MEDICAL POLICY – 7.01.550
Knee Arthroplasty in Adults

Effective Date: March 1, 2018
Last Revised: March 9, 2018
Replaces: N/A

RELATED MEDICAL POLICIES:
7.01.15 Meniscal Allograft and Other Meniscus Implants
7.01.144 Patient-Specific Cutting Guides and Custom Knee Implants
7.01.549 Knee Arthroscopy in Adults

Select a hyperlink below to be directed to that section.

POLICY CRITERIA | DOCUMENTATION REQUIREMENTS | CODING
RELATED INFORMATION | EVIDENCE REVIEW | REFERENCES | HISTORY

∞ Clicking this icon returns you to the hyperlinks menu above.

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 patient, 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 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
This policy only applies to those aged 18 and over. This policy does not apply to patellofemoral knee arthroplasty.

<table>
<thead>
<tr>
<th>Indication</th>
<th>Medical Necessity</th>
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</table>
| Osteoarthritis or degenerative joint disease   | **Total knee and unicompartmental arthroplasty may be considered medically necessary for degenerative joint disease when ALL of the following are met:**  
  - Treatment is needed because of one or more of the following:  
    - Disabling pain  
    - Functional disability  
  **AND**  
  - Radiographic or imaging evidence of severe osteoarthritis in the 12 months prior to surgery evidenced by either large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of bone contour  
  **OR**  
  - The presence of exposed subchondral bone (full thickness cartilage loss with underlying bone reactive changes)  
  **AND**  
  - Documentation of failed medical management such as:  
    - Anti-inflammatory medication  
    - Analgesics  
    - Physical therapy  
    - Flexibility and muscle strengthening exercises  
    - Reasonable restriction of activities |
| 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 of patella  
  - Dislocation of patella  
  - Aseptic component instability  
  - Infection  
  - Periprosthetic fracture |
| Other Conditions                                | **Knee arthroplasty may be considered medically necessary for the following diagnoses:** |


<table>
<thead>
<tr>
<th>Indication</th>
<th>Medical Necessity</th>
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</thead>
<tbody>
<tr>
<td>• Distal femur fracture repair in a patient with osteoporosis</td>
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<tr>
<td>• Failure of a previous proximal tibial or distal femoral osteotomy</td>
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<tr>
<td>• Hemophilic arthroplasty</td>
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<tr>
<td>• Limb salvage for malignancy</td>
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<tr>
<td>• Posttraumatic knee joint destruction</td>
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</tbody>
</table>

**Documentation Requirements**

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

- For Osteoarthritis or degenerative joint disease with ALL of the following:
  - Needs treatment because of disabling pain and/or limited knee function interfering with activities of daily living (ADLs)
  
  **AND**
  - Imaging evidence of severe osteoarthritis by either: large osteophytes (bone spurs), severe narrowing of joint space, severe sclerosis (thickening, hardening, increase in density), and 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 such as anti-inflammatory medication, analgesics, physical therapy, flexibility and muscle strengthening exercises, or reasonable restriction of activities

- 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)
Documentation Requirements

- 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 a patient 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
  - Posttraumatic knee joint destruction

Coding

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>CPT</td>
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<tr>
<td>27445</td>
<td>Arthroplasty, knee, hinge prosthesis (eg, Walldius type)</td>
</tr>
<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>
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</tbody>
</table>

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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, patient-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 patient-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 a patient’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

- Grade 1: Signal intensity alterations with an intact surface of the articular cartilage compared with the surrounding normal cartilage
- Grade 2: Partial thickness defect of the cartilage
- Grade 3: Fissuring of the cartilage to the level of the subchondral bone
- Grade 4: Exposed subcondral bone
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 patient, 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 patients 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 patient age, underlying disease, the presence of obesity, as well as the type of prosthesis and surgical factors.\(^2\)

Patients 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 patients 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 patient’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 patients, osteotomy, allograft transplantation, or arthrodesis of the knee is often considered, whereas older, low-demand patients 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 al\(^4\) surveyed the epidemiology and risk factors for knee replacement surgery.

In 2010, Bozic et al\(^5\) 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 patients 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 patient 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 recommendatons that had been done 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 had been published for more than half (26/39, or 67\%) of the 51 new treatment modalities. They found that there had been changes in the calculated risk-benefit ratio for some osteoarthritis treatments.\(^6\)

### 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>
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<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>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>
</tbody>
</table>
| 03/01/17   | 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.

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<tr>
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<tbody>
<tr>
<td>03/01/18</td>
<td>Annual Review, approved February 27, 2018. Clarified that the medical necessity criteria are for total knee and unicompartamental 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>
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</tbody>
</table>

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- U.S. Department of Health and Human Services
- 200 Independence Avenue SW, Room S09F, HHH Building
- Washington, D.C. 20201, 1-800-368-1019, 800-537-7697 (TDD)

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