Knee Cartilage Transplants

Date of Origin: 3/2005                  Last Review Date: 8/23/2017                  Effective Date: 8/23/2017

I. Description

**Allograft transplants** of the knee are a type of procedure used in the treatment of individuals with symptomatic disabling cartilage injury or disease. This surgical technique can restore knee function in patients with focal articular cartilage defects due to trauma or other conditions such as osteochondritis dissecans. The procedure involves the transplantation of a piece of articular cartilage from a cadaver donor to the damaged surface of the knee.

**Osteochondral autografting** is a surgical procedure used in an attempt to repair damaged articular cartilage. This type of procedure involves the placement of viable hyaline cartilage grafts into a cartilage defect. The grafts are harvested from a non-weight bearing region of the joint during an open or arthroscopic procedure and then transplanted into a cartilage defect to restore the articular surface of the bone. Osteochondral autografts are performed mainly to treat small and medium-size focal chondral and osteochondral defects of the weight-bearing surfaces of the knee joint. Two forms of osteochondral autografting are mosaicplasty and the osteochondral autograft transplantation system (OATS®) procedure. Although different instrumentation is used in mosaicplasty and OATS® procedures, the underlying principle is similar. These procedures use either multiple osteochondral cores or a single graft, harvested from a nonweight-bearing region of the joint that are autografted into the chondral defect.

**Autologous Chondrocyte Transplantation (ACT)** or Autologous Chondrocyte Implantation (ACI) is a surgical treatment for patients who have clinically significant, symptomatic defects or damage to the cartilage of the knee that fails to heal on its own. The damage is usually caused by acute or repetitive trauma. Through arthroscopy, the patient’s own healthy cartilage cells are removed and cultured in a laboratory with Carticel®, which is used to stimulate the growth of the patient’s own cartilage cells. After 11-21 days an arthrotomy is performed and the chondral lesion is excised up to the normal surrounding cartilage. The cultured chondrocytes are then injected beneath a periosteal flap that has been created. The injected chondrocytes are proposed to create new cartilage development in the knee joint.

II. Criteria:

A. **Cartilage Transplants of the knee** will be covered to plan limitations for 1 of more of the following:
a. **Meniscus Allograft** is indicated when ALL of the following criteria are met  
   **CWQI: HCS-0048D**
   i. Patient is physically active and under the age of 55
   ii. The patient has significant knee pain that has not responded to conservative treatment
   iii. MRI or previous arthroscopy reveal absence or near absence of the meniscus
   iv. Degenerative changes are absent or minimal (Outerbridge grade II or less)*
   v. Knee is stable with an intact or reconstructed ACL
   vi. Patient has a Body Mass Index of less than 35

b. **Osteochondral Allograft** and ALL of the following:  
   **CWQI: HCS-0048C**
   i. Patient has a Body Mass Index of less than 35 and 1 or more of the following:
      1. Surgery is for avascular necrosis lesions of the femoral condyle
      2. The patient has a non-repairable Stage 3 or 4 osteochondritis dissecans
      3. The patient is active, healthy and non-elderly who has either failed prior surgical procedure or is not a candidate for these procedures due to the size, shape or location of the lesion
      4. The surgical treatment is for an isolated focal lesion that meets ALL of the following criteria:
         a. Patient has disabling localized knee pain that is unresponsive to conservative treatment (i.e. PT, medications, etc.)
         b. The lesion is a full-thickness depth (grade 3 or 4) 2 cm or greater in diameter confirmed by MRI or arthroscopy
         c. The lesion is surrounded by normal, healthy cartilage with no evidence of arthritic changes
         d. The knee has normal alignment or will be surgically corrected (i.e. osteotomy) at the time of the allograft procedure
         e. The opposing articular surface is free of disease or injury without arthritic changes on the corresponding tibial surface

c. **Osteochondral Autograft of the knee (i.e. mosaicplasty, OATS®)**  
   **CWQI: HCS-0048A** will be covered to plan limitations when ALL of the following criteria are met:
   i. The patient has focal, full thickness (grade II or IV) unipolar lesions on the weight bearing surface of the femoral condyles or trochlea
   ii. Patient has disabling symptoms that are not relieved by conservative treatment or non-surgical therapy
   iii. Patient has a Body Mass Index of less than 35
   iv. The patient is skeletally mature with documented closure of growth plates (e.g. 15 years or older)
   v. The patient is not considered a candidate for total knee replacement (i.e. patient is under 55 years of age)
   vi. The patient has minimal to absent degenerative changes in the surrounding articular cartilage and normal appearing hyaline cartilage surrounding the border of the defect
   vii. The patient has normal alignment or correctable varus or valgus deformities.
viii. The request does NOT include hybrid autologous chondrocyte implantation (ACI) and osteochondral autologous transplant system (Hybrid ACI/OATS)
ix. The request is NOT for non-autologous using synthetic material or for minced articular cartilage of any source.
x. The requested procedure is for the knee only (elbow, patella, shoulder, or any other joint is experimental/investigational

d. **Autologous Chondrocyte Transplantation (ACT)** *(CWQI: HCS-0048B)* will be covered to plan limitations when **ALL** of the following criteria are met:

i. Patient is skeletally mature with documented closure of growth plates (e.g. 15 years or older) or 65 years old; **and**

ii. Full-thickness (grade III or IV) isolated cartilaginous defect of the knee involving the femoral condyle (medial, lateral or trochlear; not in the patellofemoral area); **and**

iii. Size of the defect measures < 7 mm in depth, < 6.0 cm in length, and area ranging from 1.6 cm² to 10cm²; **and**

iv. Patient has failed conservative treatment, including physical therapy and arthroscopic or surgical repair; **and**

v. Symptoms of lesion pain, swelling, catching, locking, etc. limit activities of daily living; **and**

vi. Knee is stable with an intact meniscus and in good alignment (corrective procedure in combination with or prior to ACT may be necessary); **and**

vii. No active inflammatory or other arthritis seen clinically and by x-ray; **and**

viii. Patient has no known history of an allergy to the antibiotic gentamicin or sensitivity to materials of a bovine origin if using Carticel® ACT; **and**

ix. Patient has a Body Mass Index of less than 35

x. Procedure is NOT being done for the treatment of degenerative arthritis (osteoarthritis)

xi. Moda Health considers ACT experimental and investigational for patellar or talar lesions or lesions of other joints because the effectiveness of ACT for these lesions has not been established.

xii. Moda Health considers all other forms of chondrocyte implantation experimental and investigational including but not limited to autologous or allogeneic minced cartilage for focal articular cartilage lesions.

*Note: The Outerbridge classification system* facilitates an objective description of chondral damage in the knee. Classifications are from a grade 0 to grade IV.

- Grade 0: normal cartilage
- Grade I: cartilage with swelling and softening
- 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 greater than 1.5 cm
- Grade IV: exposed subchondral bone.
III. Information Submitted with the Prior Authorization Request:
1. Clinical records from treating physician, including history and physical
2. Documentation of conservative treatment tried and failed
3. Appropriate x-rays, MRI, CT or other diagnostic imaging study report

IV. CPT or HCPC codes covered:

<table>
<thead>
<tr>
<th>Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27416</td>
<td>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]</td>
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<tr>
<td>28446</td>
<td>Open osteochondral autograft, talus (includes obtaining graft(s)) [excludes synthetic resorbable polymers]</td>
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<tr>
<td>29866</td>
<td>Arthroscopy, knee, surgical; implantation of osteochondral autograft(s) (e.g., mosaicplasty) (includes harvesting of autografts) [except to repair chondral defects of the patella] [excludes synthetic resorbable polymers]</td>
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<td>27407</td>
<td>Repair, primary, torn ligament and/or capsule, knee; cruciate</td>
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<td>27412</td>
<td>Autologous chondrocyte implantation, knee</td>
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<td>27415</td>
<td>Osteochondral allograft, knee, open</td>
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<tr>
<td>27427</td>
<td>Ligamentous reconstruction (augmentation), knee; extra-articular</td>
</tr>
<tr>
<td>27478</td>
<td>Ligamentous reconstruction (augmentation), knee; intra-articular (open)</td>
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<tr>
<td>27429</td>
<td>Ligamentous reconstruction (augmentation), knee; intra-articular (open) and extra-articular</td>
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<td>29867</td>
<td>Arthroscopy, knee, surgical; osteochondral allograft (e.g., mosaicplasty)</td>
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<td>29868</td>
<td>Arthroscopy, knee, surgical; meniscal transplantation (includes arthrotomy for meniscal insertion), medial or lateral</td>
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<td>29870</td>
<td>Arthroscopy, knee, diagnostic, with or without synovial biopsy (separate procedure)</td>
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<td>J7330</td>
<td>Autologous cultured chondrocytes, implant</td>
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<td>S2112</td>
<td>Arthroscopy, Knee, Surgical for Harvesting of Cartilage (Chondrocyte Cells)</td>
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V. Annual Review History

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<tr>
<th>Review Date</th>
<th>Revisions</th>
<th>Effective Date</th>
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<tr>
<td>04/2013</td>
<td>Annual Review: Added table with review date, revisions, and effective date.</td>
<td>04/24/2013</td>
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<td>04/2014</td>
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<td>04/30/2014</td>
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### VI. References

23. Physician Advisors

Appendix 1 – Applicable ICD10 codes:

<table>
<thead>
<tr>
<th>Codes</th>
<th>Description</th>
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<tbody>
<tr>
<td>M22.2X1 - M22.3X9</td>
<td>Patellofemoral disorders and other derangements of patella [including lateral, medial, anterior and posterior ligaments]</td>
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<td>M22.8X1 - M22.8X9</td>
<td>Other disorders of patella [including lateral, medial, anterior and posterior ligaments]</td>
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<td>M23.00-M23.92</td>
<td>Internal derangement of knee [articular cartilage defect]</td>
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<td>M23.601 - M23.8X9</td>
<td>Other spontaneous disruption of ligament(s) of knee and other internal derangements of knee [including lateral, medial, anterior and posterior ligaments]</td>
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<td>M25.861-M25.869</td>
<td>Other specified joint disorders, knee [articular cartilage of knee]</td>
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<tr>
<td>M93.261-M93.269</td>
<td>Osteochondritis of knee</td>
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Appendix 2 – Centers for Medicare and Medicaid Services (CMS)

Medicare coverage for outpatient (Part B) drugs is outlined in the Medicare Benefit Policy Manual (Pub. 100-2), Chapter 15, §50 Drugs and Biologicals. In addition, National Coverage Determination (NCD) and Local Coverage Determinations (LCDs) may exist and compliance with these policies is required where applicable. They can be found at: http://www.cms.gov/medicare-coverage-database/search/advanced-search.aspx. Additional indications may be covered at the discretion of the health plan.

Medicare Part B Covered Diagnosis Codes (applicable to existing NCD/LCD):

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<tr>
<td></td>
<td>Noridian Local Coverage Determination (LCD) Non-covered Services (L35008) – CPT 28446</td>
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<td><a href="https://med.noridianmedicare.com/documents/10546/6990983/Non-Covered+Services+LCD">https://med.noridianmedicare.com/documents/10546/6990983/Non-Covered+Services+LCD</a></td>
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