Knee Arthroplasty in Adults

Introduction

Knee arthroplasty is the medical term for a total knee replacement. A surgeon removes the damaged part of the joint. The surfaces are shaped to hold a replacement joint that is either metal or plastic. The artificial joint is attached to the thigh bone, shin bone, and knee cap. For the right individual, a knee replacement reduces pain and improves quality of life. People who may qualify for this surgery are those who have severe pain from “wear-and-tear” arthritis (osteoarthritis) of the knee, who are not able to perform their normal daily activities, and who tried and failed nonsurgical treatments. Replacement joints have a limited life. Factors such as a person’s age, severity of knee disease, obesity, and the type of replacement affect how long an artificial joint will last. Knee arthroplasty must be pre-approved by the health plan. This policy outlines the information needed for health plan review.

Note: The Introduction section is for your general knowledge and is not to be taken as policy coverage criteria. The rest of the policy uses specific words and concepts familiar to medical professionals. It is intended for providers. A provider can be a person, such as a doctor, nurse, psychologist, or dentist. A provider also can be a place where medical care is given, like a hospital, clinic, or lab. This policy informs them about when a service may be covered.

Policy Coverage Criteria
Note: This policy only applies to adults aged 19 and older. This policy does not apply to patellofemoral knee arthroplasty

<table>
<thead>
<tr>
<th>Indication</th>
<th>Medical Necessity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degenerative joint disease (DJD)</td>
<td><strong>Total knee and unicompartmental arthroplasty may be considered medically necessary for joint disease when ALL of the following are met:</strong></td>
</tr>
<tr>
<td>Osteoarthritis (OA)</td>
<td>- Treatment is needed because of one or more of the following:</td>
</tr>
<tr>
<td>Rheumatoid arthritis (RA)</td>
<td>- Disabling pain for at least 3 months duration</td>
</tr>
<tr>
<td>Traumatic arthritis</td>
<td>- Functional disability which interferes with the ability to carry out activities of daily living</td>
</tr>
<tr>
<td>Osteonecrosis</td>
<td><strong>AND</strong></td>
</tr>
<tr>
<td></td>
<td>- Radiographic or imaging evidence of severe osteoarthritis (Kellgren-Lawrence grade 3 or 4) in the 12 months prior to surgery evidenced by either:</td>
</tr>
<tr>
<td></td>
<td>- Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour</td>
</tr>
<tr>
<td></td>
<td>- OR</td>
</tr>
<tr>
<td></td>
<td>- Large osteophytes, marked narrowing of joint space, severe sclerosis, and definite deformity of bone contour</td>
</tr>
<tr>
<td></td>
<td>- OR</td>
</tr>
<tr>
<td></td>
<td>- Exposed subchondral bone (full thickness cartilage loss) (Outerbridge grade 4) (aka chondromalacia grade 4)</td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong></td>
</tr>
<tr>
<td></td>
<td>- Documentation of three months of failed non-operative, conservative management for Kellgren-Lawrence grade 3 findings as demonstrated by a trial of one or more of the following medications:</td>
</tr>
<tr>
<td></td>
<td>- Non-steroidal anti-inflammatory drugs (oral or topical)</td>
</tr>
<tr>
<td></td>
<td>- Acetaminophen</td>
</tr>
<tr>
<td></td>
<td>- Intra-articular injection of corticosteroids as appropriate</td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong></td>
</tr>
<tr>
<td></td>
<td>- A trial of one or more of the following physical measures:</td>
</tr>
<tr>
<td></td>
<td>- Physical therapy</td>
</tr>
<tr>
<td></td>
<td>- Flexibility and muscle strengthening exercises</td>
</tr>
</tbody>
</table>
### Indication

<table>
<thead>
<tr>
<th>Medical Necessity</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Reasonable restriction of activities</td>
</tr>
<tr>
<td><strong>OR</strong></td>
</tr>
<tr>
<td>• For Kellgren-Lawrence grade 4 findings, a trial of only one or more of the following medications:</td>
</tr>
<tr>
<td>o Non-steroidal anti-inflammatory drugs (oral or topical)</td>
</tr>
<tr>
<td>o Acetaminophen</td>
</tr>
<tr>
<td>o Intra-articular injection of corticosteroids as appropriate</td>
</tr>
</tbody>
</table>

**Note:** Failure of non-surgical medical management is not required if radiographic or imaging findings show evidence of bone-on-bone articulation.

### Replacement/revision of previous arthroplasty

**Knee arthroplasty may be considered medically necessary for a replacement/revision of a previous arthroplasty as indicated by one or more of the following:**

- Disabling pain
- Functional disability
- Progressive and substantial bone loss
- Fracture or dislocation of patella
- Aseptic component instability or loosening
- Infection
- Periprosthetic fracture

### Other Conditions

**Knee arthroplasty may be considered medically necessary for the following diagnoses:**

- Distal femur fracture repair in an individual with osteoporosis
- Failure of a previous proximal tibial or distal femoral osteotomy
- Hemophilic arthroplasty
- Limb salvage for malignancy

### Documentation Requirements

The individual’s medical records submitted for review for all conditions should document that medical necessity criteria are met. The record should include the following:

- For degenerative joint disease, osteoarthritis, rheumatoid arthritis, traumatic arthritis, or osteonecrosis with ALL of the following:
  - Needs treatment because of disabling pain and/or limited knee function interfering with activities of daily living (ADLs)

**AND**
Documentation Requirements

- Imaging evidence of severe osteoarthritis by either: moderate multiple osteophytes/large osteophytes (bone spurs), definite narrowing of joint space/severe narrowing of joint space, some sclerosis/severe sclerosis (thickening, hardening, increase in density), and deformity of bone contour/definite deformity of bone contours. Radiologic or imaging must be done in the 12 months prior to planned surgery

**AND**

- History of unsuccessful conservative/medical management with one or more of the following medications: non-steroidal anti-inflammatory medication, acetaminophen, or intra-articular injection of corticosteroids as appropriate and one or more of the following physical measures: physical therapy, flexibility and muscle strengthening exercises, or reasonable restriction of activities (note: this is not required if imaging findings show bone-on-bone articulation).

- For replacement/revision of previous arthroplasty with evidence of one of the following:
  - Disabling pain
  - Limited knee function
  - Progressive and substantial bone loss
  - Patella (kneecap) fracture or dislocation
  - Aseptic component instability (a non-infectious loosening of the bond between the bone and the implant)
  - Infection
  - Periprosthetic fracture (fracture around the knee implant)

- For other significant conditions, detailed clinical documentation supporting the diagnoses of one of the following:
  - Repair of distal femur fracture (fracture of the femur just above the knee joint) in an individual with osteoporosis
  - Failure of a previous proximal tibial or distal femoral osteotomy (cutting or removal of bone related to a break in the shinbone just below the knee or the femur just above the knee)
  - Hemophilic arthroplasty (knee replacement for a person with hemophilia)
  - Limb salvage for malignancy

Coding
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27446</td>
<td>Arthroplasty, knee condyle and plateau; medial OR lateral compartment (unicompartmental or partial knee replacement)</td>
</tr>
<tr>
<td>27447</td>
<td>Arthroplasty, knee, condyle and plateau; medial AND lateral compartments with or without patella resurfacing (total knee arthroplasty)</td>
</tr>
<tr>
<td>27486</td>
<td>Revision of total knee arthroplasty, with or without allograft; 1 component</td>
</tr>
<tr>
<td>27487</td>
<td>Revision of total knee arthroplasty, with or without allograft; femoral and entire tibial component</td>
</tr>
</tbody>
</table>

**Note:** CPT codes, descriptions and materials are copyrighted by the American Medical Association (AMA). HCPCS codes, descriptions and materials are copyrighted by Centers for Medicare Services (CMS).

**Related Information**

**KOOS Knee Survey**

It is widely agreed that good outcome measures are needed to be able to tell the difference between treatments that are effective from those that are not. In order to do this, there must be some standardized, individual-centered measures that can be administered at a low cost. A questionnaire (the Knee Injury and Osteoarthritis Outcome Scores, or KOOS) was developed to evaluate short- and long-term individual-relevant outcomes after knee injury. This questionnaire was based on the WOMAC (Western Ontario and McMaster Universities) Osteoarthritis Index, a literature review, an expert panel, and a pilot study. The KOOS is a tool that can be used in the provider’s office. It is self-administered and looks at five outcomes: pain, symptoms, activities of daily living, sport and recreation function, and knee-related quality of life. It has been shown to be a useful tool in assessing an individual’s pain and functional disability.

**Kellgren-Lawrence Grading Scale**

- **Grade 1:** Doubtful narrowing of joint space and possible osteophytic lipping
- **Grade 2:** Definite osteophytes, definite narrowing of joint space
- **Grade 3:** Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour
• Grade 4: Large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of bone contour

**Modified Outerbridge Classification**
(Articular cartilage/chondromalacia grading) MRI (arthroscopy findings)

• Grade 1: Focal areas of hyperintensity with normal contour (softening or swelling of cartilage)

• Grade 2: Blister-like swelling/fraying of articular cartilage extending to the surface (fragmentation and fissuring within soft areas of articular cartilage that do not reach subchondral bone or exceed 1.5 cm in diameter)

• Grade 3: Partial thickness cartilage loss with focal ulceration (partial thickness cartilage loss with fibrillation to the level of subchondral bone with a diameter more than 1.5 cm)

• Grade 4: Exposed subchondral bone (full thickness cartilage loss)

**Background**

Modern total knee arthroplasty consists of resection of the diseased articular surfaces of the knee, followed by resurfacing with metal and polyethylene prosthetic components. For the properly selected individual, the procedure results in significant pain relief, as well as improved function and quality of life. Despite the potential benefits of total knee arthroplasty, it is an elective procedure and should only be considered after extensive discussion of the risks, benefits, and alternatives.¹

The main indication for total knee arthroplasty is for the relief of pain associated with arthritis of the knee in individuals who have failed nonoperative treatments. Correction of deformity and restoration of function should be considered secondary outcomes of the surgery and should not be considered the primary indication. The prosthetic joint has a finite lifetime, and the durability of the prosthesis depends on many factors such as individual age, underlying disease, the presence of obesity, as well as the type of prosthesis and surgical factors.²

Individuals with osteoarthritis limited to just one part of the knee may be candidates for unicompartmental knee replacement (also called a “partial” knee replacement). Unicompartmental knee replacements are an option for a small percentage of individuals with
osteoarthritis of the knee. In this type of surgery, only the damaged knee compartment is replaced with metal and plastic.³

Evidence Review

Knee arthroplasty may be done to treat both posttraumatic arthritis and osteoarthritis.

Although excellent long-term outcomes can be seen with modern methods of ligament reconstruction and open reduction and internal fixation for knee injuries, posttraumatic knee arthritis often develops. Options to treat symptomatic posttraumatic knee arthritis include osteotomy, arthrodesis, and arthroplasty. There may be surgical challenges including the presence of extensive (often broken) hardware, scarring, stiffness, bony defects, compromised soft tissues, and malalignment. When deciding on a treatment plan, the individual’s age and level of activity must be taken into account, as well as the anatomic location and extent of damage to the articular surface. For younger individuals, osteotomy, allograft transplantation, or arthrodesis of the knee is often considered, whereas older, low-demand individuals are typically treated with arthroplasty. Attention to specific technical details and careful surgical technique are required in order to achieve a successful result. Functional improvement is usually seen following arthroplasty and, sometimes, after arthrodesis. However, complications are common.³

In people with advanced osteoarthritis of the knee, knee replacement surgery is often done as a way to relieve pain and improve function. Carr et al⁴ surveyed the epidemiology and risk factors for knee replacement surgery.

In 2010, Bozic et al⁵ looked at the relationship between the number of procedures that a surgeon and hospital do and the clinical outcomes of those procedures. They found that the individuals of surgeons who performed more knee replacements had a lower risk of complications, lower readmission and reoperation rates, shorter length of stay, and a higher chance that they would be discharged to home. Hospitals that did more knee replacement surgeries had lower mortality, lower risk of readmission, and a higher likelihood of the individual being discharged to home. Bozic et al also found that when the surgeon and hospital closely follow evidence-based processes of care, there were better clinical outcomes and shorter lengths of stay, regardless of how many procedures the surgeon and hospital had performed.

In 2009, the Osteoarthritis Research Society International (OARSI) updated their global, evidence-based, consensus recommendations previously published in 2006. They found that there were 64 systematic reviews, 266 randomized controlled trials (RCTs) and 21 new economic
evaluations (EEs). New data on efficacy was published for more than half (26/39, or 67%) of the 51 new treatment modalities. They found there had been changes in the calculated risk-benefit ratio for some osteoarthritis treatments.⁶

Practice Guidelines and Position Statements

American Academy of Orthopaedic Surgeons

The American Academy of Orthopaedic Surgeons (AAOS) updated new clinical practice guideline on the management of osteoarthritis of the knee (2021)⁹ recommends the use of pre-surgical treatments to ease pain and mobility, including corticosteroid injection for short-term relief, physical therapy, and non-narcotic medications. The Academy does not recommend the use of hyaluronic acid or glucosamine sulfate to minimize osteoarthritis symptoms due to a lack of evidence supporting the efficacy of these treatments.

The Osteoarthritis Research Society International (OARSI)

The Osteoarthritis Research Society International (OARSI) (2014)⁷ updated its guidelines for non-surgical treatment of osteoarthritis of the knee in one or both knees only with no comorbidities:

Core Treatments Appropriate for all individuals:
Land-based exercise, weight management, strength training, water-based exercise, self-management and education

Recommended treatments Appropriate for Knee-only OA without comorbidities:
Biomechanical interventions, intra-articular corticosteroids, topical NSAIDs, walking cane, oral COX-2 Inhibitors, capsaicin, oral non-selective NSAIDs, duloxetine, acetaminophen

Recommended treatments considered Uncertain for Knee-only OA without comorbidities:
Acupuncture, TENS, ultrasound, avocado soybean unsaponfiables (ASU), chondroitin, diacerein glucosamine, hyaluronic acid (intra-articular injection), opioids (oral or transdermal), rosehip

Recommended treatments considered Not Appropriate for Knee-only OA without comorbidities:
Risedronate
National Institute for Health and Care Excellence (NICE)

In 2014 NICE published Clinical guidelines (CG177) Osteoarthritis: care and management, which was last updated 11 December 2020 and recommends intra-articular corticosteroid injections should be considered as an adjunct to core treatments for the relief of moderate to severe pain in people with OA. The guidelines do not recommend offering intra-articular hyaluronan injections for the management of OA.

References


**History**

<table>
<thead>
<tr>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/11/13</td>
<td>New Policy. Added to Surgery section. Considered medically necessary when criteria are met. Approved with 90-day hold for provider notification; this policy is effective February 15, 2014.</td>
</tr>
<tr>
<td>03/31/14</td>
<td>Coding update. ICD-9 Diagnosis codes 170.7, 170.8, 716.16, 996.43, and 996.44 added to policy.</td>
</tr>
<tr>
<td>09/08/14</td>
<td>Annual Review. Policy rewritten with removal of reference to MCG guidelines; all coverage criteria are now available within this policy; no change in coverage.</td>
</tr>
<tr>
<td>01/26/15</td>
<td>Update Related Policies. Add 7.01.144.</td>
</tr>
<tr>
<td>03/24/15</td>
<td>Update Related Policies. Change title to 7.01.549.</td>
</tr>
<tr>
<td>05/27/15</td>
<td>Annual Review. No change to policy statements. No references added.</td>
</tr>
<tr>
<td>02/09/16</td>
<td>Annual Review. No change to policy statements. No references added.</td>
</tr>
<tr>
<td>Date</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>07/01/16</td>
<td>Interim Review, approved June 14, 2016. Removed Physical Therapy requirement of 6 visits over 12 weeks.</td>
</tr>
<tr>
<td>01/24/17</td>
<td>Minor formatting update; added second level bullets in Prior-Authorization Requirements section.</td>
</tr>
<tr>
<td>03/01/17</td>
<td>Annual Review, approved February 14, 2017. Policy section and Prior Authorization requirements updated to clarify that a copy of the radiologist’s report must be submitted for diagnostic imaging performed within the past 12 months and read by an independent radiologist when submitted requests for treatment related to osteoarthritis or degenerative joint disease. This replaces verbiage previously indicating an x-ray report.</td>
</tr>
<tr>
<td>03/01/18</td>
<td>Annual Review, approved February 27, 2018. Clarified that the medical necessity criteria are for total knee and unicompartmental arthroplasty. Revised policy statement using descriptors of Kellgren Lawrence Grading Scale and Modified Outerbridge Classification. Intent of policy unchanged. Clarification added that this policy does not address patellofemoral knee arthroplasty. Reference added.</td>
</tr>
<tr>
<td>03/09/18</td>
<td>Minor update, added Documentation Requirements section.</td>
</tr>
<tr>
<td>04/01/19</td>
<td>Annual Review, approved March 12, 2019. References 11-16 added. Requirement that a copy of the radiologist’s report must be submitted for diagnostic imaging performed and read by an independent radiologist reinstated. Minor edits for clarity; otherwise policy statements unchanged.</td>
</tr>
<tr>
<td>05/10/19</td>
<td>Minor update, removed requirement that imaging must be performed and read by an independent radiologist, as this was inadvertently added back to policy.</td>
</tr>
<tr>
<td>12/01/19</td>
<td>Interim Review, approved November 21, 2019, effective March 5, 2020. Added description of Kellgren-Lawrence grade 3 back to medical necessity statement of radiographic evidence. Modified conservative management to include one or more medical measures and physical measures unless symptoms are severe and there is radiographic evidence of advanced osteoarthritis then only one or more medical measure is required.</td>
</tr>
<tr>
<td>04/01/20</td>
<td>Delete policy, approved March 10, 2020. This policy will be deleted effective July 2, 2020, and replaced with InterQual criteria for dates of service on or after July 2, 2020.</td>
</tr>
<tr>
<td>06/01/20</td>
<td>Coding update. Removed CPT code 27445.</td>
</tr>
<tr>
<td>Date</td>
<td>Comments</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
Discrimination is Against the Law

Premera Blue Cross (Premera) complies with applicable Federal and Washington state civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, sex, gender identity, or sexual orientation. Premera does not exclude people or treat them differently because of race, color, national origin, age, disability, sex, gender identity, or sexual orientation. Premera provides free aids and services to people with disabilities to communicate effectively with us, such as qualified sign language interpreters and written information in other formats (large print, audio, accessible electronic formats, other formats). Premera provides free language services to people whose primary language is not English, such as qualified interpreters and information written in other languages. If you need these services, contact the Civil Rights Coordinator. If you believe that Premera has failed to provide these services or discriminated in another way on the basis of race, color, national origin, age, disability, sex, gender identity, or sexual orientation, you can file a grievance with: Civil Rights Coordinator — Complaints and Appeals, PO Box 91102, Seattle, WA 98111, Toll free: 855-332-4535, Fax: 425-918-5592, TTY: 711, Email AppealsDepartmentInquiries@Premera.com. You can file a grievance in person or by mail, fax, or email. If you need help filing a grievance, the Civil Rights Coordinator is available to help you. You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically through the Office for Civil Rights Complaint Portal, available at https://ocrportal.hhs.gov/ocr/portal/lobby.jsf, or by mail or phone at: U.S. Department of Health and Human Services, 200 Independence Ave SW, Room 509F, HHH Building, Washington, D.C. 20201, 1-800-368-1019, 800-537-7697 (TDD). Complaint forms are available at http://www.hhs.gov/ocr/office/file/index.html.


Alaska residents: Contact the Alaska Division of Insurance via email at insurance@alaska.gov, or by phone at 907-269-7900 or 1-800-INSURAK (in-state, outside Anchorage).

Language Assistance

ATENCIÓN: si habla español, tiene a su disposición servicios gratuitos de asistencia lingüística. Llame al 800-722-1471 (TTY: 711).
 точки контакта: Если вы говорите по-русски, вы можете обратиться за бесплатной помощью. Вызовите 800-722-1471 (TTY: 711).
NOTA: Se fala português, encontram-se disponíveis serviços gratuitos de tradução e interpretação. Ligue para 800-722-1471 (TTY: 711).
가족의 도움: 한국어를 사용하시는 경우, 언어 지원 서비스를 무료로 이용하실 수 있습니다. 800-722-1471 (TTY: 711) 번으로 전화해 주십시오.
ВНИМАНИЕ: Если вы говорите на русском языке, то вам доступны бесплатные услуги перевода. Звоните 800-722-1471 (телетайп: 711).
MO LOU SILAFIA: Afaì e te tautala Gaganä faa'Samoa, o looi iai auanaunga fesoasoan, e fai fua e leai se tootogoi, mo oe, Telefoni mai: 800-722-1471 (TTY: 711).
日本語: 日本語を話される場合、無料の言語支援をご利用いただけます。800-722-1471 (TTY: 711) まで、お電話にてご連絡ください。
УВАГА! Якщо ви розмовляєте українською мовою, ви можете звернутися до безкоштовної служби мовної підтримки. Телефонуйте за номером 800-722-1471 (телетайп: 711).
If you speak Spanish, you can get free language services. Call 800-722-1471 (TTY: 711).
If you are deaf or hard of hearing, you can file a complaint by TTY by calling 800-722-1471 (TTY: 711).

Premera Blue Cross is an independent licensee of the Blue Cross Blue Shield Association serving businesses and residents of Alaska and Washington State, excluding Clark County.
052493 (07-01-2021)