-up. These researchers found that the prospectively evaluated quality-of-life benefit from arthroscopic debridement of the osteoarthritic knee is less than that reported in previous retrospective surveys on satisfaction. Additionally, clinical variables were only partially helpful for predicting a successful result after arthroscopic debridement.

The American College of Rheumatology (ACR) (2000) guidelines on OA of the hip and knee has concluded that “[n]o well-controlled trials of arthroscopic debridement with or without arthroplasty have been conducted, and the utility of this intervention for the treatment of knee osteoarthritis is unproven.” The ACR guidelines state that routine arthroscopic lavage with or without debridement should not be routinely recommended to patients with knee OA who have failed medical therapy. Arthroscopic removal of debris may, however, be useful for relief of pain and improvement in joint function in patients with mechanical symptoms due to loose bodies and meniscal tears. However, further studies in these types of patients are needed.

An assessment of arthroscopic lavage for knee osteoarthritis conducted by the Wessex Institute for Health Research and Development (Algood, 2002) summarized the evidence on arthroscopic lavage and debridement for osteoarthritis: "We found evidence from one good quality RCT [randomized controlled trial] that arthroscopic debridement or lavage did not improve patient reported pain and function at 2 years
compared with sham arthroscopy for men with osteoarthritis of the knee. Two other, weaker, RCTs found that debridement and lavage did not improve symptoms compared with non-arthroscopic lavage. Another RCT found that arthroscopic lavage with 3,000 ml saline slightly improved pain compared with arthroscopic lavage with 250 ml saline. Another RCT found that arthroscopic debridement improved pain relief compared with arthroscopic lavage in people with isolated degenerative disease on the medial femoral condyle. We found no evidence that arthroscopic debridement or lavage improves symptoms compared with non-arthroscopic treatments."

In the Patient-Oriented Evidence that Matters (POEMs) of the Journal of Family Practice, Bailey (2002) stated that arthroscopy does not provide any benefit over sham surgery in reducing pain or physical functioning of patients with knee OA. In the Interpreting Key Trials section of the Cleveland clinic Journal of Medicine, Bernstein and Quach (2003) stated that the value of arthroscopy in treating patients with arthritic joints must be proved. Furthermore, in the American College of Physicians Journal Club, Gillespie (2003) stated that the study by Moseley et al (2002) made a case for questioning the value of arthroscopic lavage and debridement in active men younger than 65 years of age with OA of the knee. In addition, the Centers for Medicare and Medicaid Services (2003) will be issuing a national non-coverage determination stating that arthroscopic lavage alone is not reasonable and necessary for patients with OA of the knee; and that arthroscopic debridement is not reasonable and necessary for patients presenting with knee pain only or with severe OA (Outerbridge classification III or IV).

An assessment of arthroscopic lavage and debridement by the Medical Advisory Secretariat of the Ontario Ministry of Health and Long-term Care (2005) concluded: "Arthroscopic debridement of the knee has thus far only been found to be effective for medial compartmental OA. All other indications should be reviewed with a view to reducing arthroscopic debridement as an effective therapy. Arthroscopic lavage of the
knee is not indicated for any stage of OA. There is very poor quality evidence on the effectiveness of debridement with partial meniscectomy in the case of meniscal tears in OA of the knee."

A randomized study by Kirkley et al (2008) published in the New England Journal of Medicine found that arthroscopic lavage and debridement for OA of the knee provided no additional benefit to optimized physical and medical therapy. The investigators conducted a single-center, randomized, controlled trial of arthroscopic surgery in patients with moderate-to-severe OA of the knee. Patients were randomly assigned to surgical lavage and arthroscopic debridement together with optimized physical and medical therapy or to treatment with physical and medical therapy alone. The primary outcome was the total Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score at 2 years of follow-up. Secondary outcomes included the Short Form-36 (SF-36) Physical Component Summary score. Of the 92 patients assigned to surgery, 6 did not undergo surgery. Of the 86 patients assigned to control treatment, all received only physical and medical therapy. After 2 years, there were no statistically significant differences in WOMAC scores or the SF-36 Physical Component Summary scores for the surgery group as compared with the control group. Analyses of WOMAC scores at interim visits and other secondary outcomes also failed to show superiority of surgery.

An accompanying study published in the New England Journal of Medicine found that incidental meniscal findings on MRI of the knee are common in the general population and increase with increasing age (Englund et al, 2008). MRI of the knee is often performed in patients who have knee symptoms of unclear cause. When meniscal tears are found, it is commonly assumed that the symptoms are attributable to them. However, there is a paucity of data regarding the prevalence of meniscal damage in the general population and the association of meniscal tears with knee symptoms and with radiographical evidence of osteoarthritis. Englund et al (2008) studied persons from Framingham, Massachusetts, who were drawn from
census-tract data and random-digit telephone dialing. Subjects were 50 to 90 years of age and ambulatory; selection was not made on the basis of knee or other joint problems. The investigators assessed the integrity of the menisci in the right knee on 1.5-tesla MRI scans obtained from 991 subjects (57% of whom were women). Symptoms involving the right knee were evaluated by questionnaire. The investigators found that the prevalence of a meniscal tear or of meniscal destruction in the right knee as detected on MRI ranged from 19% among women 50 to 59 years of age to 56% among men 70 to 90 years of age; prevalences were not materially lower when subjects who had had previous knee surgery were excluded. Among persons with radiographical evidence of OA, the prevalence of a meniscal tear was 63% among those with knee pain, aching, or stiffness on most days and 60% among those without these symptoms. The corresponding prevalences among persons without radiographical evidence of OA were 32% and 23%. Sixty-one percent of the subjects who had meniscal tears in their knees had not had any pain, aching, or stiffness during the previous month.

An accompanying editorial by Marx (2008) in the New England Journal of Medicine concluded that the study by Kirkley et al (2008), combined with other evidence, indicates that OA of the knee (in the absence of a history and physical examination suggesting meniscal or other findings) is not an indication for arthroscopic surgery and indeed has been associated with inferior outcomes after arthroscopic knee surgery. The editorialist stated, however, that OA is not a contraindication to arthroscopic surgery, and arthroscopic surgery remains appropriate in patients with arthritis in specific situations in which OA is not believed to be the primary cause of pain.

In a systematic review of outcomes of 3 treatments for OA of the knee: (i) intra-articular viscosupplementation, (ii) oral glucosamine, chondroitin or the combination, and (iii) arthroscopic lavage or debridement, Samson et al (2007) concluded that these 3 interventions are widely used in the treatment of OA of the knee, yet the best available evidence
does not clearly demonstrate clinical benefit. Uncertainty regarding clinical benefit can be resolved only by rigorous, multi-center randomized controlled trials. Furthermore, a Cochrane review on arthroscopic debridement for knee OA, Laupattarakasem et al (2008) concluded that there is "gold" level evidence that arthroscopic debridement has no benefit for undiscriminated OA (mechanical or inflammatory causes).

In a review on surgical options for patients with OA of the knee, Lützner and colleagues (2009) stated that surgical treatments for knee OA include arthroscopy, osteotomy and knee arthroplasty; determining which of these procedures is most appropriate will depend on several factors, including the location and severity of OA damage, patient characteristics and risk factors. Arthroscopic lavage and debridement do not alter disease progression, and should not be used as a routine treatment for the osteoarthritic knee.

The American Association of Orthopaedic Surgeons’ clinical practice guideline on the treatment of OA of the knee (AAOS, 2008) does not recommend performing arthroscopy with debridement or lavage. Furthermore, it does not recommend performing needle lavage. Also, a recent Agency for Healthcare Research and Quality’s (AHRQ, 2009) report summarized the evidence on the safety and effectiveness of 3 treatments for OA of the knee: (i) use of the supplements glucosamine hydrochloride, chondroitin sulfate, or combination of both; (ii) viscosupplementation; and (iii) arthroscopic lavage and debridement of the knee joint. The evidence evaluated comes mainly from comparisons of each therapeutic approach with a placebo. The AHRQ guideline concluded that glucosamine and chondroitin, viscosupplementation, as well as arthroscopic lavage with or without debridement do not lead to clinically meaningful improvement.

In a Cochrane review, Reichenbach and colleagues (2010) compared joint lavage with sham intervention, placebo or non-intervention control in terms of effects on pain, function and safety outcomes in patients with knee OAs. These
investigators searched CENTRAL, MEDLINE, EMBASE, and CINAHL up to August 3, 2009, checked conference proceedings, reference lists, and contacted authors. They included studies if they were randomized or quasi-randomized trials that compared arthroscopic and non-arthroscopic joint lavage with a control intervention in patients with OA of the knee. Two independent review authors extracted data using standardised forms. They contacted investigators to obtain missing outcome information, and calculated standardized mean differences (SMDs) for pain and function, and risk ratios for safety outcomes. They combined trials using inverse-variance random-effects meta-analysis. These researchers included 7 trials with 567 patients; 3 trials examined arthroscopic joint lavage, 2 non-arthroscopic joint lavage and 2 tidal irrigation. The methodological quality and the quality of reporting was poor and these investigators identified a moderate-to-large degree of heterogeneity among the trials ($I^2 = 65\%$). They found little evidence for a benefit of joint lavage in terms of pain relief at 3 months (SMD -0.11, 95% CI: -0.42 to 0.21), corresponding to a difference in pain scores between joint lavage and control of 0.3 cm on a 10-cm VAS. Results for improvement in function at 3 months were similar (SMD -0.10, 95% CI: -0.30 to 0.11), corresponding to a difference in function scores between joint lavage and control of 0.2 cm on a WOMAC disability sub-scale from 0 to 10. For pain, estimates of effect sizes varied to some degree depending on the type of lavage, but this variation was likely to be explained by differences in the credibility of control interventions: trials using sham interventions to closely mimic the process of joint lavage showed a null-effect. Reporting on adverse events and drop-out rates was unsatisfactory, and they were unable to draw conclusions for these secondary outcomes. The authors concluded that joint lavage does not result in a relevant benefit for patients with knee OA in terms of pain relief or improvement of function.

Ronn et al (2011) noted that OA of the knee is common, and the chances of suffering from OA increase with age. Its treatment should be initially non-operative-and requires both
pharmacological and non-pharmacological treatment modalities. If conservative therapy fails, surgery should be considered. Surgical treatments for knee OA include arthroscopy, cartilage repair, osteotomy, and knee arthroplasty. Determining which of these procedures is most appropriate depends on several factors, including the location, stage of OA, co-morbidities on the one side and patients suffering on the other side. Arthroscopic lavage and debridement is often carried out, but does not alter disease progression. If OA is limited to one compartment, uni-compartmental knee arthroplasty or unloading osteotomy can be considered. They are recommended in young and active patients in regard to the risks and limited durability of total knee replacement. Total arthroplasty of the knee is a common and safe method in the elderly patients with advanced knee OA.

In a cases-control study, Koh and Choi (2012) examined if isolated mesenchymal stem cells (MSCs) derived from the infrapatellar fat pad could effectively improve clinical results when percutaneously injected into arthritic knees. A total of 25 stem cell injections combined with arthroscopic debridement were administered to patients with knee OA. A mean of $1.89 \times 10^6$ stem cells were prepared with approximately 3.0 ml of platelet-rich plasma (PRP) and injected in the selected knees of patients in the study group. The mean Lysholm, Tegner activity scale, and VAS scores of patients in the study group improved significantly by the last follow-up visit. No major adverse events related to the injections were observed during the treatment and follow-up periods. The results were compared between the study and control groups, in which the patients had undergone arthroscopic debridement and PRP injection without stem cells. Although the pre-operative mean Lysholm, Tegner activity scale, and VAS scores of the study group were significantly poorer than those of the control group, the clinical results at the last follow-up visit were similar and not significantly different between the 2 groups. The authors concluded that the short-term results of this study are encouraging and show that infra-patellar fat pad-derived MSC therapy with intra-articular injections is safe, and provides
assistance in reducing pain and improving function in patients with knee OA. These preliminary findings need to be validated by well-designed studies.

The effectiveness of arthroscopic partial meniscectomy for torn meniscus is unknown. Arthroscopic partial meniscectomy is performed in patients with symptomatic osteoarthritis of the knee who also have primary signs and symptoms of a torn meniscus. Guidelines from the AAOS stated: "We are unable to recommend for or against arthroscopic partial meniscectomy in patients with osteoarthritis of the knee with a torn meniscus". The AAOS identified only a single study of arthroscopic partial meniscectomy that met criteria for inclusion in their analysis. The study, by Herrlin et al (2007), compared arthroscopic partial meniscectomy followed by supervised exercise to supervised exercise alone and measured Knee injury and Osteoarthritis Outcome Score (KOOS) pain, symptoms, activities of daily life, sports/recreation, and quality of life subscales scores as outcomes. The study was downgraded from moderate- to low-strength because 40% of patients declined participation and the arthroscopic group had non-homogeneous preoperative KOOS scores. The authors reported no significant treatment benefits of meniscectomy using any of the outcomes at 8 weeks and 6 months. Since there was only one low-strength study, the AAOS recommendation was graded inconclusive.

Additional studies of arthroscopic partial meniscectomy have been published since the AAOS guideline that have found no benefit to arthroscopic partial meniscectomy for torn meniscus. Sihvonen and colleagues (2013) conducted a multi-center, randomized, double-blind, sham-controlled trial in 146 patients 35 to 65 years of age who had knee symptoms consistent with a degenerative medial meniscus tear and no knee osteoarthritis. Patients were randomly assigned to arthroscopic partial meniscectomy or sham surgery. The primary outcomes were changes in the Lysholm and Western Ontario Meniscal Evaluation Tool (WOMET) scores (each ranging from 0 to 100, with lower scores indicating more severe
symptoms) and in knee pain after exercise (rated on a scale from 0 to 10, with 0 denoting no pain) at 12 months after the procedure. The investigators reported that, in the intention-to-treat analysis, there were no significant between-group differences in the change from baseline to 12 months in any primary outcome. The mean changes (improvements) in the primary outcome measures were as follows: Lysholm score, 21.7 points in the partial-meniscectomy group as compared with 23.3 points in the sham-surgery group (between-group difference, -1.6 points; 95 % CI: -7.2 to 4.0); WOMET score, 24.6 and 27.1 points, respectively (between-group difference, -2.5 points; 95 % CI: -9.2 to 4.1); and score for knee pain after exercise, 3.1 and 3.3 points, respectively (between-group difference, -0.1; 95 % CI: -0.9 to 0.7). The investigators reported that there were no significant differences between groups in the number of patients who required subsequent knee surgery (2 in the partial-meniscectomy group and 5 in the sham-surgery group) or serious adverse events (1 and 0, respectively).

Katz et al (2013) conducted a multi-center, randomized, controlled trial involving symptomatic patients 45 years of age or older with a meniscal tear and evidence of mild-to-moderate osteoarthritis on imaging. The investigators randomly assigned 351 patients to surgery and post-operative physical therapy or to a standardized physical-therapy regimen (with the option to cross-over to surgery at the discretion of the patient and surgeon). The patients were evaluated at 6 and 12 months. The primary outcome was the difference between the groups with respect to the change in the WOMAC physical-function score (ranging from 0 to 100, with higher scores indicating more severe symptoms) 6 months after randomization. In the intention-to-treat analysis, the mean improvement in the WOMAC score after 6 months was 20.9 points (95 % CI: 17.9 to 23.9) in the surgical group and 18.5 (95 % CI: 15.6 to 21.5) in the physical-therapy group (mean difference, 2.4 points; 95 % CI: -1.8 to 6.5). At 6 months, 51 active participants in the study who were assigned to physical therapy alone (30 %) had undergone surgery, and 9 patients assigned to surgery (6 %) had not undergone surgery. The results at 12 months were
similar to those at 6 months. The frequency of adverse events did not differ significantly between the groups.

*Patello-Femoral Replacement (Arthroplasty):*

Lonner (2007) stated that patella-femoral arthroplasty (PFA) can be an effective intermediate treatment for the patient with isolated arthritis of the anterior compartment of the knee. In the absence of patellar mal-alignment, results were optimized when an implant with sound geometric features was used, the prosthesis was appropriately aligned, and the soft tissues were balanced. Although previous prosthesis designs resulted in a relatively high prevalence of failure because of PF mal-tracking, PF catching, and anterior knee pain (AKP), newer prosthesis designs showed promise in reducing the prevalence of PF dysfunction. Progressive tibio-femoral cartilage degeneration was another so-called failure mechanism; such progressive degeneration underscored the importance of restricting the procedure to patients who do not have tibio-femoral chondromalacia. Because long-term failure as a result of tibio-femoral degeneration may occur in approximately 25% of patients, PFA may be considered an intermediate procedure for select patients with PF arthritis.

Ackroyd et al (2007) reported the mid-term results of a new PFA for established isolated PF arthritis. These researchers reviewed the experience of 109 consecutive PF resurfacing arthroplasties in 85 patients who were followed-up for at least 5 years. The 5-year survival rate, with revision as the end-point, was 95.8 % (95 % CI: 91.8 % to 99.8 %). There were no cases of loosening of the prosthesis. At 5 years the median Bristol pain score improved from 15 of 40 points (interquartile range [IQR] of 5 to 20) pre-operatively, to 35 (IQR of 20 to 40), the median Melbourne score from 10 of 30 points (IQR of 6 to 15) to 25 (IQR of 20 to 29), and the median Oxford score from 18 of 48 points (IQR of 13 to 24) to 39 (IQR of 24 to 45). Successful results, judged on a Bristol pain score of at least 20 at 5 years, occurred in 80 % (66) of knees. The main complication was radiological progression of arthritis, which occurred in 25
patients (28%) and emphasized the importance of the careful selection of patients. The authors concluded that these results gave increased confidence in the use of PFA. However, this study only provided mid-term results (5 years); and radiological progression of arthritis occurred in 28% of patients; long-term results are needed.

Luring et al (2011) stated that isolated OA of the PF joint occurs in 9% of patients over 40 years of age and women are more often affected. Options of treatment were varied and not sufficiently justified by the literature. These investigators performed a literature research with keywords in the field of femoro-patellar OA in the relevant databases. Studies were categorized into different treatment options and analyzed. There are almost no Level I studies comparing the different treatment options. In the literature there are indications that relief of pain can be achieved by conservative treatment, arthroscopic surgery, cartilage conserving surgery and isolated arthroplasty. The authors concluded that in view of the fact that there are almost no prospective RCTs, none of the options for treatment can be highly recommended. They stated that there is still no gold standard for the treatment of isolated patella-femoral OA.

Davies (2013) noted that unicompartmental PFAs are uncommon; however numbers are increasing and there are a variety of new prostheses available. The Femoro-Patella Vialla (FPV, Wright Medical, UK) device was the second most commonly used PF unicompartmental prosthesis in the 2012 British National Joint Register. There are however no published outcomes data for this device. In this study, a total of 52 consecutive cases were studied prospectively using Oxford Knee Score and American Knee Society (AKS) Scores pre-operatively and at follow-up to a minimum of 2 years. Overall, Oxford Knee Scores improved from 30 points pre-operatively (36.6%) to 19 points (60%) at 1-year. American Knee Society Knee scores improved from 51 points pre-operatively to 81 points at 1-year. Functional scores improved from 42 points pre-operatively to 70 points at 1-year. Moreover, 13 (25%) patients had an
excellent outcome with pain abolished and near normal knee function; 11 (21 %) patients gained very little improvement and scored their knees similar or worse to their pre-operative state. There were no infective or thrombo-embolic complications. Seven cases have been revised to a total knee replacement (TKR) for on-going pain in 6 cases and progression of arthritis in the tibio-femoral compartments in 1 case. The patellar button was found to be very poorly fixed in all cases that were revised. The authors concluded that early results with the FPV prosthesis showed that successful outcomes can be achieved; however the results were unpredictable and a significant minority of patients had on-going symptoms that they found unacceptable. They stated that the early revision rate was high in this series.

Al-Hadithy et al (2014) stated that isolated PF joint OA affects approximately 10 % of patients aged over 40 years and treatment remains controversial. The FPV PF joint replacement has been shown to restore functional kinematics of the knee close to normal. Despite its increasing popularity in recent years, there are no studies evaluating the mid-term results with an objective scoring assessment. These investigators reported the clinical and radiological outcomes of FPV PF joint replacement in patients with isolated PF arthritis. Between 2006 and 2012, these researchers performed 53 consecutive FPV PFAs in 41 patients with isolated PFl joint OA. The mean follow-up was 3 years. Mean Oxford Knee Scores improved from 19.7 to 37.7 at latest follow-up. The progression of tibio-femoral OA was seen 12 % of knees. Two knees required revision to TKR at 7 months post-operatively, which these investigators attributed to poor patient selection. There were no cases of mal-tracking patellae, and no lateral releases were performed. The authors concluded that these findings suggested the FPV PFl prosthesis provided good pain relief and survivorship with no significant mal-tracking patellae. This was a relatively small study (n = 41 patients) with mid-term results. These findings need to be validated by well-designed studies with larger sample size and long-term follow-u
Lustig (2014) noted that PFA remains controversial, primarily due to the high failure rates reported with early implants. Several case series have been published over the years, which described the results with various 1st- and 2nd-generation implants. These researchers summarized results published up to now and identified common themes for implants, surgical techniques, and indications. First-generation resurfacing implants had relatively high failure rates in the medium-term. Second-generation implants, with femoral cuts based on total knee arthroplasty (TKA) designs, have yielded more promising medium-term results. The surgical indications were quite specific and must be chosen carefully to minimize poor results. Short-term complications were generally related to patellar mal-tracking, while long-term complications were generally related to progression of OA in the tibio-femoral joint. Implant loosening and polyethylene wear were rare. The author concluded that recent improvements in implant design and surgical techniques have resulted in better short- and medium-term results; however, more work is needed to evaluate the long-term outcomes of modern implant designs.

King et al (2015) reported the incidence of patellar fracture after PFA and determined associated factors as well as outcomes of patients with and without this complication. A total of 77 knees in 59 patients with minimum 2-year follow-up were included. Seven (9.1 %) patients experienced a patellar fracture at a mean of 34 (range of 16 to 64) months post-operatively. All were treated non-operatively. Lower BMI (p = 0.03), change in patellar thickness (p < 0.001), amount of bone resected (p = 0.001), and larger trochlear component size (p = 0.01) were associated with a greater incidence of fracture. Fewer fractures occurred when the post-operative patellar height exceeded the pre-operatively measured height. No statistically significant differences were found in outcome scores between groups at mean 4-year follow-up. It should be noted that a fair amount of fractures at mid-term; and it is unclear if the incidence would increase at long-term.

*Patellar Denervation:*
van Jonbergen et al (2014) noted that they have previously shown that in the absence of patellar resurfacing the use of electrocautery around the margin of the patella improved the 1-year clinical outcome of TKR. In this prospective, randomized study, these researchers compared the mean 3.7 year (1.1 to 4.2) clinical outcomes of 300 TKRs performed with and without electrocautery of the patellar rim -- this was an update of a previous report. The overall prevalence of AKP was 32 % (95 % CI: 26 to 39), and 26 % (95 % CI: 18 to 35) in the intervention group compared with 38 % (95 % CI: 29 to 48) in the control group (chi-squared test; p = 0.06). The overall prevalence of AKP remained unchanged between the 1-year and 3.7-year follow-up (chi-squared test; p = 0.12). The mean total WOMAC and the AKS knee and function scores at 3.7 years' follow-up were similar in the intervention and control groups (repeated measures analysis of variance p = 0.43, p = 0.09 and p = 0.59, respectively). There were no complications. A total of 10 patients (intervention group, n = 3; control group, n = 7) required secondary patellar resurfacing after the 1st year. The authors concluded that the findings of this study suggested that the improved clinical outcome with electrocautery denervation compared with no electrocautery was not maintained at a mean of 3.7 years' follow-up.

Handel et al (2014) determined possible differences in the mid-term results of TKA in patients treated with and without denervation of the patella. This study included 80 TKR in 71 patients who were treated with TKR, either with (n = 40) or without (n = 40) simultaneous denervation of the patella out of a total population with 122 knee replacements in 100 patients. Comparability of both groups was achieved by applying matching criteria. All patients were reviewed by isokinetic tests, physical and radiological examination. The mean follow-up time was 2.2 years. The mean hospital for special surgery (HSS) score revealed no statistically significant differences between both groups (with denervation 77.9 ± 11.1 and without denervation 77.8 ± 11.0, p = 0.976). The isokinetic torque measurements with low angle velocity (60°/s) indicated slightly higher values during extension (60.2 ± 32.2 Nm versus 55.8 ± 25.2 Nm, p =
0.497) and flexion (52.4 ± 28.3 Nm versus 46.1 ± 22.3 Nm, p = 0.272) movements of the affected knee joint. However, the differences did not reach statistical significance. At high angle velocity (180°/s) no differences could be found between both groups. No cases of post-operative necrosis of the patella were observed. Anterior knee pain after denervation was reported in 6 cases (15 %) compared to 10 cases (25 %) in patients who were treated without denervation (p = 0.402). The authors concluded that no statistically significant differences could be found between patients with and without denervation of the patella for TKA.

Pulavarti et al (2014) randomized 126 consecutive patients undergoing primary TKA into 2 groups: Group 1-- patella denervation (n = 63) and Group 2 -- no patella denervation (n = 63). Assessment was performed pre-operatively and at 3, 12 and 24 months post-operatively. Average follow-up of patients was 26.5 months for denervation group and 26.3 months for no denervation group (p = 0.84). Pain scores for AKP were significantly better in the denervation group at 3 months but not at 12 and 24 months. Patient satisfaction was higher in the denervation group. Flexion range was higher in the denervation group at 3, 12 and 24 months review (p < 0.01). However, the authors noted that there were no statistically significant differences with other validated knee scores.

Cheng et al (2014) stated that the impact of patellar denervation with electrocautery in TKA on post-operative outcomes has been under debate. These researchers conducted a meta-analysis and systematic review to compare the benefits and risks of circum-patellar electrocautery with those of non-electrocautery in primary TKAs. Comparative studies and RCTs were identified by conducting an electronic search of articles dated up to September 2012 in PubMed, EMBASE, Scopus, and the Cochrane databases. A total of 6 studies that focus on a total of 849 knees were analyzed. A random-effects model was conducted using the inverse-variance method for continuous variables and the Mantel-Haenszel method for dichotomous variables. There was no significant difference in
the incidence of AKP between the electrocautery and non-electrocautery groups. In term of patellar score and Knee Society Score (KSS), circum-patellar electrocautery improved clinical outcomes compared with non-electrocautery in TKAs. The statistical differences were in favor of the electrocautery group; but have minimal clinical significance. In addition, the overall complications indicated no statistical significance between the 2 groups. The authors concluded that the findings of this study showed no strong evidence either for or against electrocautery compared with non-electrocautery in TKAs.

In a meta-analysis, Li and colleagues (2014) examined if patellar denervation with electrocautery after TKA could reduce the post-operative AKP. A total of 5 RCTs with 572 patients and 657 knees were eligible for this meta-analysis. The results showed that patellar denervation with electrocautery was associated with less AKP, lower VAS, higher patellar scores and better Knee Function Score (KFS) compared with no patellar denervation. Complications did not differ significantly between the 2 groups. The authors concluded that the existing evidence indicated that patellar denervation with electrocautery may be a better approach, as it improved both AKP and knee function after TKA. Moreover, they stated that future multi-center RCTs with large sample sizes are needed to verify these findings.

Arirachakaran et al (2015) conducted a systematic review and network meta-analysis of RCTs with the aim of comparing relevant clinical outcomes between patellar denervation, resurfacing and non-resurfacing. A database search was performed using PubMed and Scopus search engines; RCTs or quasi-experimental designs comparing clinical outcomes between treatments by a search of articles dated from inception to October 23, 2012. Unstandardized mean difference (UMD) and random effects methods were applied for pooling continuous and dichotomous outcomes, respectively. A longitudinal mixed regression model was used for network meta-analysis to indirectly compare treatment effects; 18 of 315 studies identified were eligible. Compared with patellar non-resurfacing, patellar denervation had a UMD that displayed
a significant improvement in symptoms with values in pain VAS and KSS of -0.6 [95 % CI: -1.13 to -0.25] and 2.55 (95 % CI: 0.43 to 4.68), respectively. The UMD in VAS, KSS, and KFS in patellar resurfacing showed no significant improvement in symptoms when compared to non-resurfacing. Patients who underwent surgery with patellar resurfacing had a lower re-operation rates with pooled relative risks (RRs) of 0.69 (95 % CI: 0.50 to 0.94) when compared to non-resurfacing. The network meta-analysis suggested a benefit of borderline significance for patellar denervation with a pooled RR of 0.63 (95 % CI: 0.38 to 1.03), showing that there is a lower chance of AKP when compared to non-resurfacing. Patellar resurfacing also displayed a significantly lower chance of re-operation with a pooled RR of 1.68 (95 % CI: 0.50 to 0.92) when compared to non-resurfacing. Multiple active treatment comparisons indicated that patellar denervation resulted in greater improvement in KFS than patellar resurfacing. The authors concluded that the findings of this review suggested that either patellar denervation or patellar resurfacing may be selected for the management of the PF component in TKR. They noted that patellar denervation may help improve post-operative knee function, but does not improve pain when compared to patellar resurfacing.

Kwon et al (2015) stated that there is controversy over the need for electrocauterization of the patella in non-resurfacing TKA. In a prospective RCT, these researchers examined if this procedure is beneficial. A total of 50 patients who underwent electrocautery were compared with 50 patients who did not undergo this procedure. These investigators determined cartilage status, pre-operative and post-operative AKS score, the WOMAC and the PF scores for a minimum of 5 years. The 2 groups did not differ significantly in demographics, intra-operative cartilage status, or pre-operative or post-operative outcomes. No complications were detected in either group. The authors concluded that they found no benefits of electrocautery of the patella in patellar non-resurfacing TKA up to 5 years.

*Cryotherapy:*
The American Academy of Orthopaedic Surgeons (AAOS)’s evidence-based clinical practice guideline on “Surgical management of osteoarthritis of the knee” (2015) noted that cryotherapy is one of the interventions that were considered but not recommended.

**Intra-Articular Corticosteroid Injection:**

In a randomized, blinded, placebo-controlled clinical trial, Henriksen et al (2015) evaluated the clinical benefits of an intra-articular corticosteroid injection given before exercise therapy in patients with OA of the knee. The participants had radiographic confirmation of clinical OA of the knee, clinical signs of localized inflammation in the knee, and knee pain during walking (score greater than 4 on a scale of 0 to 10). Subjects were randomly allocated (1:1) to an intra-articular 1-ml injection of the knee with methylprednisolone acetate (Depo-Medrol), 40 mg/ml, dissolved in 4 ml of lidocaine hydrochloride (10 mg/ml) (corticosteroid group) or a 1-ml isotonic saline injection mixed with 4 ml of lidocaine hydrochloride (10 mg/ml) (placebo group). Two weeks after the injections, all participants started a 12-week supervised exercise program. The primary outcome was change in the Pain subscale of the KOOS questionnaire (range of 0 to 100; higher scores indicate greater improvement) at week 14. Secondary outcomes included the remaining KOOS subscales and objective measures of physical function and inflammation. Outcomes were measured at baseline, week 2 (exercise start), week 14 (exercise stop), and week 26 (follow-up). A total of 100 patients were randomized to the corticosteroid group (n = 50) or the placebo group (n = 50); 45 and 44 patients, respectively, completed the trial. The mean (SE) changes in the KOOS Pain subscale score at week 14 were 13.6 (1.8) and 14.8 (1.8) points in the corticosteroid and placebo groups, respectively, corresponding to a statistically insignificant mean difference of 1.2 points (95 % CI: -3.8 to 6.2; p = 0.64). These researchers found no statistically significant group differences in any of the secondary outcomes at any time-point. The authors concluded that no additional benefit resulted from adding an intra-
articular injection of 40 mg of corticosteroid before exercise in
patients with painful OA of the knee. They stated that further
research is needed to establish optimal and potentially
synergistic combinations of conservative treatments.

**Percutaneous Calcium Phosphate Injections:**

Chatterjee et al (2015) noted that injury to sub-chondral bone is
associated with knee pain and OA. A percutaneous calcium
phosphate injection is a novel approach in which sub-chondral
bone marrow edema lesions are percutaneously injected with
calcium phosphate. In theory, calcium phosphate provides
structural support while it is gradually replaced by bone.
However, little clinical evidence supports the effectiveness of
percutaneous calcium phosphate injections. These researchers
asked: (i) Does percutaneous calcium phosphate injection
improve validated patient-reported outcome measures? (ii)
What proportion of patients experience failure of treatment
(defined as a low score on the Tegner Lysholm Knee Scoring
Scale)? And (iii) Is there a relationship between outcome and
age, sex, BMI, and pre-operative grade of OA? Between
September 2012 and January 2014, these investigators treated
33 patients with percutaneous calcium phosphate injections; 25
satisfied this study inclusion criteria; of those, 3 were lost to
follow-up and 22 (88 %; 13 men, 9 women) with a median age
of 53.5 years (range of 38 to 70) were available for
retrospective chart review and telephone evaluation at a
minimum of 6 months (median of 12 months; range of 6 to 24).
The general indications for this procedure were the presence of
sub-chondral bone marrow edema lesions observed on MR
images involving weight-bearing regions of the knee associated
with localized pain on weight-bearing and palpation and failure
to respond to conservative therapy (greater than 3 months).
Patients with pain secondary to extensive non-degenerative
meniscal tears with a flipped displaced component at the level
of bone marrow edema lesions, or with mechanical axis
deviation greater than 8° were excluded. All patients had
Grades III or IV chondral lesions (modified Outerbridge grading
system for chondromalacia) overlying MRI-identified
sub-chondral bone marrow edema lesions. Percutaneous calcium phosphate injection was performed on the medial tibial condyle (15 patients), the medial femoral condyle (5 patients), and the lateral femoral condyle (2 patients). Concomitant partial meniscectomy was performed in 18 patients. Pre-operative and post-operative scores from the KOOS and the Tegner Lysholm Knee Scoring Scale were analyzed. For patients available for follow-up, the outcome scores improved after treatment. The KOOS improved from a mean of 39.5 ± 21.8 to 71.3 ± 23 (95% CI: 18.6 to 45.2; p < 0.001) and the Tegner and Lysholm score from 48 ± 15.1 to 77.5 ± 20.6 (95% CI: 18.8 to 40.2; p < 0.001). However, 7 of the 22 patients had poor clinical outcomes as assessed by the Tegner Lysholm Knee Scoring Scale, whereas 3 had fair results, 5 had good results, and 7 had excellent results. The post-operative Tegner Lysholm score was inversely related to the pre-operative Kellgren-Lawrence OA grade (R(2) = 0.292; F (1.20) = 9.645; p = 0.006). These researchers found no relationship between outcome scores and age, sex, or BMI. The authors concluded that in a study that would have been expected to present a best-case analysis (short-term follow-up, loss to follow-up of patients with potentially unsatisfactory results, and use of invasive co-treatments including arthroscopic debridement), the authors found that percutaneous calcium phosphate injection in patients with symptomatic bone marrow edema lesions of the knee and advanced OA yielded poor results in a concerning proportion of patients. Based on these results, these investigators advised against the use of percutaneous calcium phosphate injections for patients with advanced osteoarthritic changes.

CPT Codes / HCPCS Codes / ICD-10 Codes

<table>
<thead>
<tr>
<th>Information in the [brackets] below has been added for clarification purposes. Codes requiring a 7th character are represented by &quot;+&quot;:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ICD-10 codes will become effective as of October 1, 2015:</strong></td>
</tr>
<tr>
<td>CPT codes covered for indications listed in the CPB:</td>
</tr>
<tr>
<td>Code</td>
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<tr>
<td>29874</td>
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<tr>
<td>29880</td>
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<td>29881</td>
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**Other CPT codes related to the CPB:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20610 - 20611</td>
<td>Arthrocentesis, aspiration and/or injection; major joint or bursa (eg, shoulder, hip, knee joint, subacromial bursa)</td>
</tr>
<tr>
<td>27437</td>
<td>Arthroplasty, patella; without prosthesis</td>
</tr>
<tr>
<td>27438</td>
<td>with prosthesis</td>
</tr>
<tr>
<td>29870</td>
<td>Arthroscopy, knee, diagnostic, with or without synovial biopsy (separate procedure)</td>
</tr>
<tr>
<td>29871</td>
<td>Arthroscopy, knee, surgical; for infection, lavage and drainage</td>
</tr>
<tr>
<td>29875</td>
<td>Arthroscopy, knee, surgical; synovectomy, limited (eg, plica or shelf resection) (separate procedure)</td>
</tr>
<tr>
<td>29877</td>
<td>debridement/shaving of articular cartilage (chondroplasty)</td>
</tr>
</tbody>
</table>

**Other HCPCS codes related to the CPB:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1776</td>
<td>Joint device (implantable)</td>
</tr>
<tr>
<td>G0289</td>
<td>Arthroscopy, knee, surgical, for removal of loose body, foreign body, debridement/shaving of articular cartilage (chondroplasty) at the time of other surgical knee arthroscopy in a different compartment of the same knee</td>
</tr>
</tbody>
</table>

**ICD-10 codes covered if selection criteria are met:**
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M17.0 - M17.12</td>
<td>Primary osteoarthritis of knee [mild-to-moderate osteoarthritis with knee pain plus mechanical symptoms due to loose bodies and meniscal tears]</td>
</tr>
<tr>
<td>M17.2 - M17.5</td>
<td>Post-traumatic and secondary osteoarthritis of knee [mild-to-moderate osteoarthritis with knee pain plus mechanical symptoms due to loose bodies and meniscal tears]</td>
</tr>
<tr>
<td>M17.9</td>
<td>Osteoarthritis of knee, unspecified [mild- to-moderate osteoarthritis with knee pain plus mechanical symptoms due to loose bodies and meniscal tears]</td>
</tr>
<tr>
<td>S83.200+ - S83.289</td>
<td>Tear of meniscus, current injury</td>
</tr>
</tbody>
</table>

**ICD-10 codes not covered for indications listed in the CPB:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>M23.200 - M23.269</td>
<td>Derangement of meniscus due to old tear or injury</td>
</tr>
<tr>
<td>M25.561 - M25.569</td>
<td>Pain in knee</td>
</tr>
<tr>
<td>M25.661 - M25.669</td>
<td>Stiffness of knee, not elsewhere classified</td>
</tr>
</tbody>
</table>

**The above policy is based on the following references:**


17. Gillespie WJ. Arthroscopic surgery was not effective for relieving pain or improving function in osteoarthritis of the knee. ACP J Club. 2003;138(2):49.


32. Kirkley A, Birmingham TB, Litchfield RB, et al. A randomized trial of arthroscopic surgery for osteoarthritis...


Patellofemoral Replacement (Arthroplasty):


Patellar Denervation:


Miscellaneous Interventions:


AETNA BETTER HEALTH® OF PENNSYLVANIA

Amendment to
Aetna Clinical Policy Bulletin Number: 0673
Osteoarthritis of the Knee: Selected Treatments

There are no amendments for Pennsylvania Medicaid.

www.aetnabetterhealth.com/pennsylvania
Updated 01/2017