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Subject: Knee Arthroplasty

THIS MEDICAL COVERAGE GUIDELINE IS NOT AN AUTHORIZATION, CERTIFICATION, EXPLANATION OF BENEFITS, OR A GUARANTEE OF PAYMENT, NOR DOES IT SUBSTITUTE FOR OR CONSTITUTE MEDICAL ADVICE. ALL MEDICAL DECISIONS ARE SOLELY THE RESPONSIBILITY OF THE PATIENT AND PHYSICIAN. BENEFITS ARE DETERMINED BY THE GROUP CONTRACT, MEMBER BENEFIT BOOKLET, AND/OR INDIVIDUAL SUBSCRIBER CERTIFICATE IN EFFECT AT THE TIME SERVICES WERE RENDERED. THIS MEDICAL COVERAGE GUIDELINE APPLIES TO ALL LINES OF BUSINESS UNLESS OTHERWISE NOTED IN THE PROGRAM EXCEPTIONS SECTION.

DESCRIPTION:

The knee is the largest joint in the body and includes the lower end of the femur, the upper end of the tibia and the patella. The knee joint has three compartments, the medial, the lateral and the patellofemoral. The surfaces of these compartments are covered with articular cartilage and are bathed in synovial fluid. The bones of the knee joint work together, allowing the knee to function smoothly.

The most common reason for total knee arthroplasty/knee replacement surgery is arthritis of the knee joint. Types of arthritis include osteoarthritis, rheumatoid arthritis and traumatic arthritis. This arthritis causes a severe limitation in the activities of daily living, including difficulty with walking, squatting, and climbing stairs.

Summary and Analysis of Evidence: UpToDate review "Total knee arthroplasty" (Martin et al, 2025) states: "Total knee arthroplasty (TKA), also known as total knee replacement, 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. In spite of the potential benefits of TKA, it is an elective procedure and should only be considered after thorough discussion of the risks, benefits, and alternatives. The most common indication for TKA is for the relief of pain associated with osteoarthritis of the knee in patients who have failed nonoperative treatments. Other conditions that cause pain resulting in the need for TKA include inflammatory arthritides (eg, rheumatoid arthritis, psoriatic arthritis, spondyloarthritis), crystal-induced arthritis (eg, gout), posttraumatic arthritis, sequelae of infection, tumor, avascular necrosis (osteonecrosis), or congenital joint abnormalities. Loss of function and deformity are less common but clinically important indications as well. Contraindications to TKA include active infection in the knee or anywhere in the body, a nonfunctioning extensor mechanism, chronic lower extremity ischemia not amenable to revascularization, and skeletal immaturity. Patient participation in a postoperative rehabilitation program is essential for a successful outcome following

TKA, and an inability to participate may constitute a relative contraindication to this form of treatment. Mortality following TKA is overall low, ranging from 0.5 to 1 percent per year, and is primarily related to preexisting medical comorbidities. Complications associated with TKA include those in common with other surgeries (eg, SSI), as well as those specific to operations involving the knee joint (eg, prosthetic joint infection). Reoperation may be needed for a variety of problems related to TKA (eg, implant wear, aseptic loosening, implant infection, patellofemoral disorders, peri-implant fracture) that may lead to implant/joint failure or patient dissatisfaction. Loosening of the prosthesis and infection are the main reasons for revision. The review also concluded that revision arthroplasty may be needed for a variety of problems related to TKA, including implant wear, aseptic loosening, implant infection, patellofemoral disorders, peri-implant fracture, stating, "(l)oosening of the prosthesis and infection are the main reasons for revision. Males have a higher revision rate, mostly secondary to higher rates of infection. For patients with primary osteoarthritis, the revision rate in Australia is 4.8 percent in 10 years and 8.1 percent at 20 years. Revision rates in patients with rheumatoid arthritis is slightly lower, and for patients with osteonecrosis or other inflammatory arthritis, the revision rate is slightly higher. A large meta-analysis including data from national registries estimated that approximately 82 percent of total knee replacements last 25 years. The longevity of the implant largely reflects the total load that the implant bears over time. In general, younger TKA recipients use their implants at a more active time in their lives. Thus, the devices are much more likely to fail in their lifetime compared with the implant in older TKA recipients. The impact of patient age on the likelihood of needing revision surgery was evaluated in a large population-based study including 54,276 patients aged 50 or older who had undergone a TKA between 1991 and 2011. The lifetime risk of revision surgery in patients who had a TKA over the age of 70 years was approximately 5 percent, with no difference between males and females. However, the lifetime risk of revision increased with decreasing age, with the highest risk of 35 percent observed in males between the ages of 50 and 54. The risk of surgical revision appears to be even higher in patients under the age of 50, suggesting that TKA should be undertaken cautiously in these patients. In another population-based study that included 120,538 patients who had undergone TKAs, almost 5 percent of patients under 50 years old required revision surgery at one year. As with age, underlying disease also plays a role in the longevity of the prosthesis. Rheumatoid arthritis patients are generally less active, placing less of a load on the joint compared with osteoarthritis patients. A survivorship analysis of 11,606 TKAs found that the durability of the prosthesis was shorter in patients with osteoarthritis compared with those with inflammatory arthritis (10-year prosthesis survival of 90 versus 95 percent, respectively). Unicompartmental knee arthroplasty is sometimes performed as an alternative to TKA. Regarding timing of bilateral procedures, the review also states "the optimal period of time to stage bilateral procedures has not been well established. Bilateral simultaneous knee arthroplasty has been associated with an increased risk for complications, and patients should be counseled as such. A meta-analysis demonstrated that simultaneous bilateral knee replacement increased the risk of serious cardiac and pulmonary complications, as well as mortality, compared with staged bilateral or unilateral surgery. Similarly, a retrospective cohort study of a large health care database reported increased rates of PE, stroke, transfusion, and readmission at 90 days among patients with simultaneous bilateral knee replacements versus unilateral knee replacement; it did not evaluate the risk compared with staged bilateral knee replacements. Despite the possible risks of bilateral simultaneous knee arthroscopy, potential advantages include a shorter recovery and faster return to an improved quality of life. Patients who are of younger age with symmetrical end-stage knee osteoarthritis and who are willing to undergo bilateral simultaneous TKA should be counseled regarding the slightly increased mortality risk. Bilateral

simultaneous TKA should only be performed in well-selected patients, using specialized anesthetic techniques, at an institution that is experienced in this type of surgery."

UpToDate review "Overview of surgical therapy of knee and hip osteoarthritis' (Mandl et al, 2025) states, "In the knee, unicompartmental arthroplasty is an alternative to total knee arthroplasty in cases of end-stage OA that are limited to a single compartment. Most unicompartmental arthroplasties involve the medial compartment, although isolated lateral and patellofemoral arthroplasties also may be performed. Compared with patients undergoing total knee arthroplasty, patients with unicompartmental arthroplasty have a quicker recovery, lower risk of complications, and improved range of motion, but also have a higher chance of reoperation. Historically, ideal candidates have been described as having isolated medial compartment disease, age greater than 60 years old, low levels of physical activity, weighing less than 82 kg, having a cumulative angular deformity of less than 15 degrees, both cruciate ligaments intact, a preoperative range of flexion of 90 degrees, a flexion contracture of less than 5 degrees, minimal pain at rest, and no radiographic or intraoperative evidence of chondrocalcinosis or patellofemoral OA. However, many surgeons follow more liberal criteria when considering unicompartmental arthroplasty, and many of the traditional criteria are being expanded. Methods of patient selection are not widely agreed upon but may involve history/physical examination, weightbearing and/or stress radiographs, magnetic resonance imaging (MRI), and arthroscopy. In appropriately selected patients, several studies have reported favorable outcomes, with a reported 10-year survival of greater than 90 percent. A systematic review that included 8658 knees found a 10-year survival of 93 percent and a 15-year survival of 89 percent. The most common causes of revision were lateral disease progression (for medial unicondylar knee arthroplasties), aseptic loosening, bearing dislocation, and pain. The largest randomized trial to compare total versus partial knee replacement included 528 patients with medial compartment knee OA and found similar clinical outcomes, incidence of complications, and revision surgeries at 5 years. However, data from national registries report a higher revision rate for unicompartmental knee replacements compared with total knee replacements, with most estimates being approximately twice as likely for unicompartmental arthroplasties within a 7- to 10-year timeframe. Regardless, the absolute revision rates are relatively low, and unicompartmental knee replacements can be a good choice for carefully selected patients after a complete discussion of the risks and benefits of unicompartmental versus total knee arthroplasty."

POSITION STATEMENT:

Total knee arthroplasty **meets the definition of medical necessity** when one or more of the following criteria are met:

- Failure of a previous osteotomy, **OR**
- Distal femur fracture, **OR**
- Malignancy of the distal femur, proximal tibia, knee joint or adjacent soft tissue, **OR**
- Failure of previous unicompartmental knee replacement, **OR**
- Avascular necrosis of the knee, **OR**
- Proximal tibia fracture, **OR**

- Advanced joint disease demonstrated by radiographic or magnetic resonance imaging (MRI) evidence of subchondral cysts, subchondral sclerosis, periarticular osteophytes, joint subluxation, joint space narrowing, avascular necrosis), **AND**
- Pain or functional disability from injury due to trauma or arthritis of the joint, **AND**
- Failure of at least 3 months of conservative non-surgical management that is clearly documented in the medical record, and includes 1 or more of the following:
    - Anti-inflammatory medications
    - Analgesics
    - Flexibility and muscle strengthening exercises
    - Supervised physical therapy
    - Activity restrictions as is reasonable
    - Assistive device use
    - Weight reduction as appropriate
    - Therapeutic injections into the knee as appropriate
- There are no contraindications* to total knee arthroplasty for any indication above

Revision arthroplasty

Revision arthroplasty **meets the definition of medical necessity** when 1 or more of the following conditions exist:

- Disabling pain or functional disability, **OR**
- Progressive and substantial bone loss, **OR**
- Fracture or dislocation of the patella, **OR**
- Infection, **OR**
- Periprosthetic fracture or aseptic loosening, **OR**
- Failure and wear of the prosthetic components, **OR**
- Dislocation of the knee joint, **OR**
- Instability of the knee joint, **AND**
- There are no contraindications* to revision arthroplasty for any indication above

*Contraindications for total and revision knee arthroplasty:

- Active systemic bacteremia
- Active skin infection or open wound within the planned surgical site of the knee
- Neuropathic arthritis
- Rapidly progressive neurological disease

Unicomparmental knee arthroplasty

Unicompartmental knee arthroplasty **meets the definition of medical necessity** when the following criteria are met:

- Advanced osteoarthritis or posttraumatic arthritis (Kellgren-Lawrence Grade 3 or 4) affecting only a single compartment (medial, lateral or patellofemoral), **AND**
- Crepitus, effusion, or swelling with limited range of motion, **AND**
- Pain and functional disability that interferes with activities of daily living, **AND**
- Total arc of motion by goniometer > 90 degrees, **AND**
- No anterior cruciate ligament instability, **AND**
- Failure of at least of 3 months of conservative non-surgical medical management that is clearly documented in the medical record, and includes all of the following:
    - Activity modification, **AND**
    - Anti-inflammatory medications or analgesics (unless contraindicated), **AND**
    - Supervised physical therapy, **AND**
    - Assistive device use, **AND**
    - Therapeutic injections into the knee (unless contraindicated), **AND**
    - None of the following contraindications for unicompartmental arthroplasty are present:
        - Active systemic bacteremia
        - Tibial or femoral shaft deformity
        - Active skin infection or open wound within the planned surgical site of the knee
        - Radiographic evidence of medial or lateral subluxation
        - Flexion contracture > 15 degrees
        - Rapidly progressive neurological disease
        - Varus deformity > 15 degrees for medial unicompartmental knee arthroplasty
        - Valgus deformity > 20 degrees for lateral unicompartmental knee arthroplasty
        - Inflammatory or neuropathic arthritis
        - Subchondral bone exposure or loss due to subchondral cysts or osteonecrosis

****Kellgren-Lawrence Grading System:**

Grade 0: No radiographic features of osteoarthritis

Grade 1: Possible joint space narrowing and osteophyte formation

Grade 2: Definite osteophyte formation with possible joint space narrowing

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

BILLING/CODING INFORMATION:

CPT Coding

27438	Arthroplasty, patella; with prosthesis
27446	Arthroplasty, knee, condyle and plateau; medial OR lateral compartment
27447	Arthroplasty, knee, condyle and plateau; medial AND lateral compartments with or without patella resurfacing (total knee arthroplasty)
27486	Revision of total knee arthroplasty, with or without allograft; 1 component
27487	Revision of total knee arthroplasty, with or without allograft; femoral and entire tibial component

REIMBURSEMENT INFORMATION:

Refer to section entitled **POSITION STATEMENT**.

PROGRAM EXCEPTIONS:

Federal Employee Program (FEP): Follow FEP guidelines.

State Account Organization (SAO): Follow SAO guidelines.

Medicare Advantage products: The following Local Coverage Determination (LCD) was reviewed on the last guideline review date: Major Joint Replacement (Hip and Knee) (L33618), located at cms.gov.

If this Medical Coverage Guideline contains a step therapy requirement, in compliance with Florida law 627.42393, members or providers may request a step therapy protocol exemption to this requirement if based on medical necessity. The process for requesting a protocol exemption can be found at Coverage Protocol Exemption Request.

DEFINITIONS:

No guideline specific definitions apply.

RELATED GUIDELINES:

Autologous Chondrocyte Implantation (ACI), 02-20000-17

Computer Assisted Musculoskeletal Surgical Navigational Orthopedic Procedure, 02-20000-30

Knee Arthroscopy and Open, Non-Arthroplasty Knee Repair, 02-20000-65

OTHER:

None applicable.

REFERENCES:

1. AHRQ National Guideline Clearinghouse. NGC 108059: American Academy of Orthopaedic Surgeons clinical practice guideline on surgical management of osteoarthritis of the knee. American Academy of Orthopaedic Surgeons. December 4, 2015.
2. Alesi D, Meena A, Fratini S, et al. Total knee arthroplasty in valgus knee deformity: is it still a challenge in 2021? Musculoskelet Surg. 2022 Mar;106(1):1-8. doi: 10.1007/s12306-021-00695-x. Epub 2021 Feb 15.
3. Amit P, Marya SKS. Age-adjusted Charlson comorbidity index as a novel guideline for patient selection between unilateral versus bilateral simultaneous total knee arthroplasty. Arch Orthop Trauma Surg. 2022 Apr;142(4):657-663. doi: 10.1007/s00402-021-03841-z. Epub 2021 Mar 13. PMID: 33713185.
4. Arif MA, Hafeez S. Comparison of Frequency and Morbidity of Unilateral Total Knee Replacement Versus Simultaneous Bilateral Total Knee Replacement. Cureus. 2022 Jan 27;14(1):e21655. doi: 10.7759/cureus.21655.
5. Atik OŞ, Hangody LR, Turan S. Total versus unicompartmental knee arthroplasty. Jt Dis Relat Surg. 2023 Apr 27;34(2):235-236. doi: 10.52312/jdrs.2023.57913.
6. Belmont PJ, et al. Thirty-Day Postoperative Complications and Mortality Following Total Knee Arthroplasty Incidence and Risk Factors Among a National Sample of 15,321 Patients. The Journal of Bone & Joint Surgery 96.1 (2014): 20-26.
7. Centers for Medicare and Medicaid Services (CMS). Local Coverage Determination (LCD): Major Joint Replacement (Hip and Knee) (L33618) (10/01/15) (Revised 01/08/19).
8. Cram P, et al. Total knee arthroplasty volume, utilization, and outcomes among Medicare beneficiaries, 1991-2010. JAMA 308.12 (2012): 1227-1236.
9. Della Valle CJ. (2010). Javad Parvizi, MD. J Am Acad Orthop Surg, 18, 771-772.
10. Fernandes L, et al. EULAR recommendations for the non-pharmacological core management of hip and knee osteoarthritis. Annals of the rheumatic diseases 72.7 (2013): 1125-1135.
11. Gossec L, et al. The role of pain and functional impairment in the decision to recommend total joint replacement in hip and knee osteoarthritis: an international cross-sectional study of 1909 patients. Report of the OARSI-OMERACT Task Force on total joint replacement. Osteoarthritis and Cartilage 19.2 (2011): 147-154.
12. Hannon CP, Goodman SM, Austin MS, Yates A Jr, Guyatt G, Aggarwal VK, Baker JF, Bass P, Bekele DI, Dass D, Ghomrawi HMK, Jevsevar DS, Kwoh CK, Lajam CM, Meng CF, Moreland LW, Suleiman LI, Wolfstadt J, Bartosiak K, Bedard NA, Blevins JL, Cohen-Rosenblum A, Courtney PM, Fernandez-Ruiz R, Gausden EB, Ghosh N, King LK, Meara AS, Mehta B, Mirza R, Rana AJ, Sullivan N, Turgunbaev M, Wysham KD, Yip K, Yue L, Zywiel MG, Russell L, Turner AS, Singh JA. 2023 American College of Rheumatology and American Association of Hip and Knee Surgeons Clinical Practice Guideline for the Optimal Timing of Elective Hip or Knee Arthroplasty for Patients With Symptomatic Moderate-to-Severe Osteoarthritis or Advanced Symptomatic Osteonecrosis With Secondary Arthritis for Whom Nonoperative Therapy Is Ineffective. Arthritis Rheumatol. 2023 Nov;75(11):1877-1888. doi: 10.1002/art.42630. Epub 2023 Sep 25.
13. Hochberg MC, et al. American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee. Arthritis care & research 64.4 (2012): 465-474.
14. Johal S, Nakano N, Baxter M, Hujazi I, Pandit H, Khanduja V. Unicompartmental Knee Arthroplasty: The Past, Current Controversies, and Future Perspectives. J Knee Surg. 2018 Nov;31(10):992-998. doi: 10.1055/s-0038-1625961. Epub 2018 Mar 7.
15. Johnson MA, Barchick SR, Kerbel YE, DeAngelis RD, Velasco B, Nelson CL, Israelite CL. No Difference in Perioperative Complications for Bilateral Total Knee Arthroplasty Staged at 1 Week

Compared With Delayed Staging. J Am Acad Orthop Surg. 2022 Oct 15;30(20):992-998. doi: 10.5435/JAAOS-D-22-00135. Epub 2022 Jun 29. PMID: 35916881.

16. Levy KH, Fusco PJ, Salazar-Restrepo SA, Mathew DM, Pandey R, Ahmed S, Varghese KS, Rogando DO, Ahmed A, Ng MK. Unicompartmental knee arthroplasty revised to total knee arthroplasty versus primary total knee arthroplasty: A meta-analysis of matched studies. Knee. 2023 Dec;45:1-10. doi: 10.1016/j.knee.2023.09.001. Epub 2023 Sep 12. PMID: 37708740.
17. Losina E, et al. The dramatic increase in total knee replacement utilization rates in the United States cannot be fully explained by growth in population size and the obesity epidemic. The Journal of Bone & Joint Surgery 94.3 (2012): 201-207.
18. Prakash R, Agrawal Y. Robotic technology in total knee arthroplasty. Br J Hosp Med (Lond). 2023 Jun 2;84(6):1-9. doi: 10.12968/hmed.2022.0491. Epub 2023 Jun 23.
19. Raffaelli A, Lévy Y, Boileau P, Trojani C. Same-day bilateral total knee replacement versus unilateral total knee replacement: A comparative study. Orthop Traumatol Surg Res. 2022 May 1:103301. doi: 10.1016/j.otsr.2022.103301. Epub ahead of print. PMID: 35508293.
20. Rovňák M, Hrubina M, Šiarnik P, Sýkora J, Melišík M, Nečas L. Bilateral versus unilateral total knee replacement - comparison of clinical and functional results in two-year follow-up. Rozhl Chir. 2022 Summer;101(6):278-283. English. doi: 10.33699/PIS.2022.101.6.277-282. PMID: 35973823.
21. Thomsen MG, et al. Indications for knee arthroplasty have remained consistent over time. Dan Med J 59 (2012): A4492.
22. UpToDate. Overview of surgical therapy of knee and hip osteoarthritis. 2025. Accessed at uptodate.com.
23. UpToDate. Total knee arthroplasty. 2025. Accessed at uptodate.com.

COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy and Coverage Committee on 04/24/25.

GUIDELINE UPDATE INFORMATION:

10/15/16	New Medical Coverage Guideline.
04/15/17	Revision: updated criteria for total knee arthroplasty; unicompartmental knee arthroplasty (UKA) (partial arthroplasty, hemiarthroplasty, unicondylar knee arthroplasty, and bicondylar knee arthroplasty); and revision arthroplasty. Updated references.
07/15/18	Scheduled review. Revised description. Added general criteria for elective knee arthroplasty. Revised criteria for total knee arthroplasty and revision arthroplasty; separated UKA/PKA criteria into medial/lateral and patellofemoral. Deleted references to “computer-navigated instrumentation”, “patient-specific instrumentation”, and gender-specific instrumentation”. Updated references.
07/15/19	Scheduled review. Revised TKA and TKA revision criteria. Updated references.
08/15/19	Revision. Deleted extreme morbid obesity (BMI > 40) as a contraindication for TKA.
07/15/20	Scheduled review. Revised position statement and CPT coding. Updated references.
05/15/21	Scheduled review. Revised relative contraindications for TKA; revised criteria for UKA and revision arthroplasty. Updated references.
12/15/22	Revision: Deleted statement regarding simultaneous bilateral total knee arthroplasty.

06/10/23	Scheduled review. Revised description, position statement, and references.
06/15/24	Scheduled review. Revised description. Maintained position statement and updated references.
05/15/25	Scheduled review. Revised description, maintained position statement and updated references.