Medical Policy

PARAMOUNT

HMO AND PPO
ELITE (MEDICARE ADVANTAGE)
MARKETPLACE

Focal Articular Cartilage Repair of the Knee

Policy Number: PG0190
Last Reviewed Date: 04/01/2025
Last Revised: 04/01/2025

GUIDELINES:

- This policy does not certify benefits or authorization of benefits, which is designated by each individual policyholder terms, conditions, exclusions, and limitations contract. It does not constitute a contract or guarantee regarding coverage or reimbursement/payment. Self-Insured group specific policy will supersede this general policy when group supplementary plan document or individual plan decision directs otherwise.
- Paramount applies coding edits to all medical claims through coding logic software to evaluate the accuracy and adherence to accepted national standards.
- This medical policy is solely for guiding medical necessity and explaining correct procedure reporting used to assist in making coverage decisions and administering benefits.

SCOPE:

X Professional
X Facility

DESCRIPTION:

Focal articular cartilage defect treatment involves filling a posttraumatic or degenerative nonhealing focal articular cartilage defect with viable hyaline cartilage and supporting bone. Focal articular cartilage defects can lead to significant chronic pain, loss of function, and development of premature osteoarthritis. The purpose of surgical treatment is to relieve pain, improve function, and prevent degenerative changes by achieving structural and biomechanical restoration of the articular cartilage.

Focal defect of the articular cartilage: A defect of the articular cartilage due to any inflammation, injury, or trauma causing partial or full thickness cartilage defect in a well-defined focal area (i.e., a localized).

Chondral defects are focal areas of articular (hyaline) cartilage injury. Osteochondral defects are focal areas of articular (hyaline) cartilage injury with involvement of the adjacent subchondral bone.

Some techniques developed include the following:

• **Osteochondral allografts:** Osteochondral allografts involve harvesting fresh or cryopreserved cadaveric donor articular cartilage and attached subchondral bone to replace recipient diseased or damaged articular cartilage. Tissue typing is unnecessary since this allograft has limited immunogenicity.

• **Osteochondral autografts:** Osteochondral autografts involve filling an articular cartilage defect with hyaline cartilage harvested from a low weight-bearing articular surface within the same or another joint. Techniques include mosaicplasty and osteochondral autograft transfer system (osteoarticular transfer system [OATS]).

• **Autologous chondrocyte implantation:** Autologous chondrocyte implantation utilizes auto-donor derived chondrocytes to repair non-healing focal articular cartilage defects in the knee with the intention of improving joint function and reducing pain. A healthy piece of articular cartilage is arthroscopically harvested from a non-weight-bearing area of the knee. Chondrocytes are extracted from the harvested cartilage and cultured for several weeks to expand the number of cells (Carticel®, Genzyme Biosurgical, Cambridge, MA or Matrix-Induced Autologous Chondrocyte Implantation (MACI), Vericel Corporation). During implantation (three to six weeks after cartilage harvesting), cultured chondrocytes are injected into the defect under a periosteal or fibrin patch with the intention that the cells will multiply and integrate into surrounding cartilage to regenerate and repair the articular surface.

Juvenile cartilage allograft tissue implantation (e.g., DeNovo NT natural tissue graft, DeNovo ET engineered tissue graft) was developed to repair damaged articular cartilage. The natural tissue graft is an allograft transplantation process that involves transplanting minced juvenile donor cartilage into a cartilage defect using a fibrin adhesive. The engineered tissue is a living tissue graft grown from juvenile chondrocytes. The cells are isolated and expanded in vitro. The expanded cells are cryopreserved in a cell bank from which a large number of grafts can be grown. *DeNovo* NT Natural Tissue Grafts are single-stage surgery where small pieces of juvenile joint cartilage are implanted into the affected area with a simple surgical technique using a natural sticky glue called fibrin.

POLICY:

Paramount Commercial Insurance Plans and Elite (Medicare Advantage) Plans

- **Focal Articular Cartilage Repair of the Knee requires prior authorization for procedure codes 27412, 27415, 27416, 29866, 29867, 27599, J7330.**

- **Juvenile cartilage allograft tissue implantation (e.g., DeNovo NT natural tissue graft, DeNovo ET engineered tissue graft) is non-covered for all product lines.**

COVERAGE CRITERIA:

Paramount Commercial Insurance Plans and Elite (Medicare Advantage) Plans

Osteochondral allograft and autograft transplantation: Paramount considers osteochondral allograft and autograft transplantation of the knee medically necessary and eligible for reimbursement providing that all of the following medical criteria are met:

- Individual is skeletally mature with documented closure of growth plates; and
- Individual is not a suitable candidate for knee replacement; and
- Symptomatic, isolated full thickness chondral or osteochondral defect (Outerbridge grade III or IV*)
- Articular cartilage surrounding the defect and in the remaining compartments of the knee are healthy (Less than Outerbridge grade II*); and
- Inadequate response to conservative therapy and established arthroscopic or other surgical treatments; and
- Normal knee mechanics or any malalignment, ligamentous instability, and/or meniscal insufficiency will be corrected at the same time as the osteochondral transplantation; and
- No evidence of infection or inflammation, or advanced or diffuse degenerative changes seen on weight-bearing radiographs; and
- No evidence of steroid-induced osteonecrosis; and
- Body mass index ≤ 35 kilograms per square meter (kg/m2), has realistic expectations, and is willing and capable of complying with postoperative weight-bearing restrictions and physical rehabilitation;

Paramount considers the following articular cartilage repair procedures/products investigational and not eligible for reimbursement:

- Osteochondral allograft or autograft transplantation of all other joints (e.g., ankle [CPT Code 28446])
- Minced cartilage/biopaste (whether autograft or allograft)
- Decellularized osteochondral allograft implant (Chondrofix® Osteochondral Allograft (Zimmer
- Orthobiologics Inc.))
- Synthetic resorbable polymers
- Juvenile cartilage allograft tissue implantation
- Cryopreserved viable osteochondral allograft product

Autologous chondrocyte implantation: Paramount considers autologous chondrocyte implantation of the knee medically necessary and eligible for reimbursement providing that all of the following medical criteria are met:

- Age between 15 (must be skeletally mature) and 55 years; and
- Cartilage defect >2 cm2 in total area; and

- Single, focal, full thickness (Outerbridge grade III or IV†) articular cartilage defect of the medial or lateral femoral condyle, trochlea, or patella, or trochlear region caused by acute or repetitive trauma; and
- Persistent symptoms of disabling, localized knee pain present >1 year and failure of, intolerance to or unable to receive conventional medical therapy; and
- Inadequate response to conservative therapy and established arthroscopic or other surgical treatments; and
- Other therapeutic options not available or medically inappropriate (excluding total knee replacement); and
- Lesion surrounded by normal articular cartilage; and
- Stable knee with intact meniscus; and
- Radiograph demonstrates normal joint alignment; and
- Normal joint space without evidence of osteoarthritis, infection or inflammation; and
- Willing and capable of complying with post-operative weight bearing restrictions and physical rehabilitation.

Paramount considers the following osteochondral autologous chondrocyte implantation cartilage repair indications not covered, not all-inclusive:

- "Kissing lesions" (lesions on opposing articular surfaces); or
- Presence of mal-aligned knee or non-intact meniscus or;
- Inflammatory arthritis or osteoarthritis of knee; or
- Lesions located on non-weight bearing areas of knee; or
- Generalized tibial chondromalacia; or
- Body Mass Index >35; or
- History of malignancy of bone, cartilage, fat, or muscle in ipsilateral leg.

Paramount considers autologous chondrocyte implantation for all other clinical conditions investigational and not eligible for reimbursement.

Experimental/Investigational:
The following procedures are considered experimental and investigational because their effectiveness has not been established, not all-inclusive:

- Autologous cartilage chip transplantation for osteochondral repair
- Hybrid autologous chondrocyte implantation performed with osteochondral autograft transfer system (Hybrid ACI/OATS) technique for the treatment of osteochondral defects;
- Osteochondral autografts (OATS, mosaicplasty) of other joints (ankle, elbow, hip, patella, shoulder);
- Osteochondral autograft transplantation for the treatment of Freiberg disease or repair chondral defects of the elbow, patella, shoulder, or joints other than the knee.
- Non-autologous mosaicplasty using resorbable synthetic bone filler materials (including but not limited to plugs and granules) to repair osteochondral defects of the ankle or knee experimental and investigational because their effectiveness has not been established.
- Minced articular cartilage (whether synthetic, allograft or autograft) to repair osteochondral defects of the ankle or knee experimental and investigational because its effectiveness has not been established.
- Synthetic resorbable polymers (e.g., PolyGraft BGS, TruFit [cylindrical plug], TruGraft [granules]) to repair osteochondral articular cartilage defects experimental and investigational because their effectiveness has not been established.
- The combination of adipose-derived stem cells and mosaicplasty for repair of osteochondral defects.
- The combination of autologous chondrocyte implantation and osteochondral autograft transfer for repair of knee osteochondral lesion.
- Any device utilized for this procedure must have FDA approval specific to the indication, otherwise it will be considered investigational.

Juvenile cartilage allograft tissue implantation (e.g., DeNovo NT natural tissue graft, DeNovo ET engineered tissue graft) is experimental/investigational and therefore non-covered because there is insufficient evidence in the peer-reviewed medical literature of the effectiveness of this procedure.

Outerbridge Classification System of Osteochondral Defects:

- Grade 0 Normal appearing cartilage
- Grade I Swelling and softening of articular cartilage
- Grade II Partial thickness defect with fissures on the surface that do not reach subchondral bone or exceed 1.5 cm in diameter
- Grade III Fissuring to the level of subchondral bone in an area with a diameter more than 1.5 cm
- Grade IV Destruction of articular cartilage and exposed subchondral bone

Conservative Therapy - failure of at least 6 months, including at least two of the following:

- Rest or activity modifications/limitations, ice/heat, protected weight bearing, brace/orthosis
- Greater than two months of physical therapy
- Pharmacological treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
- Corticosteroid injection
- Traditional surgical intervention (i.e., microfraction, drilling, abrasion, or osteochodral autograft) (diagnostic arthroscopy, lavage, or debridement is not considered adequate to meet this criterion)

Documentation Requirements:
Paramount reserves the right to request additional documentation as part of its coverage determination process. Paramount may deny reimbursement when it has determined that the services performed were not medically necessary, investigational or experimental, not within the scope of benefits afforded to the member, and/or a pattern of billing or other practice has been found to be either inappropriate or excessive. Additional documentation supporting medical necessity for the services provided must be made available upon request to the Paramount. Documentation requested may include patient records, test results, and/or credentials of the provider ordering or performing a service. Paramount also reserves the right to modify, revise, change, apply, and interpret this policy at its sole discretion, and the exercise of this discretion shall be final and binding.

CODING/BILLING INFORMATION:
The appearance of a code in this section does not necessarily indicate coverage. Codes that are covered may have selection criteria that must be met. Payment for supplies may be included in payment for other services rendered.

CPT CODES	
27412	Autologous chondrocyte implantation, knee
27415	Osteochondral allograft, knee, open
27416	Osteochondral autograft(s), knee, open (e.g., mosaicplasty)(includes harvesting of autograft(s))[except to repair chondral defects of the patella] [excludes synthetic resorbable polymers]
27599	Unlisted procedure, femur, or knee, when related to Focal Articular Cartilage Repair of the Knee
28446	Open osteochondral autograft, talus (includes obtaining graft(s)) [excludes synthetic resorbable polymers]
29866	Arthroscopy, knee, surgical; implantation of osteochodral autograft(s) (e.g., mosaicplasty) (includes harvesting of autografts) [except to repair chondral defects of the patella] [excludes synthetic resorbable polymers]
29867	Arthroscopy, knee, surgical; osteochondral allograft (e.g., mosaicplasty)
HCPCS CODES	
J7330	Autologous cultured chondrocytes, implant [except minced articular cartilage (whether synthetic, allograft or autograft)]

Minced articular cartilage, synthetic allograft, or autograft: **No specific code**	
ICD-codes covered if selection criteria are met:	
M23.000 - M23.92	Internal derangement of knee [articular cartilage defect]
M25.161 - M25.169	Fistula, knee [articular cartilage of 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 [articular cartilage of knee]
M89.155 – M89.158	Physeal arrest, distal femur
M89.160 – M89.163	Physeal arrest, proximal tibia
M92.40 - M92.52	Juvenile osteochondrosis of lower extremity [excluding foot]
M92.8	Other specified juvenile osteochondrosis [leg] [articular cartilage of knee]
M93.261 - M93.269	Osteochondritis dissecans knee

REVISION HISTORY EXPLANATION: ORIGINAL EFFECTIVE DATE: 04/18/2014

Date	Explanation & Changes
04/18/2014	• Policy created to reflect most current clinical evidence per The Technology Assessment Working Group (TAWG) • ACT continues to be covered with prior authorization for all product lines • DeNovo NT Natural Tissue Graft is non-covered for all product lines
01/23/2015	• Policy revised to reflect most current clinical evidence per The Technology Assessment Working Group (TAWG)
01/22/2016	• PPO will now be required to do prior authorization for ACT (27412) • Policy revised to reflect most current clinical evidence per The Technology Assessment Working Group (TAWG)
01/27/2017	• Removed invalid code 27410 • Code J7330 was added to the policy as covered with prior authorization for all product lines • Code S2112 was added to the policy as covered with prior authorization for HMO, PPO, & Individual Marketplace and non-covered for Advantage & Elite • Policy revised to reflect most current clinical evidence per The Technology Assessment Working Group (TAWG)
10/27/2017	• Added information on MACI (autologous cultured chondrocytes on porcine collagen membrane) • Paramount considers FDA-approved matrix-induced chondrocyte implantation (e.g., MACI (Vericel) autologous cultured chondrocytes on porcine collagen membrane) an equally acceptable alternative to autologous cultured chondrocytes (e.g., Carticel) for the medically necessary indications for autologous chondrocyte implants listed above • Policy revised to reflect most current clinical evidence per The Technology Assessment Working Group (TAWG)

09/20/2019	• Policy updated • Policy title changed from Chondrocyte Implantation of the Knee to Focal Articular Cartilage Repair of the Knee, to include Osteochondral allografts, Osteochondral autografts and Autologous Chondrocyte Implantation, coverage, and policy criteria • All procedures listed require a prior authorization for all product lines • Policy revised to reflect most current clinical evidence
12/01/2019	• Medical Policy revised to include the Elite Product requiring additional prior authorization as of 1/1/2020
12/16/2020	• Medical policy placed on the new Paramount Medical Policy Format
02/13/2023	• Medical Policy updated to reflect Medicaid coverage to Anthem as of 02/01/2023
05/01/2024	• Medical Policy placed on the new Paramount Medical Policy format • Removed S2112, Paramount will no longer accept S-codes. Paramount follows CMS correct coding guidelines.
4/1/2025	• Medical Policy reviewed and updated to reflect the most current clinical evidence

Paramount reserves the right to review and revise our policies periodically when necessary. When there is an update, we will publish the most current policy to https://www.paramounthealthcare.com/providers/medical-policies/policy-library

REFERENCES/RESOURCES

Centers for Medicare and Medicaid Services, CMS Manual System and other CMS publications and services https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Internet-Only-Manuals-IOMs

National Physician Fee Schedule Relative Value File Calendar Year XXXX, Centers for Medicare & Medicaid Services (CMS) https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/PFS-Relative-Value-Files

NCCI Policy Manual for Medicare Services, current version, Chapter 1, General Correct Coding Policies https://www.cms.gov/files/document/medicare-ncci-policy-manual-2023-chapter-1.pdf

American Medical Association, *Current Procedural Terminology (CPT®)* and associated publications and services https://www.ama-assn.org/amaone/cpt-current-procedural-terminology

Centers for Medicare and Medicaid Services, Healthcare Common Procedure Coding System, HCPCS Release and Code Sets https://www.cms.gov/Medicare/Coding/HCPCSReleaseCodeSets/HCPCS-Quarterly-Update

Centers for Medicare & Medicaid Services (CMS), ICD-10-CM Official Guidelines for Coding and Reporting https://www.cms.gov/medicare/coding/icd10

Centers of Medicare & Medicaid Services (CMS), Medicare Claims Processing Manual, Chapter 23-Fee Schedule administration and coding Requirements https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/clm104c23.pdf

Centers for Medicare & Medicaid Services (CMS), National Correct Coding Initiative (NCCI) Policy Manual for Medicare Services https://www.cms.gov/medicare-medicaid-coordination/national-correct-coding-initiative-ncci/ncci-medicare

Center for Medicare and Medicaid Services, Medicare NCCI Medically Unlikely Edits (MUEs) https://www.cms.gov/medicare/coding-billing/national-correct-coding-initiative-ncci-edits/medically-unlikely-edits
U.S. Preventive Services Task Force, https://www.uspreventiveservicestaskforce.org/uspstf/

Hayes, Inc., https://www.hayesinc.com/

Industry Standard Review

Sources of Information:

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