Molina Clinical Policy
Autologous Chondrocyte Implantation for Knee Cartilage Lesions
Policy No. 347

Last Approval: 10/14/2026
Next Review Due By: October 2027

DISCLAIMER

This Molina Clinical Policy (MCP) is intended to facilitate the Utilization Management process. Policies are not a supplementation or recommendation for treatment. Providers are solely responsible for the diagnosis, treatment, and clinical recommendations for the member. It expresses Molina's determination as to whether certain services or supplies are medically necessary, experimental, investigational, or cosmetic for purposes of determining appropriateness of payment. The conclusion that a particular service or supply is medically necessary does not constitute a representation or warranty that this service or supply is covered (e.g., will be paid for by Molina) for a particular member. The member's benefit plan determines coverage – each benefit plan defines which services are covered, which are excluded, and which are subject to dollar caps or other limits. Members and their providers will need to consult the member's benefit plan to determine if there are any exclusion(s) or other benefit limitations applicable to this service or supply. If there is a discrepancy between this policy and a member's plan of benefits, the benefits plan will govern. In addition, coverage may be mandated by applicable legal requirements of a State, the Federal government or CMS for Medicare and Medicaid members. CMS's Coverage Database can be found on the CMS website. References included were accurate at the time of policy approval and publication.

OVERVIEW

Cartilaginous defects occur when the articular cartilage that covers the articulating bones in the knee, also called hyaline cartilage, becomes damaged. This cartilage is surrounded by an extracellular matrix composed of collagen and chondrocytes. While articular cartilage loss itself does not generate pain, it can lead to pain, swelling, locking, and/or weakening of surrounding tissues. Cartilaginous defects are classified as chondral or osteochondral. Chondral defects are further categorized into partial-thickness or full-thickness, with the latter extending to, but not into, the subchondral bone. Partial-thickness defects may be asymptomatic but can progress to full-thickness lesions over time, increasing the risk of osteoarthritis (Hayes 2023; Mandl & Martin 2026).

There is currently no standard treatment for articular cartilage defects in the knee. Initial management of knee symptoms due to suspected chondral defects are typically palliative, addressing symptoms rather than the underlying diseases (Hayes 2023). Therapeutic options for symptomatic knee chondral impairments include:

- Palliative conservative management, including lifestyle and biomechanical interventions such as weight loss, muscle strengthening, rehabilitation, orthotics and braces. Physiotherapy modalities may involve laser, ultrasound, pulsed electromagnetic fields, thermal energy, or electrical stimulation. Pharmacologic approaches can include NSAIDs (oral/topical), chondroitin sulfate, or glucosamine. Arthroscopic procedures such as loose-body removal, debridement and lavage are also considered palliative – permitting immediate weightbearing but removing rather than replacing or regenerating tissue.
- Microfracture (MFX) is the primary surgical bone marrow stimulation technique for treating chondral defects of the knee. Other bone marrow stimulation techniques include drilling, abrasion, microfracture and autologous matrix induced chondrogenesis (AMIC).
- Restorative surgical procedures including matrix-induced autologous chondrocyte implantation (MACI) and other techniques not addressed in this policy, such as mosaicplasty, osteochondral autograft transfer system, bone marrow aspirate concentrate, and osteochondral allograft, autologous matrix induced chondrogenesis.

Autologous chondrocyte implantation (ACI) is a surgical restorative technique designed to stimulate articular cartilage regeneration and fill cartilaginous defects with new hyaline-like tissue. **Matrix-induced Autologous Chondrocyte Implantation (MACI)** is a next-generation ACI that uses autologous cultured chondrocytes seeded onto a porcine collagen scaffold. The procedure is performed in two stages. First, a biopsy of healthy cartilage is collected during an initial arthroscopic surgery. The chondrocytes obtained from this biopsy are then isolated and cultured in vitro for several weeks. Once an adequate concentration is reached, the cells are seeded onto a three-dimensional matrix. Second, surgery is performed either arthroscopically or through mini-arthrotomy, the damaged cartilage is debrided, and the seeded matrix is secured with glue to fully cover the defect (Hayes 2023).

Regulatory Status

ACI is a surgical procedure that is not regulated by the U.S. Food & Drug Administration (FDA); however, biological products are licensed by the FDA through the Biologics License Application (BLA) approval pathway (FDA 2021).

MACI was initially FDA-approved in December 2016 and expanded in August 2024 via supplemental BLA expanding its indication to include repair of symptomatic cartilage defects of the femoral condyle (medial, lateral, or trochlea)

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caused by acute or repetitive trauma in patients who had not achieved adequate relief from prior arthroscopic or other surgical repair procedures for cartilage defects of the knee up to 4cm^2 in size (e.g., debridement, microfracture, drilling/abrasion arthroplasty).

COVERAGE POLICY

Matrix-induced autologous chondrocyte implantation (MACI) or autologous chondrocyte implantation (ACI) for the treatment of articular cartilage defects of the knee may be **considered medically necessary** when ALL the following clinical criteria are met:

1. Documented diagnosis of ALL the following:
   a. Treatment is for focal, full-thickness (Outerbridge Classification of Grade III or IV) unipolar lesions
   b. Focal articular cartilage defect is caused by acute or repetitive trauma
   c. Location of the defect is on the patella, trochlea, or weightbearing surface of the femoral condyle
   d. Size of the defect is at least 1.5 cm^2 in size

2. Body Mass Index (BMI) of ≤ 35

3. Member is between the ages of 15 (with documented evidence of skeletal maturity) and 55 years

4. Member is not a candidate for total knee arthroplasty or other reconstructive knee surgery

5. Member is experiencing function-limiting pain which interferes with activities of daily living

6. Failure of provider-directed, non-surgical medical management for at least three (3) months, as appropriate (e.g., weight reduction, physical therapy, braces and orthotics, intraarticular injection of hyaluronic acid derivatives, and nonsteroidal anti-inflammatory agents)

7. Inadequate response to a prior arthroscopic or other surgical repair procedure (e.g., debridement, microfracture, drilling/abrasion arthroplasty, or osteochondral allograft/autograft)

8. Member has not had prior knee surgery within the past 6 months, excluding surgery to procure a biopsy or a concomitant procedure to prepare the knee for a MACI/ACI implant

9. Minimal to absent degenerative changes in the surrounding articular cartilage (Outerbridge Grade II or less) and normal-appearing hyaline cartilage surrounding the border of the defect

10. Absence of osteoarthritis, generalized tibial chondromalacia, and inflammatory arthritis or other systemic disease affecting the joints

11. Member is capable of cooperating with post-operative weight bearing restrictions and completion of post-operative rehabilitation

12. Physical examination findings confirming ALL the following:
    a. A stable knee with intact or reconstructed ligaments (ACL or PCL)
    b. Normal tibial-femoral and/or patella-femoral alignment
    c. History of malalignment for deformity of the tibial femoral joint and/or patella maltracking that has been corrected and fixed

Limitations and Exclusions

ACI is considered **experimental, investigational, and unproven** for the following based on insufficient evidence:

1. Treatment of joints other than the knee (e.g., shoulder, hip, tibia, talus, glenohumeral)

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2. As an initial or first-line treatment or surgical therapy

3. History of total meniscectomy

4. A cartilaginous defect (related to osteoarthritis, rheumatoid arthritis, or inflammatory diseases) or where an osteoarthritic or inflammatory process unfavorably affects peri lesional cartilage quality

5. Osteochondritis dissecans

6. Combination procedures, including but not limited to:
   a. Meniscal allograft and ACI of the knee (evidence of efficacy has not been proven)
   b. ACI and osteochondral autograft transfer system for repair of cartilage defects of the knee.
   c. ACI and meniscus reconstruction for large chondral defect due to discoid lateral meniscus tear (long-term outcomes have not been established)
   d. Combined ACI and osteochondral autograft transfer for large knee osteochondral lesion (long-term outcomes have not been established)
   e. Autologous matrix-induced chondrogenesis (AMIC) for articular cartilage defects of the talus, patella-femoral lesions, and other osteochondral defects / lesions (lack of established evidence)
   f. Two-stage bone and meniscus allograft and ACI for the treatment of unicompartmental osteoarthritis of the knee (evidence of efficacy has not been proven)

DOCUMENTATION REQUIREMENTS: Molina Healthcare reserves the right to require that additional documentation be made available as part of its coverage determination; quality improvement; and fraud; waste and abuse prevention processes. Documentation required may include, but is not limited to, patient records, test results and credentials of the provider ordering or performing a drug or service. Molina Healthcare may deny reimbursement or take additional appropriate action if the documentation provided does not support the initial determination that the drugs or services were medically necessary, not investigational, or experimental, and otherwise within the scope of benefits afforded to the member, and/or the documentation demonstrates a pattern of billing or other practice that is inappropriate or excessive.

SUMMARY OF MEDICAL EVIDENCE

A large body of evidence suggests that autologous chondrocyte implantation (ACI) can be an effective and safe treatment for symptomatic articular cartilage defects of the knee. Clinical studies suggest that ACI may improve symptoms in some patients over short- and intermediate-term follow-up. Reported safety outcomes are generally favorable, with complication rates comparable to other surgical procedures; however, additional research is needed to better define its long-term and comparative safety profile. Clear patient selection criteria have yet to be fully established, and the optimal role of ACI within the broader treatment hierarchy of chondral defect treatments remains unclear. Current evidence does not support the use of ACI for joints other than the knee (Robinson et al. 2019) or as primary treatment for knee cartilage lesions (Gou et al. 2020; Schuette et al. 2021).

Randomized Controlled Trials

Snow et al. (2023) conducted the ACTIVE randomized control trial to determine if autologous chondrocyte implantation (ACI) was superior to other forms of cartilage management in patients with failed previous treatment for chondral or osteochondral defects of the knee. Dual primary outcomes were patient self-reported Lysholm knee scale (with 0 being the worst score, to 100 being the best score) and the time from surgery to the cessation of treatment benefit. 390 patients (n=390) were randomized 1:1 to the ACI cohort (n=195) and to the control cohort/best alternative non-ACI treatment (n=195). Prior to randomization, the treating surgeon determined the best non-ACI treatment for each patient. An independently trained and blinded assessor completed clinical assessments at baseline, 3 and 6 months, and then at 1-, 3- and 5-years post procedure. Patient reported outcomes were obtained at baseline and then annually. At 5 years, the ACI cohort had (n=158), and the control cohort had (n=138) patient completed Lysholm responses. In both groups scores were improved by one year 15.4 points [95% CI, 11.9 to 18.8] for ACI and 15.2 points [85% CI, 11.6 to 18.9] for the control group. However, at 5 years post procedure, no evidence of a difference was found between the two groups (2.9 points; 95% CI, -1.8 to 7.5; p=.46). For the second outcome of time from surgery to the cessation of treatment benefit, a little over half of the subjects in both groups were still benefitting from surgery, (55% with ACI, 95% CI 47% to 64%; 54% with best alternative treatment, 95% CI, 47% to 62% with no evidence of difference between the groups. The authors concluded over 5 years, there was no evidence of a difference in Lysholm scores between ACI and alternative management in patients who had previously failed treatment.

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Snow et al. (2026) reported the 10-year results of the ACTIVE multicenter randomized controlled trial, which is the long-term follow-up to the 5-year outcomes previously published in 2023. The trial randomized 390 patients aged 18 - 55 years with symptomatic chondral or osteochondral defects of the knee who had failed at least one prior therapeutic surgical procedure to either ACI or alternative treatment (including microfracture, osteochondral autograft, debridement, or other best alternative techniques). Randomization was stratification by age, defect size, location, intended alternative treatment, and baseline Lysholm score. Mean defect size was 3.2cm2 in both groups, and 88% of defects were femoral. At 10 years, the mean Lysholm score was significantly higher in the ACI group (mean difference 7.3 points; 95% CI 2.5 -12.1), a difference within the range of the minimum clinically important difference. Secondary outcomes including IKDC and Cincinnati scores also favored ACI. Treatment failure rates at ten years were comparable (29% ACI vs 25% alternative; HR 1.04, 95% CI 0.69 – 1.6). Sensitivity analysis that accounted for further operations after treatment failure continued to favor ACM, although the magnitude of benefit was reduced. Noted Cortana higher narrow stimulation did not adversely affect outcomes in the ACI arm but was associated with significantly worse scores in the alternative treatment arm. The authors concluded that at the 10-year follow-up, ACI produced superior knee function compared with alternative surgical treatments.

Saris et al. (2014) conducted The SUMMIT Study, a prospective, Phase 3, multicenter, randomized, open-label comparison of MACI (n=72) and microfracture (n=72) over a two-year period. SUMMIT enrolled subjects ages 18 to 55 years (mean age 33.8 years and a mean BMI of 26 kg/m2) with at least one symptomatic Outerbridge grade III or IV focal cartilage defect on the medial femoral condyle, lateral femoral condyle, and/or the trochlea of at least 3 cm^2 in size and a baseline Knee Injury and Osteoarthritis Outcome Score (KOOS) pain score less than 55. Exclusion criteria included knee surgery within the previous six months (excluding diagnostic arthroscopy); modified Outerbridge Grade III or IV patellar or tibial defect(s); symptomatic musculoskeletal disorder in the lower limbs that could interfere with efficacy measurements in the target knee joint; total meniscectomy, meniscal allograft, or bucket handle tear or displaced tear requiring >50% meniscus removal in the target knee; malalignment necessitating osteotomy to correct tibiofemoral or patellofemoral alignment; Kellgren-Lawrence grade 3 or 4 osteoarthritis; inflammatory disease or other condition affecting the joints; or septic arthritis within one year prior to screening. At 104 weeks, the improvement with the MACI implant over microfracture in the co-primary endpoint subscores (pain and function) was clinically and statistically significant. The percentage of patients who responded to therapy at 104 weeks with at least a 10-point improvement in KOOS pain and function scores was higher for the MACI group (87.5%) than the microfracture group (68.1%). Treatment failures (non-responders) were 12.5% for MACI and 31.9% for microfracture. MRI structural repair evaluations were done on 134 patients after 52 weeks and 139 patients after 104 weeks. MRI study of structural healing at both time points revealed that both treatment groups improved in defect filling, but there were no statistically significant differences. Two years following treatment, 83% of patients in the MACI group and 77% of patients in the microfracture group had greater than 50% of the defect depth filled. A second look arthroscopy and biopsy were performed on 116 patients (MACI implant n = 60; microfracture n = 56). The structural repair tissue was good overall; nevertheless, the mean microscopic ICRS II overall assessment score of the 2 groups (63.8 versus 62.3) was not significantly different from one another.

Brittberg et al. (2018) presented the results of the SUMMIT Extension Study (NCT01251588), which evaluated 5-year clinical effectiveness and safety of the 144 patients in the SUMMIT study: 65 MACI patients (90.3%) and 63 microfracture patients (87.5%). At the 5-year follow-up, 65 participants (65/65) in the MACI group and 59 subjects (59/63) in the microfracture group were still alive (total retention = 97%). The mean scores in KOOS pain and KOOS function were steady in both therapy groups for an additional three years. The improvement of MACI over microfracture in the co-primary outcome of KOOS pain and function was clinically and statistically significant 5 years following therapy. Similar to the 2-year SUMMIT results, the MRI examination demonstrated an improvement in defect filling for both treatment groups; however, there were no statistically significant differences between treatment groups. The most frequently occurring adverse reactions (≥5%) reported for ACI were arthralgia, tendonitis, back pain, joint swelling, and joint effusion. Serious adverse reactions reported for ACI were arthralgia, cartilage injury, meniscus injury, treatment failure, and osteoarthritis (Vericel 2024).

Systematic Reviews and Meta-Analyses

Wang et al. (2024) completed a systematic review to identify minimum 10-year outcomes of matrix-induced autologous chondrocyte implantation (MACI) for the knee. Of the 251 studies of MACI in the knee (dated 2008 to 2022), 5 published studies met the inclusion criteria: patients undergoing a MACI of the knee, clinical outcomes reported, and a minimum 10-year follow up. The authors outcomes were twofold: to report subjective patient reported outcomes (PROs) and the rate of graft failure, reoperation, and progression towards a total knee replacement post MACI at a minimum 10-year

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follow up. The review included 168 patients who underwent MACI for a total of 188 treated defects. Multiple scales were used to assess PROs, with four of the five studies used the International Knee Documentation Committee (IKDC) score. Scores range from 0 to 100; higher scores indicate higher levels of function and fewer symptoms. Mean preoperative and postoperative IKDC scores ranged from 31.3 to 50.6 and 59.0 to 71.5, respectively. All the studies showed significant improvement in PROs, with 2 authors reporting 85.7% of patients felt “better” or “much better” after MACI, and 88.5% of patients were satisfied with surgery. Magnetic resonance imaging was also evaluated in four of the five studies for evidence of graft outcomes. Normal or nearly normal values were reported in a mean of 74.29% of all subcategories, with satisfactory defect fill and an intact graft noted. There were 17 ‘’all cause” reoperations identified (9.0%), of which 15 (7.4%) were total knee replacements at 10 to 17 years after MACI. The authors concluded these findings support the use of MACI as a long-term treatment of focal cartilage defects of the knee.

Smith et al. (2023) completed a systematic review of 19 studies with the goal to evaluate the outcomes of ACI in the knee joint. Inclusion criteria included studies observing biomechanical or functional outcomes for patients receiving ACI on the tibiofemoral and/or patellofemoral joints. There was a total of 767 patients included in the review with a mean age of 35.3±6.3 years, mean BMI of 26.4±2.5 kg/m2, and a mean defect size of 3.68±1.20 cm2. Outcomes measured included active or passive knee ROM, strength, and a non-strength related objective measurement of a functional activity. Results showed a statistically significant pre-operative and post-operative improvement in ROM that allowed patients to complete ADLs requiring deep flexion. The mean pre-operative ROM was 130.5±14.8° and the mean post-operative ROM was 136.1±10.2° at 57.2±36.9 months. Strength was reported in the form of straight leg raise assessments, knee extensor and flexor limb symmetry indices, and peak knee flexor and extensor strengths. The straight leg assessment was reported by one study and showed a statistically significant improvement (p=0.0001) 2-years post-operatively. Knee extensor and flexor limb symmetry indices were reported by 5 studies with a mean of 86.5±12.0% pre-operatively (reported by one study) and 92.0±12.7 post-operatively. One study reported both pre- and post-operative limb symmetry indices for peak knee extensor strength and found a statistically significant improvement ($p < 0.0001$). Peak knee flexor and extensor strength outcomes were reported in 6 studies with one study finding knee strength in the operative limb to be significantly lower than the contralateral limb at 4-years post-procedure. There was no statistical difference reported for knee torques. There was also a significant difference in the total isokinetic torque of the knee flexor and extensors between the operated leg and the contralateral leg at all post-operative follow-up periods. The functional activities commonly observed were the 6-minute walk test and the hop test. One study reported statistically significant improvements in the single and triple hop tests with no significant differences noted between traditional or accelerated rehabilitation. The 6-minute walk test was reported by 6 studies with only 3 studies reporting both pre- and post-operative distances. The mean pre-operative distance was 494.2±6.6m compared to a post-operative distance of 570.6±64.8m. Limitations noted by the researchers included small sample sizes, current literature being limited, and inconsistencies with control groups and rehabilitation protocols that made it difficult to assess the impact of ACI on functional activities.

Hu et al. (2021) conducted a meta-analysis to report various effects of ACI on osteochondral defects of the talus; this included 23 case series studies (458 patients) with osteochondral defects of the talus. Following ACI, the overall success rate for patients with talus osteochondral defects was 89%. The AOFAS score for patients with talus osteochondral defects after ACI was 86.33. The AOFAS score after ACI was significantly different when stratified by patient age. The study found that ACI has a high success rate and improves the AOFAS score for those with talar osteochondral defects.

Migliorini et al. (2020) performed a systematic analysis comparing the clinical outcomes of ACI and Mesenchymal Stem Cell (MSC) injections for treating focal chondral defects of the knee. The analysis comprised 43 articles (11 RCTs and 32 cohort studies) and data pooled from 3,340 procedures for analysis. First-generation (p-ACI) uses a periosteal patch harvested from the proximal tibia, second-generation (c-ACI) uses a graft containing type I/III collagen membrane, and third generation (m-ACI) uses autologous chondrocytes cultivated on type I and III collagen membranes. Twelve studies reported p-ACI, eight c-ACI, and 13 m-ACI. The authors conclude that ACI procedures are a viable way to treat focal chondral defects of the knee, with considerable improvements from the first to third generation. This systematic review has limitations because the majority of included studies are retrospective or prospective, limiting the review to this level of evidence.

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National and Specialty Organizations

An international modified Delphi consensus process published in 2024 by the **International Knee Cartilage Injury Delphi Consensus Study Group** (Cabell et al. 2024) involved 79 orthopedic sports medicine and knee surgeons from 19 countries representing multiple specialty societies. The group developed consensus statements specifically addressing chondrocyte-based cartilage (CBC) repair approaches, which explicitly include MACI implantation. Strong consensus (93% agreement) was reached at the relative indications for CBC repair are a symptomatic, focal high-grade or full thickness chondral lesion greater than 2cm2 in size, with healthy surrounding cartilage and no subchondral bone loss or edema. Strong consensus (97% agreement) was also achieved regarding relative contraindications, which include subchondral grade II or III edema with fracture lines or cystic changes, subchondral bone loss when bone grafting will not be performed, advanced age, poor quality surrounding cartilage, and body mass index greater than 40. Unanimous consensus supported the use of visual and tactile feedback intraoperatively to differentiate healthy from damaged cartilage, with the goal of removing damaged tissues to leave health borders. Additional strong consensus statements addressed preferred chondrocyte harvest sites (lateral femoral notch), defect sizing techniques, steps to minimize complications (including correction of malalignment, instability, or meniscal deficiency), and the current lack of an established role for orthobiologics in CBC repair. . These expert consensus statements provide contemporary specialty society support for the use of MACI in appropriately selected patients with symptomatic focal high grade or full thickness knee cartilage defects.

The **American Academy of Orthopaedic Surgeons** (AAOS 2023) published an evidence-based clinical practice guideline ***The Diagnosis and Treatment of Osteochondritis Dissecans.*** Recommendation 12 states "We are unable to recommend for or against a specific cartilage repair technique in symptomatic skeletally mature patients with unsalvageable Osteochondritis Dissecans (OCD) lesions". Strength of recommendation: Inconclusive. An Inconclusive recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm. The AAOS provided the following rationale: there are multiple different procedures for cartilage repair, some of which are marrow stimulation techniques such as abrasion arthroplasty and microfracture, osteochondral transplantation with allograft and autograft, and autologous chondrocyte implantation. Unsalvageable OCD was addressed in four Level 4 studies. Each of these covered a different technique, used different outcome measures and patient follow up timelines were different. Based on this the AAOS workgroup that evidence for a specific technique was inconclusive. Implications: "Practitioners should feel little constraint in following a recommendation labeled as Inconclusive, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role."

The **National Institute for Health and Care Excellence (NICE)** released the Technology appraisal guidance [TA477] for ACI for the treatment of symptomatic articular cartilage defects of the knee, including MACI and earlier-generation procedures. The panel suggested ACI as a therapy option for symptomatic patients who (NICE 2017):

- Have not undergone prior surgery to address the chondral defect
- Have limited osteoarthritic involvement (as assessed by clinicians experienced in investigating knee cartilage damage using a validated measure for knee osteoarthritis)
- Whose lesion exceeds 2 cubic centimeters (cm^2)

SUPPLEMENTAL INFORMATION

Scales Used to Determine Severity of Cartilage Defects of the Knee

International Cartilage Repair Society (ICRS 2000)

- Grade 0: Normal.
- Grade 1: Nearly Normal. Superficial lesions. Soft indentation and/or superficial fissures and cracks.
- Grade 2: Abnormal. Lesions extending down to <50% of cartilage depth.
- Grade 3: Severely Abnormal. Cartilage defects extending down >50% of cartilage depth as well as down to calcified layer and down to but not through the subchondral bone. Blisters are included in this Grade.
- Grade 4: Severely Abnormal. Defects of the full thickness of cartilage involving the subchondral bone.

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Outerbridge Scale (Slattery & Kewon 2018)
The Outerbridge Scale was originally developed to classify the macroscopic changes of patellar chondromalacia. The scale was later modified to allow for the grading of all cartilage lesions. Studies that have evaluated the reliability of Outerbridge's classification system have used either arthroscopic video or another imaging comparison modality.

- Grade 0: Normal cartilage.
- Grade 1: Softening and swelling of the cartilage.
- Grade 2: Fragmentation and fissuring in an area half an inch or less in diameter.
- Grade 3: Fragmentation and fissuring in an area more than half an inch in diameter.
- Grade 4: Erosion of cartilage down to the bone.

CODING & BILLING INFORMATION

CPT (Current Procedural Terminology)

Code	Description
27412	Autologous chondrocyte implantation, knee
29870	Arthroscopy, knee, diagnostic, with or without synovial biopsy (separate procedure)

HCPCS (Healthcare Common Procedure Coding System)

Code	Description
J7330	Autologous cultured chondrocytes, implant
S2112	Arthroscopy, knee, surgical for harvesting of cartilage (chondrocyte cells)

CODING DISCLAIMER: Codes listed in this policy are for reference purposes only and may not be all-inclusive. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement. Listing of a service or device code in this policy does not guarantee coverage. Coverage is determined by the benefit document. Molina adheres to Current Procedural Terminology (CPT®), a registered trademark of the American Medical Association (AMA). All CPT codes and descriptions are copyrighted by the AMA; this information is included for informational purposes only. Providers and facilities are expected to utilize industry standard coding practices for all submissions. When improper billing and coding is not followed, Molina has the right to reject/deny the claim and recover claim payment(s). Due to changing industry practices, Molina reserves the right to revise this policy as needed.

APPROVAL HISTORY

10/14/2026 Policy reviewed. No changes to coverage criteria. Clarified areas of articular cartilage defects of the knee. IRO peer reviewed on September 1, 2026, by a practicing physician board certified in Orthopaedic Surgery
10/08/2025 Policy reviewed. No changes to coverage criteria. Updated Overview and References.
10/09/2024 Policy reviewed, no changes to criteria. Updated Overview, Summary of Medical Evidence, and References.
10/12/2023 Policy reviewed, no changes to criteria. Added code 29870. Updated Overview, Summary of Medical Evidence, and References.
10/12/2022 Policy revised. Literature reviewed and references updated. IRO Peer Review. 9/1/2022. Practicing Physician. Board-certified in Orthopedics. Notable revision include:
- Addition of criterion: Inadequate response to a prior arthroscopic or other surgical repair procedure (e.g., debridement, microfracture, drilling/abrasion arthroplasty, or osteochondral allograft/autograft).
- Addition of criterion: Member is capable of cooperating with post-operative weight bearing restrictions and completion of post-operative rehabilitation.
- Addition to 'Limitations and Exclusions' section in the 'Contraindications' list (per MACI labeling): Known history of hypersensitivity to gentamicin, other aminoglycosides, or products of porcine or bovine origin; Severe osteoarthritis of the knee, inflammatory arthritis, inflammatory joint disease; Uncorrected congenital blood coagulation disorders; Prior knee surgery in the past 6 months, excluding surgery to procure a biopsy or a concomitant procedure to prepare the knee for a MACI implant; Individual is unable to follow a physician-prescribed post-surgical rehabilitation program.
- Addition to 'Limitation and Exclusions' section in the 'experimental, investigational, and unproven' section: Osteochondritis dissecans (OCD)

10/13/2021 Policy reviewed, no changes to coverage criteria, updated Limitations & Exclusions, added 2021 literature review updates.
09/16/2020 Policy reviewed, no changes, updated references.
09/18/2019 New policy.

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