TITLE: KNEE ARTHROPLASTY/REPLACEMENT

EFFECTIVE DATE: November 20, 2017

This policy was developed with input from specialists in orthopedics and orthopedic surgery and endorsed by the Medical Policy Committee.

IMPORTANT INFORMATION – PLEASE READ BEFORE USING THIS POLICY
These services may or may not be covered by all Medica plans. Please refer to the member’s plan document for specific coverage information. If there is a difference between this general information and the member’s plan document, the member’s plan document will be used to determine coverage. With respect to Medicare and Minnesota Health Care Programs, this policy will apply unless those programs require different coverage. Members may contact Medica Customer Service at the phone number listed on their member identification card to discuss their benefits more specifically. Providers with questions about this Medica utilization management policy may call the Medica Provider Service Center toll-free at 1-800-458-5512.

Medica utilization management policies are not medical advice. Members should consult with appropriate health care providers to obtain needed medical advice, care and treatment.

PURPOSE
To promote consistency between reviewers in utilization management decision-making by providing the criteria that generally determines the medical necessity of knee arthroplasty/replacement. The Coverage Issues box below outlines the process for addressing the needs of individuals who do not meet these criteria.

BACKGROUND
I. Definitions
A. Arthroplasty, also called joint replacement, is a surgical procedure in which the worn and/or damaged surfaces of the knee joint are replaced with a prosthesis made of metal, ceramic material or high-density plastic. Knee arthroplasty may be total or unicompartmental.
   1. Total knee arthroplasty (TKA) is performed when all three compartments of the knee are affected by joint disease. TKA involves removal of a thin layer of subchondral bone and overlying articular cartilage, with anatomic resurfacing of all three compartments and insertion of a metal implant and polyethylene bearing surface. The implants are either fixed with bone cement or are cementless and press fit into place.
   2. Unicompartmental knee arthroplasty (also known as UKA or partial knee arthroplasty) is performed in individuals with advanced joint disease limited to a single compartment (i.e., medial, lateral or patellofemoral). During UKA, only a single compartment is replaced and only the bony area in the single damaged compartment needs to be resurfaced. The ends of the femur and tibia are capped with metal coverings and a plastic insert is placed between the metal components for smooth gliding. UKA of the medial or lateral compartment requires a smaller and less invasive incision that does not interrupt the anterior and posterior cruciate ligaments, the main muscles controlling the knees. Isolated osteoarthritis of the patellofemoral joint occurs infrequently. A patellofemoral knee replacement replaces only the worn articular surface underneath the patella and its articulating trochlear surface.

B. Grading systems may be used to classify the severity of osteoarthritis and identify those injuries that are suitable for repair techniques. The most common grading systems include the Kellgren-Lawrence and the Modified Outerbridge Classification systems.
   1. The Kellgren-Lawrence grading system is based on radiographic evidence of cartilage damage.
      a. Grade 1: Doubtful narrowing of joint space and possible osteophytic lipping
      b. Grade 2: Definite osteophytes, definite narrowing of joint space
      c. Grade 3: Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour.
      d. Grade 4: Large osteophytes marked narrowing of joint space, severe sclerosis and definite deformity
of bone contour.

2. The Modified Outerbridge Classification addresses arthroscopic evidence of articular cartilage damage and provides delineation of varying areas of chondral pathology, based on the qualitative appearance of the cartilage surface.
   a. Grade 0: Normal
   b. Grade I: Cartilage with softening and swelling
   c. Grade II: Partial-thickness defect with fissures on the surface that do not reach subchondral bone or exceed 1.5 centimeters (cm) in diameter.
   d. Grade III: Fissuring to the level of the subchondral bone in an area with a diameter more than 1.5 centimeters
   e. Grade IV: Exposed subchondral bone head. Subchondral bone is the bone underneath the joint cartilage.

C. The knee joint functions as a complex hinge system to allow flexion and extension movement, in addition to rotation and gliding movement. It is made up of three compartments, the lateral, medial and patellofemoral.
   1. Patellofemoral: The area behind the kneecap riding over the end of the femur “trochlea/sulcus groove.”
   2. Medial: The area of joint contact between the femur and tibia on the “inside” of medial aspect of the knee.
   3. Lateral: The area of joint contact between the femur and tibia on the “outside” or lateral aspect of the knee.

D. Nonsurgical management is typically used to treat early arthritis. The purpose of treatment is to reduce pain, increase function and generally reduce symptoms. Nonsurgical treatments fall into the following major categories:
   1. Lifestyle modification, including weight loss and minimizing activities that aggravate the condition.
   2. Exercise including flexibility and muscle strengthening exercises and supervised physical therapy.
   3. Assistive devices, such as canes, crutches, walkers, and knee braces.
   4. Drug treatment, including over-the-counter analgesics, anti-inflammatory medications, intra-articular steroids and hyaluronic acid derivative injections.
   5. Other conservative measures such as applications of heat or ice, water exercises, liniments or elastic support bandages.

E. Osteoarthritis (OA) is the most common form of knee arthritis. OA is usually a slowly progressive degenerative disease in which the joint cartilage gradually wears away. It most often affects middle-aged and older people. It is also known as degenerative joint disease (DJD).

F. Osteonecrosis is the destruction of bone tissue due to ischemia (disruption of the blood supply), infection, malignant disease, or trauma.

G. Post-traumatic arthritis can develop after an injury to the knee. This type of arthritis is similar to osteoarthritis and may develop years after a fracture, ligament injury, or meniscus tear.

H. Rheumatoid arthritis (RA) is an inflammatory type of arthritis that can destroy the joint cartilage. RA can occur at any age. RA generally affects both knees.

II. Comments
A. The incidence of knee OA in the United States is estimated at 240 persons per 100,000 per year. It was estimated that 9.9 million adults had symptomatic OA of the knee in 2010. Risk factors for the condition increase with age, especially in women. Genetics, large body mass, certain occupations, and repetitive knee bending or heavy lifting are other factors that increase the risk of developing the disease.

B. Total knee arthroplasty is one of the most commonly performed orthopedic procedures, making it a key driver of health care costs. Many studies have demonstrated that total knee replacement is a cost-effective procedure that improves activity and quality of life. As of 2010, over 600,000 total knee replacements were performed annually in the United States and were becoming increasingly common. The number of total knee replacements performed annually in the United States is expected to grow by 673 percent to nearly 3.5 million procedures by 2030. This expected increase will be driven by an aging population, increased usage in younger individuals, the increased prevalence of obesity, and the increased demand for an active lifestyle.

C. 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. As with any major surgical procedure, complications, though uncommon and often preventable with careful surgical technique and postoperative management, may result during or after knee replacement. In addition to anesthesia related risks, exacerbation of preexisting medical issues and medication and allergic reactions, other possible complications include, but are not limited to, thromboembolism, infection, patellofemoral disorders, peroneal nerve palsy, periprosthetic fractures, wound healing, accelerated wear or failure of the prosthetic device, instability, persistent pain, and stiffness. Therefore, informed consent is critical.
**MEDICAL NECESSITY CRITERIA**

### I. Total Knee Arthroplasty (TKA)/Replacement

TKA/replacement is medically necessary when documentation in the medical records indicates that **all of the following** criteria are met:

A. The member has **one of the following** indications
   1. Advanced joint disease due to conditions such as osteoarthritis, rheumatoid arthritis, osteonecrosis or traumatic arthritis when **all of the following** criteria are met:
      a. Radiological and/or arthroscopic evidence of severe articular cartilage loss, knee joint destruction, joint subluxation or joint space narrowing (i.e., modified Outerbridge Grade IV or Kellgren-Lawrence Grade 4)
      b. Limited range of motion, crepitus, effusion or swelling of knee joint on physical examination
      c. Functional limitation resulting in impaired, age-appropriate activities of daily living (ADLs) (e.g., inability to perform household chores, prolonged standing, or essential job functions).
      d. Persistent disabling knee pain despite optimal nonsurgical management for a minimum of 3 months.
         Note: For individuals unable to complete a minimum of 3 months nonsurgical management, the medical director will review on an individual basis. Nonsurgical management may be inappropriate for severe osteoarthritis with bone-on-bone articulation and severe angular deformity, or avascular necrosis with collapse of tibial or femoral condyle. If nonsurgical management is not appropriate, the medical record must clearly document why such an approach is not reasonable.
   2. Failure of previous unicompartmental knee replacement with pain interfering with ADLs
   3. Failure of a previous osteotomy with pain interfering with ADLs
   4. Distal femur or proximal tibial fracture, malunion or nonunion with pain interfering with ADLs
   5. Posttraumatic knee joint destruction
   6. Avascular necrosis of the knee
   7. Malignancy of distal femur, proximal tibia, knee joint or adjacent soft tissues
   8. Hemophilic arthropathy.

B. The member has adequate extremity circulation and vascularity

C. No documented contraindications present as indicated by **all of the following**:
   1. No active (untreated or failed treatment) infection of the knee joint
   2. No active systemic bacteremia
   3. No active urinary tract infection
   4. No active skin infection or open wounds within the planned surgical site of the knee
   5. No active dental infection

D. **Written documentation from the medical record** including **all of the following** information is required:
   1. The extent of cartilage damage as determined by arthroscopy or diagnostic imaging
   2. Functional limitations

### II. Unicompartmental (Partial) Knee Arthroplasty (UKA)/Replacement

UKA/replacement is medically necessary when documentation in the medical records indicates that **all of the following** criteria are met:

A. Advanced joint disease, due to conditions such as osteoarthritis or traumatic arthritis, affecting only the medial or lateral compartment

B. Radiological and/or arthroscopic evidence of articular cartilage loss, knee joint destruction, joint subluxation or joint space narrowing (i.e., modified Outerbridge Grade IV or Kellgren-Lawrence Grade 4)

C. Limited range of motion, crepitus, effusion or swelling of knee joint on physical examination

D. Knee examination demonstrates adequate alignment and ligamentous stability

E. Functional limitations resulting in impaired, age-appropriate activities of daily living (ADLs) (e.g., inability to perform household chores, prolonged standing, or essential job functions).

F. Persistent disabling knee pain despite optimal nonsurgical management for a minimum of 3 months

G. The member has adequate extremity circulation and vascularity.

H. No documented contraindications present as indicated by **all of the following**:
   1. No active (untreated or failed treatment) infection of the knee joint
   2. No active systemic bacteremia
   3. No active urinary tract infection
   4. No active skin infection or open wounds within the planned surgical site of the knee
   5. No active dental infection.

I. **Written documentation from the medical record**, including **all of the following** information **is required**.
1. The extent of cartilage damage as determined by arthroscopy or diagnostic imaging
2. Functional limitations
3. Nonsurgical management options tried and failed
4. Documentation of knee alignment and ligamentous stability.

III. **Indications for revision of previous TKA/UKA**
Revision of previous TKA/UKA is medically necessary when documentation in the medical records indicates that **all of the following** criteria are met:

A. The individual has **one of the following**:
   1. Loosening of one or more component
   2. Fracture or mechanical failure of one or more component
   3. Implant or knee misalignment
   4. Recurrent disabling knee pain despite optimal nonsurgical management
   5. Functional disability despite optimal nonsurgical management
   6. Progressive and substantial periprosthetic bone loss
   7. Fracture or dislocation of patella
   8. Periprosthetic fractures
   9. Infection
   10. Aseptic component instability.

B. Written documentation from the medical record, including **all of the following** information, is required:
   1. Functional limitations

**COVERAGE ISSUES**
1. Prior authorization is **required** for total and partial knee arthroplasty/replacement and revision.
2. Coverage may vary according to the terms of the member's plan document.
4. If the Medical Necessity and Coverage Criteria are met, Medica will authorize benefits within the limits in the member's plan document.
5. If it appears that the Medical Necessity and Coverage Criteria are not met, the individual's case will be reviewed by the medical director or an external reviewer. Practitioners are reminded of the appeals process in their Medica Provider Administrative Manual.

**DOCUMENT HISTORY**

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<tr>
<th>Original Effective Date</th>
<th>July 1, 2014</th>
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<tr>
<td>MPC Endorsement Date(s)</td>
<td>11/2014, 06/2015, 06/2016, 09/2017</td>
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<td>Administrative Update(s)</td>
<td>05/01/2017</td>
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**References**

**Pre-06/2015 Medical Policy Committee (MPC):**


17. Jones LC, Mont MA. Osteonecrosis (avascular necrosis of bone). In: UpToDate, Basow, DS (Ed), UpToDate, Waltham, MA, 2014.


**06/2015 MPC:**

**09/2016 MPC:**
No new references added.

**09/2017 MPC:**
Lansdale, PA.
UpToDate. Waltham, MA. 2017