

Cigna Medical Coverage Policies – Musculoskeletal Knee Surgery: Arthroscopic and Open Procedures

Effective May 15, 2017



Instructions for use

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Coverage determinations in each specific instance require consideration of:

1. The terms of the applicable benefit plan document in effect on the date of service
2. Any applicable laws and regulations
3. Any relevant collateral source materials including coverage policies
4. The specific facts of the particular situation

Coverage policies relate exclusively to the administration of health benefit plans. Coverage policies are not recommendations for treatment and should never be used as treatment guidelines.

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CMM-312~Knee Surgery-Arthroscopic and Open Procedures

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CMM-312~Knee Surgery-Arthroscopic and Open Procedures

CMM-312.1 Definition

Modified Outerbridge Classification is a system that has been developed for judging articular cartilage injury to the knee. This system allows delineation of varying areas of chondral pathology, based on the qualitative appearance of the cartilage surface and can assist in identifying those injuries that are suitable for repair techniques. The characterization of cartilage in this system is as follows:

- **Grade I** – softening with swelling
- **Grade II** – fragmentation and fissuring less than one square centimeter (1 cm²)
- **Grade III** – fragmentation and fissuring greater than one square centimeter (1 cm²)
- **Grade IV** – subchondral bone exposed.

Autologous Chondrocyte Implantation (ACI) (a.k.a. Autologous Chondrocyte Transplantation (ACT)) is a surgical technique which utilizes an individual's own cells in an effort to repair damage to articular cartilage with the goal of improving joint function and reducing pain. The procedure involves the collection and culture of articular cartilage cells (i.e., chondrocytes) that are then implanted into the cartilage defect with the intent that the cultured cells will contribute to the regeneration and repair of the articular surface.

Mosaicplasty (or osteochondral cylinder transplantation) is a surgical technique which consists of harvesting cylindrical bone-cartilage grafts and transplanting them into focal chondral or osteochondral defects in the knee. After excision of the chondral lesion, an abrasion arthroplasty is performed to refresh the base of the defect. The grafting procedure involves collecting grafts from the posterior aspect of the distal femoral articular surfaces (medial condyle, lateral condyle or trochlea) and implanting the grafts in a mosaic-like pattern that will contribute to regeneration and repair the articular surface. A recipient tunnel is created and sized with a drill bit slightly larger than the length of the graft. The harvested graft is placed in the tunnel by a press-fit method. All subsequent grafts are inserted in a similar pattern.

The Osteochondral Allograft Transplantation (OATS Procedure) is similar to mosaicplasty, involving the use of a larger, single plug that usually fills an entire defect. It is often performed to graft chondral defects that are also associated with anterior cruciate ligament (ACL) tears. This method allows arthroscopic access to both the ACL and the chondral defect for the performance of a repair and the grafting procedure.

Subchondral Drilling or Microfracturing is a surgical procedure which is performed after the calcified cartilage is debrided and the surgeon creates tiny fractures in the adjacent bones (through the use of an awl). Blood and bone marrow (which contains stem cells) seep out of the fractures, creating a blood clot that releases cartilage-building cells. The microfractures are treated as an injury by the body, which is why the surgery results in new, replacement cartilage. Studies have shown that microfracturing techniques don't fill the chondral defect fully and the repair material they form is fibrocartilage. Fibrocartilage is not as good mechanically as the original hyaline cartilage; it is much denser and isn't able to withstand the demands of everyday activities as well as hyaline cartilage and is; therefore, a higher risk of breaking down. The procedure is less effective in treating older individuals, overweight individuals, or in larger cartilage lesions. Furthermore, chances are high that after only one or two years, symptoms start to return as the fibrocartilage wears away, forcing the individual to reengage in articular cartilage repair. This is not always the case and microfracture surgery is; therefore, considered to be an intermediate step.

Non-surgical care with regard to the treatment of the knee is defined as any non-surgical treatment which has been demonstrated in the scientific literature as efficacious and/or is considered a standard of care in the treatment of knee pain. The types of treatment involved can include, but are not limited to: ice, relative rest/activity modification, acupuncture, manual therapy, physiotherapy modalities, supervised therapeutic exercises, oral medications, bracing, and/or injections (steroid and/or viscosupplementation).

KT 1000 Arthrometer (used as an option to the Lachman test) was developed to provide objective measurement of the sagittal plane motions of the tibia relative to the femur. This motion, sometimes referred to as drawer motion, occurs when an examiner applies force to the lower limb or when the muscles of the quadriceps are contracted. The accuracy of the Lachman test is as good as the instrument evaluation if the end point is taken into consideration. Both measurements can help to improve the quality of the clinical examination if the examiners are inexperienced. Nevertheless, instrument measurements of anterior knee laxity are not necessary if a thorough clinical examination is performed, taking the end point of the Lachman test into considerations.

CMM-312.2 Indications and Non-Indications

A knee arthroscopic or open procedure **is considered medically necessary** in an individual in whom surgery is being performed for fracture, tumor, infection or foreign body that has led to or will likely lead to progressive destruction.

Diagnostic Arthroscopy

Diagnostic Arthroscopy **is considered medically necessary** when all of the following criteria have been met:

- Disabling mechanical knee pain
- Loss of knee function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment for at least (six) 6 months in duration
- All of the following:
 - Failure of non-surgical management for at least three (3) months in duration
 - MRI is inconclusive for internal derangement/pathology
 - ANY one of the following:
 - Limited range of motion
 - Evidence of joint swelling/effusion
 - Joint line tenderness

Diagnostic Arthroscopy **is considered not medically necessary** for ANY other indication.

Arthroscopic Lavage

Arthroscopic lavage, with and without chondroplasty, (debridement) **is considered medically necessary** when all of the following criteria have been met:

- Individual has disabling **knee** pain
- Loss of knee function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment
- MRI demonstrates articular cartilage degeneration and ANY one of the following conditions:
 - Loose bodies within the joint
 - Unstable flaps of articular cartilage
 - Frank meniscal tear in conjunction with articular cartilage degeneration
 - Impinging osteophytes, which would be reasonably expected to result in mechanical symptoms and loss of knee joint function
- Individual reports pain and ANY one of the following subjective complaints:
 - Knee range of motion is “blocked” due to pain
 - Giving way weakness/buckling of the knee
 - Painful locking, clicking or popping during weight bearing activities
- Failure of non-surgical management for at least three (3) months in duration.

Arthroscopic lavage with or without chondroplasty **is considered not medically necessary** for osteoarthritis of the knee unless the above listed criteria are met.

Meniscectomy

Meniscectomy (partial or total) or meniscal repair **is considered medically necessary**

when ALL of the following criteria have been met:

- Disabling knee pain and a documented loss of knee function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment
- MRI demonstrates a frank meniscal tear (not simply degenerative changes, i.e., fraying) that correlates with the individual's reported symptoms and physical exam findings
- Pain and at least one (1) of the following subjective complaints:
 - Knee range of motion is “blocked” due to pain
 - Giving way weakness/buckling of the knee
 - Painful locking, clicking or popping during weight bearing activities
- Two (2) or more of the following on physical examination:
 - Limited range of motion
 - Evidence of joint swelling/effusion
 - Joint line tenderness
 - Positive McMurray test (or other equivalent tests for meniscal pathology)
- With the exception of the individual who experiences an acute meniscal tear with associated disabling pain and loss of function, failure of non-surgical management for at least three (3) months in duration.

Meniscal debridement **is considered medically necessary** when performed in conjunction with other medically necessary arthroscopic procedures on the knee (e.g., anterior cruciate reconstruction).

Meniscectomy (partial or total) or meniscal repair is considered not medically necessary for any other indication.

Autologous Chondrocyte Implantation (Transplantation Cartilage Restoration Procedures)

Autologous chondrocyte implantation **is considered medically necessary** for the treatment of symptomatic cartilaginous defects of the distal femoral articular surface (i.e., medial condyle, lateral condyle or trochlea) caused by acute or repetitive trauma when ALL of the following criteria have been met:

- Disabling knee pain and a loss of knee function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment
- A distal femoral articular surface (i.e., medial condyle, lateral condyle or trochlea) defect of 1-10 cm² in size has been identified during arthroscopy or during an MRI which is classified by the Modified Outerbridge Scale as Grade III, Grade IV, or a symptomatic full- thickness articular cartilage lesions of the trochlea
- Failure of non-surgical management for at least three (3) months in duration
- Presence of ALL of the following on physical examination:

- A stable knee with intact or reconstructed ligaments (ACL or PCL)
- Normal joint alignment
- Normal joint space
- Absence of osteoarthritis or generalized tibial chondromalacia
- Normal articular cartilage at the lesion border (contained lesion)
- Absence of a corresponding tibial or patellar lesion (“kissing lesion”) with a Modified Outerbridge Scale of Grade III or Grade IV
- Body Mass Index (BMI) 35 or less
- Age 15 - 55 years
- Individual must be capable and willing to participate in a supervised post-operative physical rehabilitation program.

Autologous chondrocyte implantation for treatment of cartilaginous defects other than the distal femur (i.e., patella, proximal tibia) is considered **experimental, investigational or unproven**.

Meniscal Allograft Transplantation

Meniscal allograft transplantation is **considered medically necessary** when ALL of the following criteria have been met:

- Disabling knee pain and a loss of knee function which interferes with the ability to carry out age appropriate activities of daily living and/or demands or employment
- Prior significant trauma resulting in an irreparable meniscal tear or has undergone a meniscectomy where at least one-half of the meniscus has been removed
- MRI demonstrates articular cartilage degeneration in the affected compartment classified by the Modified Outerbridge Scale as Grade I or Grade II
- Failure of non-surgical management for at least three (3) months in duration
- Presence of ALL of the following on physical examination:
 - A stable knee with intact or reconstructed ligaments (ACL or PCL)
 - Normal joint alignment
 - Normal joint space
- Two (2) or more of the following:
 - Individual is not considered an appropriate candidate for total knee arthroplasty
 - Body Mass Index (BMI) 35 or less
 - Age 49 years or younger
 - Individual must be capable and willing to participate in a post-operative supervised physical rehabilitation program.
 - ANY one of the following:
 - Limited range of motion
 - Evidence of joint swelling/effusion

- Joint line tenderness

Meniscal allograft transplantation **is considered not medically necessary** for any other indication including, but not limited, to the following:

- Upon standing radiographs, individual demonstrates osteoarthritic change in the knee and demonstrates joint space narrowing, osteophytes, or changes in the underlying bone
- Upon MRI, individual demonstrates articular degeneration in affected compartment which is classified by Modified Outerbridge Scale as Grade III or IV.

Osteochondral Allograft/Autograft Transplantation Systems (OATS) /Mosaicplasty

Osteochondral (i.e., allograft/autograft) transplantation/mosaicplasty **is considered medically necessary** when ALL of the following criteria have been met:

- Disabling knee pain and a loss of knee function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment
- Large, full-thickness chondral defect of the distal femoral articular surface (i.e., medial condyle, lateral condyle or trochlea), which has been identified during arthroscopy or during an MRI, classified by Modified Outerbridge Scale as Grade III or Grade IV.
- Osteochondral autograft transplants and mosaicplasty is considered medically necessary in an individual with small (i.e., ≤ 2.5 cm² total) chondral defects with sharp, definite borders surrounded by normal-appearing hyaline cartilage.
- Osteochondral allograft transplants is considered medically necessary an individual with larger (i.e., ≤ 10.0 cm² total) chondral defects with sharp definite borders surrounded by normal appearing hyaline cartilage
- Previous arthroscopic or other traditional surgical procedure (i.e., microfracture, drilling, abrasion, osteochondral graft has resulted in an inadequate response
- Failure of non-surgical management for at least three (3) months in duration
- All of the following on physical examination:
 - stable knee with intact or reconstructed ligaments (ACL or PCL)
 - normal joint alignment
 - normal joint space
- Absence of osteoarthritis or generalized tibial chondromalacia, steroid-induced cartilage or bone disease, with normal articular cartilage at the lesion border
- Absence of a corresponding tibial or patella lesion (“kissing lesion”) with a Modified Outerbridge Scale of Grade III or Grade IV
- Individual is not a candidate for total knee arthroplasty
- Body Mass Index (BMI) of less than 35
- Age 49 years or younger

- Individual must be capable and willing to participate in an extensive period of non-weight bearing and supervised post-operative physical rehabilitation program.

Anterior Cruciate Ligament Reconstruction

Anterior cruciate ligament reconstruction (i.e., allograft, autograft) **is considered medically necessary** when ALL the following criteria have been met:

- Disabling knee pain and a documented loss of knee function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment
- Knee instability which is noted as “giving way weakness”, or “buckling”
- MRI, arthroscopy, or arthrogram demonstrates a tear/disruption or significant laxity of the anterior cruciate ligament
- Positive Lachman’s Test
- ANY of the following abnormal physical examination findings:
 - Positive Anterior Drawer Test
 - Positive Pivot Shift Test
 - Positive KT arthrometer (>3.5 mm =+1, >5-7 mm = +2, >7 mm =+3)
- Failure of non-surgical management for at least three (3) months in duration.

Anterior cruciate ligament reconstruction (i.e., allograft, autograft) **is considered medically necessary** in an acute injury setting where hemarthrosis, effusion, and joint instability have been documented. This may include ANY of the following:

- A confirmed ACL tear and a repairable meniscus tear
- Need to return to high demand activities that require cutting, pivoting, and/or agility activities in which ACL insufficiency may predispose to further instability episodes, that may result in new articular or meniscal cartilage injuries
- Concomitant ligament injuries (i.e., multiligamentous knee injury) that require reconstruction to provide stability.

Posterior Cruciate Ligament Reconstruction

Posterior cruciate ligament reconstruction (i.e., allograft, autograft) **is considered medically necessary** when ALL the following criteria have been met:

- Disabling knee pain and a documented loss of knee function to an extent which interferes with the ability to carry out the age appropriate activities of daily living and/or demands of employment
- Individual has undergone an MRI or Arthroscopy or Arthrogram which demonstrates a tear/disruption or significant laxity of the posterior cruciate ligament;
- Individual demonstrates Positive Posterior Drawer Sign and/or positive Tibial Drop Back Test and/or Quadriceps Active Test either of the following abnormal

physical examination findings:

- Eight (8) millimeters or more of increased posterior translation on stress radiographs
- Positive KT-1000 arthrometer (>7.6 mm of increased posterior translation)
- Failure of non-surgical care for at least three (3) months in duration

Posterior cruciate ligament reconstruction (i.e., allograft, autograft) is considered medically necessary in an acute injury setting where hemarthrosis, effusion and joint instability have been documented. This may include instances where there are concomitant ligament injuries (i.e., multiligamentous knee) that require reconstruction.

Medial Collateral/Lateral Collateral Ligament Repair/Reconstruction

Medial collateral/lateral collateral ligament repair (i.e., allograft, autograft) **is considered medically necessary** when ALL of the following criteria have been met:

- Disabling knee pain
- Loss of knee function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment
- Individual reports knee instability which is noted as “giving way weakness” or “buckling”
- MRI or other diagnostic study demonstrates a tear/disruption of the medial or lateral collateral ligament, positive Valgus Stress Test (Medial), or Varus Stress Test (Lateral)
- Failure of non-surgical management for at least six (6) weeks duration.

Medial collateral or lateral collateral ligament repair/reconstruction (i.e., allograft, autograft) **is considered medically necessary** in an acute injury setting where total disruption of the ligament (i.e., multi-ligamentous knee injury) is documented on MRI examination and effusion and joint instability have been documented on physical examination.

Patella Tendon Re-Alignment (Lateral Retinacular Release, Elmslie-Trillat-Maquet, Fulkerson Procedures)

Patella tendon re-alignment procedure(s) **is considered medically necessary** when ALL of the following criteria have been met:

- Disabling anterior knee pain
- Loss of knee function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment
- Confirmed osteochondral defect of the patellofemoral joint (X-ray, CT scan, MRI or previous arthroscopic procedure)
- Failure of non-surgical management for at least three (3) months.

Patella tendon re-alignment procedure(s) as a treatment of recurrent patellar instability **is considered medically necessary** when ALL of the following criteria have been met:

- Recurrent patellar instability interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment
- Positive Patellar Apprehension Test on examination
- Increased Q angle of >15 degrees or elevated TT-TG (tibial tubercle trochlear groove) distance
- Failure of non-surgical management for at least three (3) months.

Lateral retinacular release **is considered medically necessary** when the individual presents with an acute patellar dislocation with associated intra- articular fracture.

Subchondral Drilling or Microfracturing

Subchondral drilling or microfracturing **is considered medically necessary** when ALL of the following criteria have been met:

- Disabling knee pain and a loss of knee function interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment
- Large, full-thickness distal femoral articular (medial condyle, lateral condyle or trochlea) cartilage defect on the weight-bearing surface which has been identified during arthroscopy or during an MRI which is classified by the Modified Outerbridge Scale as Grade III or IV provided the lesion is $\leq 2.5 \text{ cm}^2$ total
- All of the following physical examination findings:
 - Stable knee with intact ligaments and menisci
 - Normal joint alignment
 - Normal joint space
- Failure of non-surgical management for at least three (3) months

High Tibial Osteotomy

High tibial osteotomy **is considered medically necessary** when ALL of the following criteria have been met:

- Disabling knee pain and a loss of knee function interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment
- Unicompartamental osteoarthritis of the knee
- All of the following on physical examination:
 - Less than 15 degrees of fixed varus deformity
 - The individual must be capable of at least 90 degrees of flexion
 - Joint stability in full extension
 - Intact anterior cruciate ligament (ACL)
- Failure of non-surgical management for at least three (3) months in duration
- Individual must be capable and willing to participate in a period of non-weight

bearing and a post-operative physical rehabilitation program

- Age 60 years or less
- Individual is not a candidate for a knee arthroplasty.

High tibial osteotomy **is considered not medically necessary** for ANY of the following conditions:

- Inflammatory arthritide (i.e., rheumatoid arthritis)
- Chondrocalcinosis
- Anterior cruciate ligament tear
- Involvement of more than 1/3 of the condylar surface
- Osteochondral defect lesion of more than five (5) mm deep.

CMM-312.3 Procedure (CPT®) Codes

This guideline relates to the CPT® code set below. Codes are displayed for informational purposes only. Any given code's inclusion on this list does not necessarily indicate prior authorization is required.	
CPT®	Code Description/Definition
27301	Incision and drainage, deep abscess, bursa, or hematoma, thigh or knee region
27303	Incision, deep, with opening of bone cortex, femur or knee (eg, osteomyelitis or bone abscess)
27310	Arthrotomy, knee, with exploration, drainage, or removal of foreign body (eg, infection)
27323	Biopsy, soft tissue of thigh or knee area; superficial
27324	Biopsy, soft tissue of thigh or knee area; deep (subfascial or intramuscular)
27327	Excision, tumor, soft tissue of thigh or knee area, subcutaneous; less than 3 cm
27328	Excision, tumor, soft tissue of thigh or knee area, subfascial (e.g. intramuscular); less than 5 cm
27329	Radical resection of tumor (eg, sarcoma), soft tissue of thigh or knee area; less than 5 cm
27330	Arthrotomy, knee; with synovial biopsy only
27331	Arthrotomy, knee; including joint exploration, biopsy, or removal of loose or foreign bodies
27332	Arthrotomy, with excision of semilunar cartilage (meniscectomy) knee; medial OR lateral
27333	Arthrotomy, with excision of semilunar cartilage (meniscectomy) knee; medial AND lateral
27334	Arthrotomy, with synovectomy, knee; anterior OR posterior
27335	Arthrotomy, with synovectomy, knee; anterior AND posterior including popliteal area
27337	Excision, tumor, soft tissue of thigh or knee area, subcutaneous; 3 cm or greater
27339	Excision, tumor, soft tissue of thigh or knee area, subfascial (eg, intramuscular); 5 cm or greater
27340	Excision, prepatellar bursa
27347	Excision of lesion of meniscus or capsule (e.g. cyst, ganglion), knee
27355	Excision or curettage of bone cyst or benign tumor of femur

27356	Excision or curettage of bone cyst or benign tumor of femur; with allograft
27357	Excision or curettage of bone cyst or benign tumor of femur; with autograft (includes obtaining graft)
27358	Excision or curettage of bone cyst or benign tumor of femur; with internal fixation (List in addition to code for primary procedure)
27360	Partial excision (craterization, saucerization, or diaphysectomy) bone, femur, proximal tibia and/or fibula (eg, osteomyelitis or bone abscess)
27364	Radical resection of tumor (e.g. sarcoma), soft tissue of thigh or knee area; 5 cm or greater
27365	Radical resection of tumor, femur or knee
27372	Removal of foreign body, deep, thigh region or knee area
27403	Arthrotomy with meniscus repair, knee
27405	Repair, primary, torn ligament and/or capsule, knee; collateral
27407	Repair, primary, torn ligament and/or capsule, knee; cruciate
27409	Repair, primary, torn ligament and/or capsule, knee; collateral and cruciate ligaments
27412	Autologous chondrocyte implantation, knee
27415	Osteochondral allograft, knee, open
27416	Osteochondral autograft(s), knee, open (e.g. mosaicplasty) (includes harvesting of autograph[s])
27418	Anterior tibial tubercleplasty (e.g. Maquet type procedure)
27420	Reconstruction of dislocating patella; (e.g. Hauser type procedure)
27422	Reconstruction of dislocating patella; with extensor realignment and/or muscle advancement or release (e.g. Campbell, Goldwaite type procedure)
27424	Reconstruction of dislocating patella; with patellectomy
27425	Lateral retinacular release, open
27427	Ligamentous reconstruction (augmentation), knee; extra-articular
27428	Ligamentous reconstruction (augmentation), knee; intra-articular (open)
27429	Ligamentous reconstruction (augmentation), knee; intra-articular (open) and extra-articular.
27454	Osteotomy, multiple, with realignment on intramedullary rod, femoral shaft (eg, Sofield type procedure)
27455	Osteotomy, proximal tibia, including fibular excision or osteotomy (includes correction of genu varus [bowleg] or genu valgus [knock-knee]); before epiphyseal closure
27457	Osteotomy, proximal tibia, including fibular excision or osteotomy (includes correction of genu varus [bowleg] or genu valgus [knock-knee]) after epiphyseal closure
27465	Osteoplasty, femur; shortening
27466	Osteoplasty, femur; lengthening
27468	Osteoplasty, femur; combined, lengthening and shortening with femoral segment transfer
27470	Repair, nonunion or malunion, femur, distal to head and neck; without graft (eg, compression technique)

27472	Repair, nonunion or malunion, femur, distal to head and neck;with iliac or other autogenous bone graft (includes obtaining graft)
27495	Prophylactic treatment (nailing, pinning, plating, or wiring) with or without methylmethacrylate, femur
29850	Arthroscopically aided treatment of intercondylar spine(s) and/or tuberosity fracture(s) of the knee, with or without manipulation; without internal or external fixation (includes arthroscopy)
29851	Arthroscopically aided treatment of intercondylar spine(s) and/or tuberosity fracture(s) of the knee, with or without manipulation; with internal or external fixation (includes arthroscopy)
29855	Arthroscopically aided treatment of tibial fracture, proximal (plateau); unicondylar, includes internal fixation, when performed (includes arthroscopy)
29856	Arthroscopically aided treatment of tibial fracture, proximal (plateau); bicondylar, includes internal fixation, when performed (includes arthroscopy)
29866	Arthroscopy, knee, surgical; osteochondral autograft(s) (e.g. mosaicplasty) (includes harvesting of the autograft[s])
29867	Arthroscopy, knee, surgical; osteochondral allograft (e.g. mosaicplasty)
29868	Arthroscopy, knee, surgical; meniscal transplantation (includes arthrotomy for meniscal insertion), medial or lateral
29870	Arthroscopy, knee, diagnostic; with or without synovial biopsy (separate procedure)
29871	Arthroscopy, knee, surgical; for infection, lavage and drainage
29873	Arthroscopy, knee, surgical; with lateral release
29874	Arthroscopy, knee, surgical; for removal of loose body or foreign body (e.g. osteochondritis dissecans fragmentation, chondral fragmentation)
29875	Arthroscopy, knee, surgical;synovectomy, limited (eg, plica or shelf resection) (separate procedure)
29876	Arthroscopy, knee, surgical;synovectomy, major, two or more compartments (eg, medial or lateral)
29877	Arthroscopy, knee, surgical; debridement/shaving of articular cartilage (chondroplasty)
29879	Arthroscopy, knee, surgical; abrasion Arthroplasty (includes chondroplasty where necessary) or multiple drilling or microfracture
29880	Arthroscopy, knee, surgical; with meniscectomy (medial AND lateral, including any meniscal shaving) including debridement/shaving of articular cartilage (chondroplasty), same or separate compartment(s), when performed
29881	Arthroscopy, knee, surgical; with meniscectomy (medial OR lateral, including any meniscal shaving) including debridement/shaving of articular cartilage (chondroplasty), same or separate compartment(s), when performed
29882	Arthroscopy, knee, surgical; with meniscus repair (medial OR lateral)
29883	Arthroscopy, knee, surgical; with meniscus repair (medial AND lateral)
29884	Arthroscopy, knee, surgical;with lysis of adhesions, with or without manipulation (separate procedure)

29885	Arthroscopy, knee, surgical; drilling for osteochondritis dissecans with bone grafting, with or without internal fixation (including debridement of base of lesion)
29886	Arthroscopy, knee, surgical; drilling for intact osteochondritis dissecans lesion
29887	Arthroscopy, knee, surgical; drilling for intact osteochondritis dissecans lesion with internal fixation
29888	Arthroscopically aided anterior cruciate ligament repair/augmentation or reconstruction
29889	Arthroscopically aided posterior cruciate ligament repair/augmentation or reconstruction
This list may not be all inclusive and is not intended to be used for coding/billing purposes. The final determination of reimbursement for services is the decision of the health plan and is based on the individual's policy or benefit entitlement structure as well as claims processing rules.	

CMM-312.4 References

1. Aaron R, Skolnick A, Reinert S, Ciombor D. Arthroscopic debridement for osteoarthritis of the knee. *J Bone Joint Surg Am.* 2006;88(5):936-943.
2. Adler V, Pa L, Ko J, et al. Autologous chondrocyte transplantation for the treatment of articular defects of the knee. *Scr Med.* 2003;76(3):241-250.
3. Alleyne K, Galloway M. Management of osteochondral injuries of the knee. *Clin Sports Med.* 2001;20(2):343-364.
4. Altman R, Hochberg M, Moskowics, R, et al.; Subcommittee on Osteoarthritis Guidelines. Recommendations for the medical management of osteoarthritis of the hip and knee. American College of Rheumatology Subcommittee on Osteoarthritis Guidelines. *Arthritis Rheum.* 2000;43(9):1905-1915.
5. Bartha L, Vajda A, Duska Z, et al. Autologous osteochondral mosaicplasty grafting. *J Orthop Sports Phys Ther.* 2006;36(10):739-750.
6. Bentley G, Biant L, Carrington R, et al. A prospective, randomised comparison of autologous chondrocyte implantation versus mosaicplasty for osteochondral defects in the knee. *J Bone Joint Surg Br.* 2003;85(2):223-230.
7. Bernstein J, Quach T. A perspective on the study of Moseley et al: Questioning the value of arthroscopic knee surgery for osteoarthritis. *Cleve Clin J Med.* 2003;70(5):401, 405-406, 408-410.
8. Biau D, Tournoux C, Katsahian Set al. Bone-patellar tendon-bone autografts versus hamstring autografts for reconstruction of anterior cruciate ligament: meta-analysis. *BMJ.* 2006;332(7548):995-1001.
9. Bradley J, Heilman D, Katz B, et al. Tidal irrigation as treatment for knee osteoarthritis: A sham- controlled, randomized, double-blinded evaluation. *Arthritis Rheum.* 2002;46(1):100-108.
10. Briggs T, Mahroof S, David L, et al. Histological evaluation of chondral defects after autologous chondrocyte implantation of the knee. *J Bone Joint Surg Br.* 2003;85(7):1077-1083.
11. Brouwer, Reinoud W, Huizinga, Maarten R, Duivenvoorden, Tijs, van Raaij, Tom M, Verhagen, Arianne P, Bierma-Zeinstra, Sita MA, Verhaar, Jan AN. **Osteotomy for treating knee osteoarthritis.** Cochrane Database of Systematic Reviews, 2014, Issue 12. Art. No.: CD004019. DOI: 10.1002/14651858.CD004019.pub4.
12. Calvert G, Wright R. The use of arthroscopy in the athlete with knee osteoarthritis. *Clin Sports Med.* 2005;24(1):133-152.
13. Chambers K, Schulzer M. Arthroscopic surgery for osteoarthritis of the knee. *N Engl J*

- Med.* 2002;347:1718.
14. Chatain F, Adeleine P, Chambat P, Neyret P; Society Francaise d'Arthroscopie. A comparative study of medial versus lateral arthroscopic partial meniscectomy on stable knees: 10-year minimum follow-up. *Arthroscopy.* 2003; 19(8):842-849.
 15. Crawford DC, Safran MR. Osteochondritis Dissecans of the knee. *J Am Acad Orthop Surg.* 2006; 14: 90-100.
 16. Dervin G, Stiell I, Rody K, Grabowski J. Effect of arthroscopic debridement for osteoarthritis of the knee on health-related quality of life. *J Bone Joint Surg Am.* 2003;85-A(1):10-19.
 17. Dozin B, Malpeli M, Cancedda R, et al. Comparative evaluation of autologous chondrocyte implantation and mosaicplasty: A multicentered randomized clinical trial. *Clin J Sport Med.* 2005;15(4):220-226.
 18. Englund M, Guermazi A, Roemer FW, et al. Meniscal tear in knees without surgery and the development of radiographic osteoarthritis among middle-aged and elderly persons: The multicenter osteoarthritis study. *Arthritis Rheum.* 2009;60(3):831-9.
 19. Englund M, Roos E, Lohmander L. Impact of type of meniscal tear on radiographic and symptomatic knee osteoarthritis: a sixteen-year follow-up of meniscectomy with matched controls. *Arthritis Rheum.* 2003;48(8):2178-87.
 20. Felson D, Buckwalter J. Debridement and lavage for osteoarthritis of the knee. *N Engl J Med.* 2002;347:132-3.
 21. Felson D. Osteoarthritis of the knee. *N Engl J Med.* 2006;354:841-8.
 22. Fond J, Rodin D, Ahmad S, Nirschl R. Arthroscopic debridement for the treatment of osteoarthritis of the knee: 2- and 5-year results. *Arthroscopy.* 2002;18(8):829-834.
 23. Forster M, Straw R. A prospective randomised trial comparing intra-articular Hyalgan injection and arthroscopic washout for knee osteoarthritis. *Knee.* 2003;10(3):291-293.
 24. Graf K, Sekiya J, Wojtyls E. Long-term results after combined medial meniscal allograft transplantation and anterior cruciate ligament reconstruction: Minimum 8.5-year follow-up study. *Arthroscopy.* 2004;20(2):129-140.
 25. Haasper C, Zelle B, Knobloch K, et al. No mid-term difference in mosaicplasty in previously treated versus previously untreated individuals with osteochondral lesions of the talus. *Arch Orthop Trauma Surg.* 2008;128(5):499-504.
 26. Hangody L, Vásárhelyi G, Hangody L, et al. Autologous osteochondral grafting--technique and long-term results. *Injury.* 2008;39 Suppl 1:S32-S39.
 27. Harner C, Waltrip R, Bennett C, et al. Surgical management of knee dislocations. *J Bone Joint Surg Am.* 2004;86-A(2):262-73.
 28. Henderson I, Tuy B, Connell D, et al. Prospective clinical study of autologous chondrocyte implantation and correlation with MRI at three and 12 months. *J Bone Joint Surg Br.* 2003;85(7):1060-1066.
 29. Hunt S, Jazrawi L, Sherman O, Arthroscopic management of osteoarthritis of the knee. *J Am Acad Orthop Surg.* 2002;10(5):356-63.
 30. Jackson R, Dieterichs C. The results of arthroscopic lavage and debridement of osteoarthritic knees based on the severity of degeneration: A 4- to 6-year symptomatic follow-up. *Arthroscopy.* 2003;19(1):13-20.
 31. Jakob R, Franz T, Gautier E, Mainil-Varlet P. Autologous osteochondral grafting in the knee: Indication, results, and reflections. *Clin Orthop.* 2002;(401):170-184.
 32. Karataglis D, Green M, Learmonth D. Autologous osteochondral transplantation for the treatment of chondral defects of the knee. *Knee.* 2006;13(1):32-35.

33. Karataglis D, Learmonth D. Management of big osteochondral defects of the knee using osteochondral allografts with the MEGA-OATS technique. *Knee*. 2005;12(5):389-393.
34. Kelly M. Role of arthroscopic debridement in the arthritic knee. *J Arthroplasty*. 2006;21:Suppl 1:9- 10.
35. Kirkley A, Birmingham T, Litchfield R, et al. A Randomized Trial of Arthroscopic Surgery for Osteoarthritis of the Knee. *N Engl J Med*. 2008; 59:1097-1107,1169-1170.
36. Kreuz P, Steinwachs M, Erggelet C, et al. Mosaicplasty with autogenous talar autograft for osteochondral lesions of the talus after failed primary arthroscopic management: A prospective study with a 4-year follow-up. *Am J Sports Med*. 2006;34(1):55-63.
37. Lahav A, Burks R, Greis P, et al. Clinical outcomes following osteochondral autologous transplantation (OATS). *J Knee Surg*. 2006;19(3):169-173.
38. Laupattarakasem W, Laopaiboon M, Laupattarakasem P, Sumananont C. Arthroscopic debridement for knee osteoarthritis. *Cochrane Database Syst Rev*. 2008;(1):CD005118.
39. Linko E, Harilainen A, Malmivaara A, Seitsalo S. Surgical versus conservative interventions for anterior cruciate ligament ruptures in adults. *Cochrane Database Syst Rev*. 2005 Apr 18;(2):CD001356.
40. Ma H, Hung S, Wang S, et al. Osteochondral autografts transfer for post-traumatic osteochondral defect of the knee -- 2 to 5 years follow-up. *Injury*. 2004;35(12):1286-1292.
41. Marcacci M, Kon E, Zaffagnini S, et al. Multiple osteochondral arthroscopic grafting (mosaicplasty) for cartilage defects of the knee: Prospective study results at 2-year follow-up. *Arthroscopy*. 2005;21(4):462-470.
42. Marx R. Arthroscopic surgery for osteoarthritis of the knee? *N Engl J Med*. 2008;359(11):1169-1170.
43. Moseley J, O'Malley K, Petersen N, et al. A controlled trial of arthroscopic surgery for osteoarthritis of the knee. *N Engl J Med*. 2002;347:81-88.
44. Noyes F, Barber-Westin S, Rankin M. Meniscal transplantation in symptomatic individuals less than fifty years old. *J Bone Joint Surg Am*. 2005;87 Suppl 1(Pt.2):149-165.
45. Pearse E, Craig D. Partial meniscectomy in the presence of severe osteoarthritis does not hasten the symptomatic progression of osteoarthritis. *Arthroscopy*. 2003;19(9):963-968.
46. Peterson L, Minas T, Brittberg M, Lindahl A. Treatment of osteochondritis dissecans of the knee with autologous chondrocyte transplantation. *J Bone Joint Surg Am*. 2003;85(Suppl 2):17-24.
47. Peterson R, Shelton W, Bomboy A. Allograft versus autograft patellar tendon anterior cruciate ligament reconstruction: A 5-year follow-up. *Arthroscopy*. 2001;17(1):9-13.
48. Roos E, Ostenberg A, Roos H, et al. Long-term outcome of meniscectomy: symptoms, function, and performance tests in individuals with or without radiographic osteoarthritis compared to matched controls. *Osteoarthritis Cartilage*. 2001;9(4):316-24.
49. Roos E, Roos H, Ryd L, Lohmander L. Substantial disability 3 months after arthroscopic partial meniscectomy: A prospective study of individual-relevant outcomes. *Arthroscopy*. 2000;16(6):619-26.
50. Ruano-Ravina A, Jato Diaz M. Autologous chondrocyte implantation: a systematic review. *Osteoarthritis Cartilage*. 2006;14(1):47-51.
51. Ryu R, Dunbar V, Morse G, Meniscal allograft replacement: a 1-year to 6-year experience, *Arthroscopy*. 2002;18(9):989-994.
52. Sekiya J, Giffin J, Irrgang J, et al. Clinical outcomes after combined meniscal allograft transplantation and anterior cruciate ligament reconstruction. *Am J Sports Med*. 2003;31(6):896-906.

53. Sharpe J, Ahmed S, Fleetcroft J, Martin R. The treatment of osteochondral lesions using a combination of autologous chondrocyte implantation and autograft: Three-year follow-up. *J Bone Joint Surg Br.* 2005;87(5):730-735.
54. Sherman SL, Garrity J, Bauer K, Cook J et al. Fresh osteochondral allograft transplantation for the knee: current concepts. *J Am Acad Orthop Surg.* 2014;22(2):121-33.
55. Solomon D, Avorn J, Warsi A et al. Which individuals with knee problems are likely to benefit from nonarthroplasty surgery? Development of a clinical prediction rule. *Arch Intern Med.* 2004;164(5):509-513.
56. Stuart M, Lubowitz J. What, if any, are the indications for arthroscopic debridement of the osteoarthritic knee? *Arthroscopy.* 2006;22(3):238-239.
57. Zhang W, Moskowitz R, Nuki G et al. OARSI recommendations for the management of hip and knee osteoarthritis, Part II: OARSI evidence-based, expert consensus guidelines. *Osteoarthritis Cartilage.* 2008;16(2):137-162.