Subject: Autologous Chondrocyte Implantation

Medical Policy #: 3.2 **Original Effective Date:** 01/26/2005

Status: Reviewed **Last Review Date: 07-26-2023**

Disclaimer

Refer to the member's specific benefit plan and Schedule of Benefits to determine coverage. This may not be a benefit on all plans or the plan may have broader or more limited benefits than those listed in this Medical Policy.

Description

Autologous Cultured Chondrocyte - implantation is used to repair symptomatic cartilage defects of the femoral condyle (medial, lateral or trochlea) and/or patella in the knee. Since cartilage has limited ability to repair itself, the patient's own normal cartilage cells are harvested from the knee joint. The cultured chondrocytes are then implanted into the cartilage defect in the joint.

Autologous chondrocyte implantation (ACI) (also known as autologous chondrocyte transplantation) is a strategy that aims to stimulate hyaline cartilage regeneration and fill defects with new hyaline tissue.

Outcomes are better in patients who have isolated trochlear defects than in those who have patellar defects.

Other known names are 2nd and 3rd Generation Implantation or Matrix- Induced autologous Chondrocyte Implantation (MACI).

Coverage Determination

Prior Authorization is required. Logon to Pres Online to submit a request: https://ds.phs.org/preslogin/index.jsp

Coverage includes Commercial, Centennial and Medicare.

PHP considers matrix-induced chondrocyte implantation (e.g., MACI (Vericel) autologous cultured chondrocytes on porcine collagen membrane) approved by FDA an equally acceptable alternative to autologous cultured chondrocytes (e.g., Carticel) for the medically necessary indications for treatment of symptomatic isolated full-thickness (grade III or IV) cartilaginous defects of the distal femoral articular surface (i.e., lateral condyle, medial condyle, or trochlea) and/or patella due to acute or repetitive trauma when **ALL** of the following criteria have been met

- Adolescent patients must have documented closure of growth plate (15 years or older) and/or adults ≤55 years old
- A **full-thickness** distal femoral articular surface (i.e., medial condyle, lateral condyle or trochlea) and/or patellar chondral defect measures < 7 millimeters (mm) in depth, < 6.0 centimeters (cm) in length, and area ranging from 1.6 to 10cm^2 has been identified during an MRI or CT arthrogram, or during an arthroscopy and classified by the Modified Outerbridge Scale as Grade III or Grade IV
- BMI ≤35 kg/m^2
- Willing to cooperate to follow the post-operative weight bearing restrictions and activity restrictions, along with the willing to complete post-operative rehabilitation.
- Refractory to therapy: Documentation of failed conservative therapy such as Physical Therapy for at least 2 months.
- Inadequate response to prior surgical repair: Surgical interventions (i.e., microfracture, drilling, abrasion, or osteochondral autograft). Note: diagnostic arthroscopy, lavage and/or debridement are not qualifying criterion.
- Focal articular cartilage defect down to, but not through, the subchondral bone on a load-bearing surface of the femoral condyle (medial, lateral, trochlear patella)
- Knee must be free of osteoarthritis; or generalized tibial chondromalacia. No active inflammatory or other arthritis, both clinically and by radiology (X-ray)
- Activities of daily living limitation: Presence of knee locking and/or disabling pain.
- Procedure is not for degenerative arthritis (osteoarthritis) treatment.
- Structure of Knee: knee must be stable and aligned with intact meniscus and normal joint space on X-ray (a corrective procedure in combination with, or prior to, chondrocyte implantation may be necessary to ensure stability alignment and normal weight distribution within the joint).

Exclusions

- Cartilage defects in joints other than the knee is not covered
- Partial-thickness defects
- Joint instability of the knee
- ACT as initial or first line of surgical therapy.
- Patients who have had a prior total meniscectomy.

- Patients with a cartilaginous defect associated with osteoarthritis or inflammatory diseases or where an osteoarthritic or inflammatory process significantly and adversely affects the quality of the perilesional cartilage.
- Patients with known history of anaphylaxis to gentamicin or sensitivities to materials of bovine origin.
- Patients with osteochondritis dissecans lesions.

Coding

The coding listed in this medical policy is for reference only. Covered and non-covered codes are within this list.

CPT and HCPCS Codes	Covered Procedures
27412	Autologous chondrocyte implantation, knee
HCPCS Codes	**Description cartilage matrix and cultured**
J7330	Autologous cultured chondrocytes, implant
S2112	Arthroscopy, knee, surgical harvesting of cartilage (chondrocyte cells)

ICD-10 CM	Description: Not an all-inclusive list of non-covered diagnosis
M00.00 – M02.9	Infectious arthropathies
M05.00 – M19.93	Inflammatory polyarthropathies and osteoarthritis
M23.000 - M23.92	Internal derangement of knee
M23.241 - M23.249	Derangement of anterior horn of lateral meniscus due to old tear or injury
M23.251 - M23.259	Derangement of posterior horn of lateral meniscus due to old tear or injury
M23.261 - M23.269	Derangement of other lateral meniscus due to old tear or injury
M24.00 – M24.9	Other specific joint derangements
M25.161 - M25.169	Fistula, knee
M25.261 - M25.269	Flail joint, knee
M25.361 - M25.369	Other instability, knee
M25.561 - M25.569	Pain in knee
M25.861 - M25.869	Other specified joint disorders, knee
M89.155 - M89.158	Physeal arrest, distal femur
M89.160 - M89.163	Physeal arrest, proximal tibia
M93.20 – M93.29	Osteochondritis dissecans

Reviewed by / Approval Signatures

Clinical Quality & Utilization Mgmt. Committee: Gray Clarke MD
Senior Medical Director: David Yu MD
Medical Director: Ana Maria Rael MD
Date Approved: July 26, 2023

References

1. MCG Health Ambulatory Care 27th Edition, Autologous Chondrocyte Implantation, Knee, ACG: A-0415 (AC), (Current role remains uncertain) last update: 2/01/2023. [Cited 05/18/2023]
2. Hayes, Inc., Health Technology Assessment, Matrix-Induced Autologous Chondrocyte Implantation Using (MACI) for

Repair of Articular Cartilage of Knee, Pub date: Aug 26, 2020, Annual review: Aug 17, 2022 [Cited 05/18/2023]
3. Hayes, Inc., Comparative Effectiveness Review of First-Generation Autologous Chondrocyte Implantation of The Knee, Annual review: Jul 09, 2020, ARCHIVED Aug 04, 2021. [Cited 05/18/2023].
4. Hayes, Inc., Evidence Analysis, Comparative Effectiveness Review of Second and Third Generation Autologous Chondrocyte Implantation of the Knee, Annual Review: Jul 13, 2017, ARCHIVED Aug 04, 2021. [05/18/2023]
5. Aetna, Autologous Chondrocyte Implantation, policy#:0247, Last review 06/03/2022, next review 02/23/2023. [Cited 05/18/2023]
6. Cigna, Medical Coverage Policies# 0515 Miscellaneous Musculoskeletal Procedures, Effective date: 03/15/2023, Next review date: 03/15/2023. [Cited 05/18/2023]
7. United Healthcare, Articular Cartilage Defect Repairs, Policy Number: 2023T0030Z, Effective Date: April 01, 2023. [Cited 05/18/2023]
8. Humana, Osteochondral and Subchondral Defects Surgery, Policy Number: HUM-0494-018, Effective Date: 12/08/2022, Revision Date: 12/08/2022. [Cited 05/18/2023]

Publication History

Effective Date:	January 2005
Review Date:	March 2006, May/June 2007, June 2008
Revision Date:	March 2006, June 2007, June 2008
March 2006:	Retitled and Renumbered: March 2006
06-25-08:	Transitioned to Medical Policy, Annual review and revision
09-23-09:	Annual review and revision
09-22-10:	Annual review
11-22-11:	Annual Review
11-28-12:	Annual Review01-29-14: Presbyterian Policy Retired
01-29-14:	Presbyterian now uses MCG Criteria A-0415
03-23-16:	Annual Review. MCG 20th Edition. Last update 1/28/16
05-18-17:	Annual Review. A-0415 MCG 21st Edition Accessed. Last updated 02/02/17. No changes.
07-22-20:	Annual review. Reviewed by PHP Medical Policy committee on 06/03/20. Agreed to remove MCG #A-0415 since it remains uncertain and to create policy in line with other payers and to expand coverage to Non-Medicare (Commercial and Centennial). Area of defect to include the patella. CPT 29870 is added to policy and will require PA. Title of policy changed from Autologous Chondrocyte Implantation to Autologous Chondrocyte Implantation (Carticel) for Non-Medicare.
07-28-21	Annual review. Reviewed by PHP Medical Policy committee on 06/09/2021. No change will continue with the criteria. Remove code 29870 from the policy. Will keep 29870 to remain on the PA grid but will not apply to this MPM 3.2. Continue PA for 27412.
07-27-22	Reviewed by PHP Medical Policy committee on 06-08-2022. Coverage will now include Medicare, so ACI will be covered for all LOB with no change to criteria. Title changed to remove "Carticel for Non-Medicare" since Carticel was replaced with matrix-induced chondrocyte implantation (MACI). Add language to say, "PHP considers (e.g., MACI (Vericel) autologous cultured chondrocytes on porcine collagen membrane) approved by FDA an equally acceptable alternative to autologous cultured chondrocytes (e.g., Carticel)". HCPCS code J7330 will now require PA for all LOB and approval process of J7330 to be managed by Health Services and CPT code 27412 will continue to require PA. Correction to publication 07/22/20: erroneously typed MCG A-0216 instead of A-0415.
07-26-23	Annual review. Reviewed by PHP Medical Policy committee on 05-19-2023. No change. Continue to follow the criteria for ALOB. Continue PA requirement for 27412 and J7330.

This Medical Policy is intended to represent clinical guidelines describing medical appropriateness and is developed to assist Presbyterian Health Plan and Presbyterian Insurance Company, Inc. (Presbyterian) Health Services staff and Presbyterian medical directors in determination of coverage. The Medical Policy is not a treatment guide and should not be used as such.

For those instances where a member does not meet the criteria described in these guidelines, additional information supporting medical necessity is welcome and may be utilized by the medical director in reviewing the case. Please note that all Presbyterian Medical Policies are available online at: ***Click here for Medical Policies***

Web links:
At any time during your visit to this policy and find the source material web links has been updated, retired or superseded, PHP is not responsible for the continued viability of websites listed in this policy.

When PHP follows a particular guideline such as LCDs, NCDs, MCG, NCCN etc., for the purposes of determining coverage; it is expected providers maintain or have access to appropriate documentation when requested to support coverage. See the References section to view the source materials used to develop this resource document.